

# NEW MEXICO STATE UNIVERSITY UNDERGRADUATE CATALOG 2016-2017

---

**Academic programs at New Mexico State University are available to all students without regard to age, ancestry, color, disability, gender, national origin, race, religion, sexual orientation or veteran status.**

**Any item in this catalog is subject to modification at any time by proper administrative procedure.**

**Catalog effective summer 2016 through spring semester 2022.**

**The NMSU Undergraduate Catalog is available online at [www.nmsu.edu](http://www.nmsu.edu).**

**Catalog Editor:** *Kori Keyes*

**Graduate Assistant:** *Hayley Ellisor*

# ADMINISTRATION

---

## CHANCELLOR

---

**Garrey E. Carruthers**, Chancellor

## BOARD OF REGENTS

---

**Susana Martinez**, Governor of New Mexico, Ex Officio Regent from Santa Fe.

**Amanda Lopez Askin**, Appointed Regent from Las Cruces for term expiring December 31, 2016. (Student Regent)

**Debra Hicks**, Appointed Regent from Hobbs for term expiring December 31, 2020.

**Jerean Hutchinson**, Appointed Regent from Las Cruces for term expiring December 31, 2020.

**Kari Mitchell**, Appointed Regent from Las Cruces for term expiring December 31, 2018.

**Mike Cheney**, Appointed Regent from Las Cruces for term expiring December 31, 2016.

## PROVOST/ACADEMIC

---

**Howard, Daniel J.**, Executive VP & Provost

**Fant, Gregory**, Associate VP & Deputy Provost.

## VICE PRESIDENTS/VICE PROVOSTS

---

**Boberg, Kevin B.**, VP Economic Development

**Chaitanya, Vimal**, VP Research

**Menking, Cornell H.**, Associate Provost International & Border Programs

**Montoya, Bernadette R.**, VP Student Affairs/Enrollment Management

**Tawney, Andrea**, VP University Advancement

**Throneberry, Angela M.**, Sr. VP Administration & Finance

## DEANS

---

**Chaiken, Miriam**, Dean, Honors Program and Crimson Scholars

**Hoffman, James**, Dean, Business College

**Libbin, James**, Interim Dean, Agricultural, Consumer and Environmental Sciences College

**Pontelli, Enrico.**, Interim Dean, Arts and Sciences College

**Pope-Davis, Donald B.**, Dean, Education College

**Stochaj, Steven**, Interim Dean, Engineering College

**Reyes, Loui**, Dean, Graduate School

**Titus, Elizabeth A.**, Dean, Library

**Wagner, Donna**, Dean, Health and Social Services College

## COMMUNITY COLLEGE CAMPUSES ADMINISTRATION

---

### ALAMOGORDO

**Van Winkle, Kenneth**, Campus President

**Cal, Mark P.**, Interim VP Academic Affairs

**Garcia, Juan B.**, VP Student Success

**Salinas, Antonio A.**, VP Business & Finance

### CARLSBAD

**Gratton, John B.**, Campus President

**Baca, Jeannie**, VP Student Services

**Nwanne, Andrew I.**, Chief Academic Officer

**Yanke, Gaylyn**, VP Business & Finance

### DOÑA ANA

**Scott, Renay M.**, Campus President

**Brooks, Kelly**, VP Business & Finance

**Ledesma, Amadeo "Ike,"** VP Student Services

**Torres, Monica F.**, VP Academic Affairs

### GRANTS

**Sheski, Harry**, Interim Campus President;

**Armstead, Beth**, VP Student Services

**Serban, William**, Interim VP Academic Affairs

# GENERAL INFORMATION

## THE UNIVERSITY

New Mexico State University (NMSU) was founded in 1888 as the state's land-grant university. Through serving the educational needs of New Mexico's diverse population, NMSU has provided comprehensive programs of education, research, extension education and public service. Upon its founding, NMSU was known as Las Cruces College and later renamed New Mexico College of Agriculture and Mechanic Arts. In 1960, the constitution of New Mexico formally recognized the institution as NMSU. Today, NMSU is a major institution of higher education. Throughout its history, the university has preserved many traditions of its land-grant origin while also increasing emphasis on the fine arts, humanities, social and natural sciences.

### ACCREDITATION

New Mexico State University has been accredited since 1926 by The Higher Learning Commission and is a member of the North Central Association. (NCA may be contacted at 30 North LaSalle St., Suite 2400, Chicago, IL 60602-2504 and (800) 621-7440.) The university was accredited in 1954 by the American Association of University Women.

In addition, the Student Affairs and Enrollment Management division has two accredited departments. The Counseling Center is fully accredited by the International Association of Counseling Services (IACS), and the Student Health Center is accredited by the Accreditation Association for Ambulatory Health Care (AAAHC).

Various academic departments and programs are accredited separately by independent accreditation agencies. These may be found at the beginning of each college section.

## ADMISSIONS

A student may be accepted for undergraduate admission to NMSU as either:

- A degree-seeking student or
- A nondegree student under the policies and conditions as set forth in this section.

### REGULAR ADMISSION DOMESTIC STUDENTS

Requirements for admission as a regular student include the following:

- A formal application for admission, accompanied by a one-time \$20 nonrefundable application fee.
- An official transcript with the student's high school credits is to be sent directly from the high school to the Undergraduate Admissions Office. Students who attended a college or university while in high school must request to have those official transcripts(s) forwarded directly to the Undergraduate Admissions Office by the Registrar of each college or any post-secondary educational institution previously attended.
- Official results of the American College Testing Program (ACT) or Scholastic Aptitude Test (SAT) are to be sent directly from the Testing Centers of the Undergraduate Admissions Office. All freshman applicants are required to submit scores from either the ACT or the SAT before a final admission is granted.

Qualifications for undergraduate admissions to NMSU are as follows:

- Graduation from any state high school or academy in the United States accredited by a regional accrediting association or approved by a state department of education or state universities.

Students must meet one of the criteria below and meet the minimum high school requirements listed in order to be admitted:

- Cumulative high school grade point average of at least 2.75
- Ranked in the top 20% of their graduating class
- ACT composite score of 21 or SAT composite score of 990

Minimum high school requirements:

English	4 units*
Science	2 units beyond general science
Mathematics	4 units**
Foreign language or fine arts	1 unit

\*Must include at least 2 units of writing-intensive courses one of which must be a junior or senior-level course.

\*\*Completion of Algebra 1, Geometry, Algebra 2, and one additional math course.

When reviewing a student's application, we consider many factors, including: high school GPA, test scores, dual credit coursework, leadership experience, community involvement and other accomplishments. Applicants may be asked for additional information, including academic letters of recommendation to support their application.

### HOME SCHOOL STUDENTS

Students enrolled in a home school program may be accepted to NMSU if they meet the requirements for regular admission as previously stated. In addition, the home school educator must submit a signed transcript or document that lists the courses completed and grades earned by the student, as well as, indicate the date the student completed or graduated from the home school program. Home school students who are New Mexico residents and wish to participate in the Lottery Success Scholarship program are required to submit official New Mexico GED or HiSET test results in English.

### ADMISSION BY GED OR HISET

Any student that has successfully completed the General Education Development (GED) test or HiSET test can be considered for admission. Satisfactory scores either the GED or HiSet tests and the American College Program (ACT) test are required; as well as, a review of minimum high school unit requirements.

Students must complete the GED and HiSET in English. Students are required to submit an official high school transcript showing the student's academic progress prior to the completion of the GED or HiSET, along with the GED or HiSET scores.

### PROVISIONAL ADMISSION

A provisional student in his/her semester, earning less than a 2.0 grade-point average, but more than a 1.0 grade-point average in at least the minimum number of credits as stated above, may continue for one additional semester. However, a provisional student who fails to attain a 2.0 grade-point average during their second semester will be denied further attendance. Students who are denied further attendance may reapply to NMSU after they have completed a minimum of 24 credits with a 2.0 GPA at another regionally accepted institution.

### AGGIE PATHWAYS

Applicants who do not meet NMSU–Las Cruces campus admission requirements may apply to participate in the Aggie Pathway to the baccalaureate program at any of the NMSU community colleges. Aggie Pathway students may transition to the NMSU–Las Cruces campus after successful completion of any required developmental education courses and 24 degree credits with a 2.5 cumulative college GPA. Then he/she will follow an individualized study plan developed in partnership with an academic advisor. The plan typically includes study skills courses, developmental education courses and/or general education courses.

Aggie Pathway students enrolling through NMSU–Dona Ana have access to NMSU–Las Cruces on-campus housing, dining, and activities. For more information, go to <http://aggiepathways.nmsu.edu>, or call 575-646-8011.

### DUAL CREDIT FOR HIGH SCHOOL STUDENTS

The Dual Credit Program is designed to give high school students an opportunity to enroll at NMSU prior to high school graduation. Students must be either a junior or senior in high school and enrolled in one-half or more of the minimum course requirements approved by the following:

- Public Education Department in a New Mexico public school district;
- Locally chartered and state chartered charter school;
- State-supported school;
- Be in physical attendance at a bureau of Indian education-funded high school at least three documented contact hours per day.

Under Senate Bill 158 signed by the Governor and effective July 1, 2014, support for dual credit privileges at post-secondary institutions is now available for private and home school-eligible students. Under a Statewide Dual Credit Master Agreement between NMSU and the school district, students enrolled in approved dual credit courses are eligible to have the full cost of tuition and general fees waived.

Dual credit students must complete: the Undergraduate Admission Application; provide official high school transcript and official ACT or SAT scores to the Undergraduate Admissions Office; and complete the State of New Mexico Dual Credit Request Form. Requirements to be admitted to the dual credit or early admission programs are high school grade point average (GPA) of 3.0 and an ACT composite of 23 or equivalent SAT score and substantial progress toward completion of the following high school courses: 4 units of English, 4 units of Math (Algebra 1, Geometry, Algebra 2, and one additional math course), 2 units of Science (beyond General Science), 1 unit of foreign language or a unit of fine arts.

### READMISSION (DEGREE SEEKING)

Former students of the NMSU system, who have been out of school for more than two consecutive semesters are required to make a formal application for readmission. Applications should be submitted to the Undergraduate Admissions Office at least 30 days before the opening of the semester or summer sessions for which the student plans to enroll.

A student who have attended other institutions during an absence must have official transcripts forwarded directly to the Undergraduate Admissions Office by the Registrar of each institution and must be eligible to return to the college or university last attended. Transcripts must be received prior to the date of registration. Admission status at the time of readmission will normally be determined by previous NMSU academic standing. However, academic performance at other institutions attended during the applicant's absence from NMSU may be taken into consideration in determining the student's admission status.

### NONDEGREE ADMISSION

Nondegree admission is designed to meet the needs of non-traditional, part-time students who do not wish to pursue a degree at this university. Courses taken in this status may not be used to meet university admission requirements. Students interested in using nondegree credit for initial teacher certification or certification in a new field need to contact the College of Education. Also students who wish to take a course without receiving a grade may choose to audit courses with the consent of the instructor, provided the facilities are not required for regular students.

Students on nondegree status are ineligible to receive financial aid or student employment; and are ineligible to participate in student government or intercollegiate athletics. They are also ineligible to receive benefits from any veterans' program.

Transcripts from previous institutions, high school, and/or results of college entrance exams may be required to assure readiness for university-level courses. A \$20 one-time, non-refundable, nondegree application fee is required.

Nondegree students are subject to the same university regulations as regular students.

### Changing from Nondegree Status

A nondegree student in good academic standing at NMSU must submit a formal application for a change of status from nondegree to degree seeking. Requirements for regular admission must be met. Nondegree students may not transfer more than 30 credits from this status to any undergraduate degree program with the exception of students participating in a high school concurrent enrollment program.

### NEW STUDENT ORIENTATION

At New Student Orientation events students will attend information sessions, meet with an academic advisor and register for classes. Students will also learn more about college life and campus resources.

For information, please contact the Aggie Welcome and Orientation Office at (575) 646-4496 or (575) 646-8038 and can be reached via email at [awo@nmsu.edu](mailto:awo@nmsu.edu) or <http://awo.nmsu.edu/>.

### WESTERN UNDERGRADUATE EXCHANGE PROGRAM (WUE)

The Western Undergraduate Exchange Program (WUE) offers U.S. Citizen or permanent resident and nonresidents of New Mexico a reduced tuition rate. Students from participating WUE states, who are eligible for regular admission to NMSU, will be charged 100% regular resident tuition rate, plus any fees that all students are required to pay. WUE states include Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, North Dakota, Oregon, South Dakota, Utah, Washington, Wyoming and the Commonwealth of the Northern Mariana Islands. Students must be classified as degree-seeking students at the NMSU - Las Cruces campus and be in good academic standing.

### APPLICATION MATERIALS

All documents submitted as part of the official admissions process become property of NMSU and will not be returned to the student. Application materials are retained for one calendar year for students who apply but do not attend.

### APPLICATION DEADLINES

Applications for admission should be sent to the Undergraduate Admissions Office at least 30 days before the beginning of the regular semester or summer sessions in which the student intends to enroll. The deadline for application to NMSU's Nursing Program is February 1st for the fall semester and September 1st for the Spring semester.

### OUT-OF-STATE STUDENTS AND LEGAL JURISDICTION

By applying for admission/enrollment, both the student and parents agree that New Mexico law prevails and all litigation will be in federal court in New Mexico or in state court in Doña Ana County, New Mexico.

### NMSU GRADUATION AND RETENTION RATES

These rates may be found on the NMSU Institutional Research web site at: <http://oia.nmsu.edu/data-reports/oireports/>.

### CONTACT INFORMATION

For more information, contact the Undergraduate Admissions Office, MSC 3A; New Mexico State University; PO Box 30001, Las Cruces, NM 88003-8001 (575) 646-3121; <http://admissions.nmsu.edu/>

## TRANSFER STUDENTS

Transfer students from other colleges or universities may be accepted for undergraduate studies if they have completed at least 36 college credit hours with a cumulative GPA of at least 2.0. Students who have earned 35 or fewer college credits must fulfill the freshman admission requirements and have at least a 2.75 overall grade point average in college.

### COMMUNITY/JUNIOR COLLEGE TRANSFERS

Community/Junior college transfer students may be admitted and classified on the basis of acceptable credits earned at a two-year institution. However, transfer students are subject to the same graduation requirements as all NMSU

baccalaureate seeking students. This includes the required minimum number of 48 upper division credits from courses numbered 300 or above and the requirement that the last 30 credits must be earned through this university.

### TRANSCRIPTS

A transfer student must have official transcripts forwarded directly to the Admissions Office by the Registrar of each college or educational institution previously attended. The ACT or SAT may be required of students who have not earned credit for the first semester of college English. A student who conceals the fact that he/she has attended another college or university, and who has not had the Registrar submit a transcript for each institution whether or not credit was earned, will be subject to immediate suspension. Transcripts must be received before the date of registration. NMSU will uphold academic and judicial suspensions from other colleges and universities.

### TRANSFER OF CREDITS AT NMSU

NMSU evaluates courses from postsecondary institutions that are regionally accredited or are candidates for regional accreditation. Provided the classes taken are similar or equivalent to courses offered at NMSU, credits will be matched for coursework completed with a grade of D or better. However, colleges or departments may choose to accept only courses graded C- or higher within their programs. Each college determines which transferred courses are applicable toward a degree or a minor. Grades earned in courses taken at other institutions are not included in the calculation of the NMSU GPA, except for grades earned by approved National Student Exchange students.

Any lower-division course from another institution receiving transfer credit from NMSU at the 300 or above level will be evaluated on a case-by-case basis. Transcripts may need to be reevaluated when students transfer from one NMSU college to another.

Currently enrolled students who do not receive a passing grade for a class taken at NMSU can receive transfer credit for the course taken at an outside institution. However, the student may not receive the credit for the equivalent NMSU course.

### EVALUATION OF TRANSFER CREDITS

Once a student has been admitted to NMSU, an evaluation of credits on a course-by-course basis is submitted to the college (by the University Registrar's Office) to which the student is admitted. The student's academic dean approves which transfer courses are acceptable toward a degree or a minor.

Credits from non-accredited institutions may be evaluated by the student's academic dean after the student has completed two semesters in full-time status with satisfactory grades.

Currently enrolled students must obtain prior approval from their academic dean before work taken at another institution may apply toward meeting graduation requirements.

### TRANSFERRING COURSES TO FULFILL THE NEW MEXICO GENERAL EDUCATION COMMON CORE

During the 2005 New Mexico Legislative session, Senate Bill 161, consistent with requirements of state law (Chapter 224 of the Laws of New Mexico, 1995 as amended) was signed into law to further enhance and facilitate the articulation of general education courses among New Mexico's colleges and universities. In accordance with policies established by the New Mexico Higher Education Department, designated general education core courses successfully completed at any regionally accredited public institution of higher education in New Mexico are guaranteed to transfer to any New Mexico public institution. Students who have decided on a major and/or an institution at which to complete their studies should consult with an academic advisor at that particular institution to determine the most appropriate course selections. Students enrolling for the first year of study at a New Mexico college or university and considering possible transfer into a certificate and/or degree program at another institution are encouraged to take the courses approved for transfer during their freshman and sophomore year of study.

The core matrix of approved courses guaranteed to transfer and meet general education requirements at any New Mexico college or university can be found on the New Mexico Higher Education Department web site at: [www.hed.state.nm.us](http://www.hed.state.nm.us). Courses are listed by institution, whether university or community college, under each of the five general education areas. The courses

for New Mexico State University are listed in the required courses section of this catalog.

### TRANSFERRING COURSES WITHIN DEGREE PROGRAMS

To facilitate the transfer of courses within certain degree programs, New Mexico colleges and universities have collaborated to develop transferable discipline modules. These are made up of an agreed upon number of hours and courses. When discipline module courses are taken in addition to the 35 hour general education core, the total number of hours in a transfer module are approximately 64.

For information on the transferable discipline module for Business, see the College of Business chapter. For information on the transferable discipline module for Early Childhood Education, see the College of Education chapter. Information on all available statewide transfer modules can be found on the New Mexico Higher Education Department web site at [www.hed.state.nm.us](http://www.hed.state.nm.us).

### RELIGIOUS CENTER COURSES IN RELIGION

Courses in religion, offered by the various religious centers through higher educational institutions with which they are affiliated, are open to all students, and these or similar courses from other universities may be transferred for credit to this university. Registration for these courses in religion is separate from NMSU's registration and is conducted by the religious center offering the course.

No more than 6 credits in such courses may be transferred to NMSU. If a student wishes to have earned credits transferred to NMSU, the following procedures must be observed:

- Obtain written approval from the academic dean prior to registration for the course at the religious center
- Count the credit in the course as part of the total semester load
- Following completion of the course, request that the institution granting the credit send a transcript of the credit to the registrar at NMSU

### NATIONAL STUDENT EXCHANGE (NSE)

Courses transferred back to NMSU by students participating in the National Student Exchange (NSE) Program will be evaluated as NMSU courses and recorded on the student's academic record. All computable grades earned will be included in calculating the student's cumulative grade point average.

### TRANSFER CREDIT APPEAL PROCESS

All New Mexico public post-secondary institutions are required to establish policies and practices for receiving and resolving complaints from students or from other complainants regarding the transfer of coursework from other public institutions in the state. A copy of NMSU's transfer credit policy may be obtained from the University Registrar's Office or from the Deputy Secretary for Academic Affairs, Higher Education Department, 2048 Galisteo St., Santa Fe, New Mexico 87505-2100.

### STUDENT RESPONSIBILITY

Planning for effective transfer with maximum efficiency is ultimately the student's responsibility. Responsible transfer planning includes early and regular consultation with the intended degree-granting institution to assure that all pre-transfer coursework will meet the requirements of the desired degree.

## INTERNATIONAL STUDENTS

The general policies of the university as outlined in this catalog apply to international as well as domestic students. However, some special policies are required by federal laws applicable only to international students.

An international student is any individual attending NMSU while present in the United States on a non-immigrant student visa. Legal immigrants or refugees must present documentation of their status either to University Admissions or to the International Student & Scholar Services (ISSS) Office.

## U.S. CITIZENSHIP AND IMMIGRATION SERVICES (USCIS)

The United States Department of Homeland Security has established rules for students in non-immigrant status, such as those with F-1 or J-1 visa types. Some of these rules include:

1. Each student must maintain full-time student status for both the fall and spring semesters.
2. International students may not work off campus without authorization. On-campus employment may be authorized under certain conditions.
3. All international students must maintain an up-to-date record in the ISSS Office. This record must indicate the student's current living address and local phone number.
4. Prior to admission, a prospective international student must demonstrate the following:
  - Academic ability to succeed in the chosen course of study
  - Adequate financial support to complete the chosen course of study
  - Adequate command of the English language to maintain legal status as a full-time student for the fall and spring semesters.

## UNIVERSITY PROCEDURES FOR INTERNATIONAL STUDENTS

### Regular Undergraduate Admission and English Requirements

After regular and full admission to an NMSU degree program, each international undergraduate student is administered an English Language Proficiency Test (ELPT). Based on the results, the student is either assigned to SPCD 110 (a bridge course designed to ensure success in ENGL 111M), or allowed to enroll directly into ENGL 111M. International students excused from SPCD 111G will be required to take ENGL 111G, including students whose native language is English. The student may then be required to complete one or more regular English classes as required for a particular degree. Completion of basic English courses at other U.S. institutions does not automatically satisfy this requirement. Equivalencies for SPCD 110 is determined by CELP, and equivalencies for ENGL 111M and ENGL 111G are determined by the English department.

Students who fail to achieve an adequate score on the ELPT may be denied admission into their program of study and will not be allowed to continue their study in a degree program at New Mexico State University. The Center for English Language Programs (CELP) and the English Department reserve the right to require additional testing for any student completing the ELPT for verification of language proficiency. Students required to complete additional testing will be handled on a case-by-case basis. All additional testing will be completed via Institutional TOEFL (pBT).

### English Language Proficiency

NMSU requires a score of 520 paper-based or 68 internet-based or better on the Test of English as a Foreign Language (TOEFL), or a score of 6.0 on the International English Language Testing System (IELTS), for all international students, both nondegree and degree seeking. International students may also demonstrate English proficiency by satisfactorily completing NMSU's Center for English Language Programs (CELP) programs. A waiver of the TOEFL requirement may be considered for:

1. Students who are native speakers of English.
2. Students completing high school in the United States who (a) have attended the high school for at least two full semesters and (b) have scored in at least the 75th percentile in English on the ACT.
3. Students transferring from a junior college, or university in the United States who have earned a minimum of 30 acceptable semester credits (45 acceptable quarter credits) with a GPA of 2.0 or better (acceptable credit means classes that require a high proficiency in both written and oral English).
4. Students demonstrating English-language proficiency using methods accepted by the Undergraduate Admissions Office.
5. Students enrolling in certain programs where English language proficiency is not required.
6. Students completing coursework in CELP. Satisfactory completion requires a final grade of no less than 70% in all courses.  
Visit <http://celp.nmsu.edu/> for full details.

The university reserves the right to require any prospective international student to meet the TOEFL requirement.

### Conditional CELP Admission and English Requirements

NMSU, via CELP, conducts an Intensive English Language Program (IELP) for undergraduate and graduate students prior to pursuing their degree programs at NMSU. Subject to all other admission requirements, international students in this program are admitted to the university for the sole purpose of studying English, with a guarantee of full admission to the university upon completion of the CELP program. Only undergraduate students who are conditionally admitted and complete the full sequence of IELP courses will be admitted directly into ENGL 111M. Placing out of levels by retaking the TOEFL is not allowable once conditional admission status has been granted. Visit <http://celp.nmsu.edu/> for full details.

### Financial Support

No financial aid is available from NMSU for international students. The university reserves the right to require advance deposit of funds for any period deemed reasonable prior to granting admission. An international student can never qualify for residency and must pay nonresident fees. Each prospective international student must submit a current financial support document with his/her application. This document must show that:

1. The person providing the financial support has the necessary funds.
2. The funds can be transferred from the student's home country to the United States.

### Admission Restrictions

International student admission may be prohibited based on one of the following conditions:

1. The dean of a chosen college and the department head of a chosen major or the President of a Community College campus may refuse to grant admission.
2. There may be a disproportionate number of international students or a disproportionate number of a particular nationality in one department, college or community college.
3. Academic advisors may not be available.
4. International students may be nondegree if admitted as exchange students, or as part of a special program, or as holders of visas that allow incidental studies related to their current non-immigrant status. (e.g., J-2 or H-1B).
5. Non-native speakers of English are not normally admitted, or allowed to begin studies, in the summer sessions. There are some exceptions such as students admitted to NMSU's Center for English Language Programs (CELP).
6. University Community College campuses reserve the right to refuse admission to international students if the necessary immigration and English-language support services are not available.

All application material, including the application for admission, letters of recommendation, transcripts or national examination scores and/or transcripts from colleges or universities (with an English translation), test scores including the TOEFL or IELTS, should be sent to the University Admissions Office by the following recommended dates. Proof of adequate financial support should be sent directly to International Student & Scholar Services.

March 1*	for fall semester
October 1*	for spring semester

\*Contact the academic department for specific deadlines. Contact the Office of Study Abroad for exchange program admission deadlines.

### Miscellaneous Regulations

1. All international students are required to have coverage at the Student Health Center except when the Las Cruces campus Student Health Center is not available to them.
2. All international students are required to purchase health insurance at the Student Health Center. Exceptions for alternate health insurance plans must be pre-approved by the ISSS Office. Students without insurance will not be allowed to register.
3. New international students are not permitted to register until all ISSS requirements are met, including attending orientation and taking the English Language Placement Test. All international students, are

therefore, required to report to the office to which they were admitted. The following are the offices that a student may need to report to:

- Las Cruces campus: International Student & Scholar Services, Garcia Annex, room 246 (exchange students need to report to the Office of Study Abroad)
- Doña Ana Community College: International Student & Scholar Services, Garcia Annex, room 246 (exchange students need to report to the Office of Study Abroad)
- Alamogordo Community College: Office of Student Services, Student Services Building, second floor
- Carlsbad Community College: Office of Student Services, 150 University Drive, Room 111
- Grants Community College: Office of Student Services, Walter Martinez Building, Main Office Complex

4. Undergraduate students are required to carry at least 12 credits per semester. Students in nondegree exchange J-1 visa status must be engaged full time in a prescribed course of study as determined by the NMSU Responsible or Alternate Responsible Officer (RO/ARO).

## TUITION, FEES AND OTHER EXPENSES

All costs are given for one term/semester. The university reserves the right to change any of the charges without notice.

### UNDERGRADUATE TUITION AND REQUIRED FEES

All Terms	Undergraduate New Mexico Residents	Undergraduate Non-Residents
15+ credits	\$3,364.50	\$10,617.00
7-14 credits, per credit	253.90	818.80
1-6 credits, per credit	253.90	253.90

### ADDITIONAL FEES

Undergraduate admission application fee	\$20.00
New student orientation fee	40.00
International student admission application fee	50.00
International student orientation fee	50.00
Course Delivery Fee (per credit)	35.00
ASNMSU Fee (Fall/ Spring 1-11 credit enrollment)	33.50
ASNMSU Fee (Summer 1-8 credit enrollment)	12.40
Course examination fee (per credit)	253.90
Certificate degree fee	25.00
Bachelor or Associate degree fee	25.00
Master or Doctorate degree fee	35.00
Degree application late filing fee	25.00
Late Registration Fee Base Cost	25.00
Engineering Technology Fee	145.00

### COURSE FEES (FEES ASSESSED PER COURSE)

See the Course Fee page for a list of courses with additional fees. Applied Music courses - see Music section of catalog

### MANDATORY INTERNATIONAL STUDENT FEES

All international students are required to have health insurance coverage. International student health insurance is provided by HTH Worldwide unless otherwise covered by comparable health and accident insurance approved by the International Student Services. International students will be required to purchase health insurance for spring and summer during spring registration unless they have applied for spring graduation. (See optional fees) All international undergraduate students will be assessed a \$36 International Student Program Fee each semester.

### OPTIONAL FEES

#### Wellness/Fitness Fee - Rates may increase for 2016-2017

The Wellness/Fitness fee is included in tuition for full-time students at the Las Cruces Campus. Options for part-time students enrolled at Las Cruces Campus include:

	Wellness	Fitness
Term pass for student enrolled in 6-11 credits	\$79.00	\$40.00
Term pass for student enrolled in 1-5 credits	105.00	53.00
Single visit for student enrolled in 1-11 credits	35.00	5.00

The Wellness fee grants access to the Student Health Center with charges accruing for medications, lab work, testing or procedures. The Fitness fee grants access to the Student Activity Center.

#### Health Insurance

Students who have access to the Campus Health Center may choose to purchase a commercial insurance policy offered through the Health Insurance Marketplaces established by the Affordable Care Act (ACT). These exchanges are intended to provide consumers with a new way to shop for, compare costs and coverage benefits, and enroll in insurance coverage. For more information visit: [www.healthcare.gov](http://www.healthcare.gov) or [www.bewellnm.com](http://www.bewellnm.com)

#### Housing Services

See the Students (p. 11)Resources section for room descriptions, accommodations, application process, deposit requirement, regulations and eligibility.

For current rate information, please visit our website at: <http://housing.nmsu.edu/>.

#### Dining Services

See Housing and Residential Life section for meal plan descriptions, application process, deposit requirement, regulations and eligibility. Freshmen living on campus must choose between Aggie Unlimited and Aggie Choice Plans.

	Fall/Spring	Summer
Aggie Unlimited (unlimited entrances + 100 Aggie Dining \$)	\$1,846.00	n/a
Aggie Choice (230 entrances + 325 Aggie Dining \$)	1,796.00	n/a
Aggie 64 (64 entrances + 325 Aggie Dining \$)	869.00	n/a
Pistol 400 (0 entrances + 400 Aggie Dining \$)	400.00	n/a
Family Resident Optimum 350 (350 entrances)	1,349.00	n/a
Family Resident Optimum 250 (250 entrances)	964.00	n/a

### PAYMENT OF CHARGES

By enrolling in classes at NMSU, a student makes a financial commitment to pay the tuition and fee charges associated with his/her enrollment. The enrollment action constitutes a financial obligation between the student and NMSU and all proceeds of this agreement will be used for education purposes and constitutes an education loan pursuant to 11 U.S.C 523(a) (8). Terms and Conditions of Course Registration are posted on the NMSU website and available in each term's registration guide. Payments can be made by mail, web, telephone, or in person at University Accounts Receivable. Cash, checks, money orders and limited types of credit cards are accepted. Term charges can be paid in full or paid by using a payment plan. For payment plan options visit the NMSU website. Fees vary based

on the plan. All financial aid received must be paid towards balances owed. Additional penalty charges may be assessed for failure to make payments when due. The University reserves the right to deny a payment plan to any student who has a poor credit rating or who has been negligent in making payments to the University for previous debts. Course enrollment may be cancelled if payment arrangements for past due dates are not completed by the deadlines as outlined on the Important Dates website. Academic credits, transcripts, and diplomas will be withheld until all financial obligations are paid in full. Students are prohibited from registering for a term/semester until all previous debts due to the University are paid in full.

#### **Tuition Adjustments, Refunds and Forfeitures**

Students officially withdrawing from all courses or dropping a course(s) during a semester or term are eligible for a 100-percent refund of tuition and fees through the deadlines listed online as outlined on the Important Dates for each term. Students withdrawing from a course(s) after that deadline will not be eligible for a refund and will remain liable for payment of full tuition and fee charges. Non-attendance does not constitute an official course drop or withdrawal. It is the student's responsibility to withdraw from the university and/or drop a course if he/she decides to not attend once enrollment has taken place. All charges due to NMSU must be paid before refunds or adjustments will be permitted.

In cases of academic or disciplinary suspension, eligibility for tuition refunds and adjustments will depend on the conditions of the suspension and will be entirely at the option of the institution. Should unforeseen circumstances beyond the reasonable control of New Mexico State University result in curtailing classes, closing residence facilities, or otherwise withdrawing services that are a normal function of the institution, refunds of any nature will be at the discretion of the college/ university administration.

Residence hall rentals and dining hall charges may be refunded in accordance with schedules adopted by these departments.

#### **Delinquent and Prior-Term Balances**

NMSU reserves the right to cancel the registration of any student who fails to pay, when due, any indebtedness to the institution.

Academic credits, transcripts, and diplomas will be withheld until all financial obligations are paid in full.

#### **Dishonored Financial Transactions- Checks, Credit Cards, ACH Transactions**

The University charges a penalty on all dishonored cash instruments. Personal checks will not be accepted from students who have had previously dishonored checks.

#### **Late Registration Fee**

A late registration fee of \$25 is imposed if registration has not been completed before the late-registration period begins. Failure to make scheduled payments with the University Accounts Receivable on due dates may result in additional liability.

#### **ESTIMATING OTHER EXPENSES**

In addition to the direct costs stated above, other expenses per semester may include such items as textbooks and supplies (estimated at \$300) and personal expenses (estimated at \$460).

#### **COOPERATIVE EDUCATION**

Students participating in the Cooperative Education Program who receive academic credit pay the same tuition and fees as regularly enrolled students. Work phase students who are assigned to campus or a nearby off-campus workstation may pay for the student wellness/fitness as if they were a part-time student enrolled in 1-5 credits.

#### **RESIDENT/NONRESIDENT STATUS**

Resident or nonresident status is determined in accordance to a uniform definition established for all New Mexico institutions by the Higher Education Department, State of New Mexico. The NMSU Registrar's Office administers residency. Information on the following programs may be obtained from the University Admissions, the University Financial Aid and Scholarship Services, the NM Administrative Code (NMAC) 5.7.18.

- American Indian Agreement
- Athletic Grant

- Colorado-Arizona Reciprocal Agreement
- Dual Credit
- Fire Fighter and Peace Officer Survivor Scholarship
- Foreign Military Dependent
- Foreign Military Spouse
- Foreign Military Stationed in New Mexico
- Graduate Assistantship
- Immigrant Student (NM HS GRAD)
- Military Dependent
- Military Spouse
- Military Stationed in New Mexico
- NM Competitive Scholarship
- Part-time Students
- Senior Citizen Waiver
- Summer Session
- Texas 135
- Veteran Waiver
- Western Undergraduate Exchange
- WICHE/WUE

#### **CONTACT INFORMATION**

For more information, contact University Accounts Receivable at: MSC 4570; New Mexico State University; PO Box 30001; Las Cruces NM 88003-8001 (575)646-4911; <http://uar.nmsu.edu>.

## **FINANCIAL AID & SCHOLARSHIP SERVICES**

University Financial Aid and Scholarship Services administers a broad spectrum of loans, grants, scholarships and work-study funding in an attempt to meet the financial need of the university's students.

University Financial Aid and Scholarship Services awards financial aid to students according to their individual need. Parents of students are expected to contribute to their child's education according to their ability, taking into account their income, assets, number of dependents and other relevant information. Students themselves are expected to contribute from their own assets and earnings, including appropriate borrowing against future income. All information provided to University Financial Aid and Scholarship Services is regarded as confidential.

Students applying for financial aid must complete a Free Application for Federal Student Aid (FAFSA) designed to determine, in accordance with state and federal guidelines, the difference between what the student and/or family is expected to contribute and the cost of attending NMSU. Among the factors that determine the family's Expected Family Contribution (EFC) are:

- (1) annual adjusted gross income as reported to the Internal Revenue Service;
- (2) savings, stocks, and/or bonds;
- (3) other assets in the form of a business, farm or real estate;
- (4) nontaxable income and benefits; and
- (5) student's prior year income and assets.

Students applying for financial aid should complete a FAFSA by visiting [www.fafsa.ed.gov/](http://www.fafsa.ed.gov/).

Please refer to the NMSU Financial Aid and Scholarship Services web site for more information on available financial aid. A complete listing of programs and policies is available at: <http://fa.nmsu.edu>.



## GENERAL ELIGIBILITY REQUIREMENTS

To receive financial aid you must demonstrate that you are qualified to obtain education by:

- Having a high school diploma or a recognized equivalent such as a General Educational Development (GED) certificate or
- Completing a high school education in a home-school setting approved under state law.

If you were enrolled in college in an eligible program or career school prior to July 2, 2012, you may show you are qualified to obtain a higher education by:

- Passing an approved ability-to-benefit test (if you don't have a diploma or GED, a college can administer a test to determine whether you can benefit from the education offered at that school);
- Completing six credit hours or equivalent course work toward a degree or certificate (you may not receive aid while earning the six credit hours)
- Be enrolled or accepted for enrollment as a regular student working toward a degree or certificate in an eligible program.
- Be a U.S. citizen or eligible noncitizen (state funded scholarships are available to undocumented students).
- Have a valid Social Security number. If you don't have a Social Security number, you can find out more about applying for one at [www.ssa.gov](http://www.ssa.gov).
- Must be meeting satisfactory academic progress (SAP).
- Sign a statement on the FAFSA certifying that you will use Federal student aid only for educational purposes.
- Sign a statement on the FAFSA certifying that you are not in default on a federal student loan and that you do not owe money back on a federal student grant.
- Register with the Selective Service, if required.

## FINANCIAL AID AWARDS

All financial aid awards are based on information provided by the student and/or parents, availability of funds and eligibility requirements. Any award may be revised based on changes in enrollment, cost of attendance, application of graduation, family contribution or failure to meet satisfactory academic progress. Withdrawals or reductions in enrollment may affect an award or any future awards. Financial Aid will not pay for audited courses or some repeats.

### Federal Direct Subsidized Loans

This is a loan program for eligible undergraduate students who demonstrate financial need. The U.S. Department of Education pays the interest on a Direct Subsidized Loan while the student is enrolled in school at least half-time.

### Federal Direct Unsubsidized Loans

Loans that are made to eligible undergraduate and graduate students that do not demonstrate financial need. Unlike other federal loans, interest accrues while the student is attending school.

Repayment of a Federal Direct loan begins six months after graduation or six months after enrollment drops below 6 credits or less than half time for undergraduate students.

Students receiving a subsidized or unsubsidized Federal Direct Loan, must complete an online entrance counseling session before NMSU will issue the funds. In addition, students must complete an exit interview upon graduation or withdrawal from the university.

### Federal Perkins Loans

A school-based loan program for undergraduate and graduate students with exceptional financial need. Under this program the school is the lender. A Perkins Loan must be repaid according to Federal Guidelines. Repayment begins nine months after graduation or nine months after enrollment drops below 6 credits for undergraduate students.

### Grants

The Federal Pell Grant is a federal grant available to undergraduate students with documented financial need. Pell Grants range from \$577 to \$5,775, though these figures are subject to change each year. If a Pell Grant is insufficient to pay educational expenses, the student may be eligible to receive other types of aid, including a Federal Supplemental Educational Opportunity Grant (SEOG) or Leveraging Education Assistance Partnership Program Grant (LEAP), and/or other

miscellaneous grants. These grants are awarded to undergraduate students who show exceptional financial need. For more information, contact University Financial Aid and Scholarship Services or visit the university's financial aid website at: <http://fa.nmsu.edu/>. Generally, grants do not have to be repaid.

### Work-Study Programs

The Federal Work-Study Program provides employment opportunities for selected undergraduate students with demonstrated financial need. The New Mexico Work-Study Program also provides employment opportunities for New Mexico resident students.

For more information on the U.S. Department of Education student aid programs, go to <http://studentaid.ed.gov/> or see the NMSU Financial Aid web site at <http://fa.nmsu.edu/>.

### Scholarships and Other Aid

Many students finance part of their education with scholarships, which may be awarded for academic achievement, special skills, talent and/or based on the applicants financial need.

NMSU has a variety of scholarships that are offered to incoming freshman, transfer, continuing and graduate students. State, institutional and private scholarships may also be available but amounts, deadlines and eligibility requirements vary. For more information, contact University Financial Aid and Scholarship Services or visit the university's scholarship web site at <http://admissions.nmsu.edu/scholarships/>

To be considered for most scholarships at NMSU you are required to apply online through Scholar Dollar\$, at <https://scholarships.nmsu.edu/>. One scholarship application serves all NMSU students regardless of campus.

## FINANCIAL AID SATISFACTORY ACADEMIC PROGRESS

Federal regulations require that financial aid recipients meet certain academic standards to be eligible for federal financial aid. To ensure that financial aid recipients are making satisfactory academic progress, academic transcripts are reviewed at the end of each term to determine eligibility for the next term. All terms of attendance are reviewed, including periods in which the student did not receive financial aid. All transfer credit hours are taken into account when satisfactory progress is reviewed. The Financial Aid SAP standards are not the same as NMSU's Academic Standards of Progress criteria.

### Elements of Financial Aid Satisfactory Academic Progress:

- **Qualitative Progress:** Undergraduate students must maintain a cumulative GPA of at least 2.0 (a C- average). Grade point values are: A+ / A= 4.0, A- = 3.7, B+ = 3.3, B = 3.0, B- = 2.7, C+ = 2.3, C/ C- = 2.0, D+ / D- = 1.0, F = 0. Grades of I, CR, RR, PR, NC, W, AU are not calculated in the GPA.
- **Completion Rate:** Students must complete a minimum of 70 percent of all coursework (registered credit hours) attempted at NMSU. Any course with a grade of withdraw (W), incomplete (I), repeats (RR), failure (F), audit (AU), or no credit (NC) is not considered completed coursework. Repeated courses are included in the calculation.
- **Maximum Time Frame:** Undergraduate students must complete their program within 150 percent of the published length required by the program. Students who have reached the maximum allowable time will be suspended from receiving financial aid. Limited developmental/remedial hours are excluded from this calculation. Total attempted hours including repeated courses and transfer coursework are included in the student's maximum time frame calculation.
- **Recipients of financial aid grants and loans who drop credits or withdraw may be required to return all or a portion of awarded Title IV funds.** Further information regarding the return of Title IV funds is available on the NMSU web site at <http://fa.nmsu.edu/resources/return-of-title-iv-funds/>.

## FINANCIAL AID WARNING

"Warning" is a status assigned to a student who fails to make satisfactory academic progress at a school that evaluates satisfactory academic progress at the end of each payment period and/or term, and chooses to allow students who fail its progress standards to continue to receive aid. If the student has not returned to satisfactory standing after this additional semester, he or she will be suspended from further financial assistance until the satisfactory progress standards are met.

## FINANCIAL AID SUSPENSION

Students are suspended from receiving financial aid if they do not meet satisfactory academic progress standards for financial aid purposes. Students on financial aid suspension will not receive any form of federal or state financial aid (grants, loans, work study). Financial aid eligibility is reinstated when all standards of satisfactory progress are met.

## THE APPEALS PROCESS

Students suspended from financial aid may appeal the suspension if there are mitigating circumstances affecting their progress. Students who would like to appeal the suspension must submit an appeal form, available at: <http://fa.nmsu.edu>. They must also submit all required documentation to University Financial Aid and Scholarship Services. A committee will review the appeal and may grant reinstatement of financial aid based on mitigating circumstances that directly contributed to deficient academic performance. Appeals are evaluated on a term-by-term basis. All appeals, including relevant documentation, must be submitted by the semester deadline based on the current semester of enrollment. A student may *appeal the termination of eligibility only twice during his or her career* at New Mexico State University.

## CONTACT INFORMATION

For more information, contact the Financial Aid office at: MSC 5100, PO Box 30001, Las Cruces NM 88003-8001; (575) 646-4105 ; <http://fa.nmsu.edu/>

# STUDENT RESOURCES

---

## CAMPUS ACTIVITIES

The Office of Campus Activities offers involvement outside the classroom, an essential component of the student's academics. Campus Activities collaborates with campus and community entities to create opportunities for student involvement, group and individual leadership and personal development. Campus Activities also coordinates activities and events through the Activity Registration process, administers the University Sales and Solicitation Policy and serves as the university liaison to the Interfaith Council.

## CAMPUS DINING

It is mandatory for Undergraduate freshman who live in campus housing to participate in one of the available Meal Plans that the university offers. Continuing and commuting students will find different Meal Plans to suit their lifestyle. A dining contract runs for the whole academic year and charges are applied to a student's university account every semester.

Graduate students living in campus housing, as well as students who choose not to live on campus, may also participate in the Meal Plan program. A variety of plans combining access to the dining hall and to Aggie Dining Dollars are available.

Application procedures and additional information may be obtained from the ID Card Services Office by calling 575-646-4835 or via e-mail at [idsvs@nmsu.edu](mailto:idsvs@nmsu.edu), or by stopping by Room 137 in Corbett Center Student Union between 8am - 4:30pm Monday-Friday. The mailing address is: MSC 3 ID, PO Box 30004, Las Cruces, NM 88003.

### Other Food Services Options

In addition to the Meal Plans, food service is available at various locations throughout the campus by using cash, NMSU Aggie Cash, the NMSU Enhanced Aggie ID Card, a credit/debit card, or, in most areas, the Aggie Dining Dollars included with a Meal Plan package. Food service location hours are available at [dining.nmsu.edu](http://dining.nmsu.edu). Additional information can be obtained by contacting the ID Card Office at 575-646-4835, [idsvs@nmsu.edu](mailto:idsvs@nmsu.edu), by visiting their office on the 1st floor of the Corbett Center Student Union, between 8am- 4:30pm Monday through Friday, or online at [idcard.nmsu.edu](http://idcard.nmsu.edu)

## CAMPUS HEALTH CENTER

The university maintains a well-equipped health center on campus, with a comprehensive laboratory, pharmacy and x-ray services. Hospitalization is available in the community. Undergraduate students are eligible for services at

the Campus Health Center. Those students enrolled for 12 or more credits (6 in a summer session) may access the Campus Health Center as fees have been paid through full-time enrollment. Students enrolled for less than 12 credits (5 in summer session) may choose to pay the wellness fee or office fee for medical care.

Information on Health Insurance can be picked up at the Campus Health Center or by calling (575) 646-5706. For more information regarding the Campus Health Center or health insurance, call the number listed above or visit our web page at [www.chc.nmsu.edu](http://www.chc.nmsu.edu).

## CAREER SERVICES

The mission of Career Services is to offer programs, services and resources that will contribute to students life-long career planning efforts. Staff members work closely with deans, department heads, faculty and employers to assist students and alumni in developing suitable career opportunities based on their education, experiences and interests. Additionally, Career Services coordinates interviews between prospective employers, students and alumni. The staff advises students on the career-planning process and career-search strategies. Current information on employment trends, a comprehensive library of career literature, and electronic career products help students make educated decisions. Also, career fairs are held throughout the academic year. Students can launch their career plans through registration in AggieCAREER Manager.

Excellent experiential opportunities, through the following programs, contribute to forming students' career goals:

**On-Campus Employment:** Information is available for part-time employment through federal work-study, student employment and graduate assistant programs. Available opportunities are advertised on AggieCAREER Manager located on our website below.

**Off-Campus Employment:** Part- and full-time jobs in Las Cruces, requiring general or very specific qualifications, are listed and referrals are made for students.

**Cooperative Education and Internship Program:** Information is available on Cooperative Education and internship opportunities offered by government, nonprofit organizations and business/industry. During the summer months and throughout the academic year, internships may with prior approval earn academic credit.

For comprehensive information on all programs and services offered by Career Services please visit us at Garcia Annex Room 224, call (575) 646-1631, or review our services online at <http://careerservices.nmsu.edu>.

## COOPERATIVE EDUCATION AND INTERNSHIP PROGRAM

Today's competitive employment market necessitates that students gain practical experience related to their major before they finish their college degree. This experience is called Experiential Learning.

NMSU enjoys a national reputation for its Cooperative Education (Co-op) and Internship Program, which contributes to students' total educational experience and realization of career goals by integrating academic theory and practical application on the job. Co-op and Internship assignments provide varied work experiences with employers from business, industry, government and nonprofit organizations. All Co-op work assignments are for continuing full-time students, and must be completed prior to graduation. Each semester (spring, summer, & fall) that a student participates in an approved Co-op a notation is placed on his/her permanent academic transcript.

Students may register full-time for the alternating plan, working one of more work phases throughout the U.S.; each work phase will last the duration of an academic semester. Work phases are separated by at least one semester of full-time on-campus classroom instruction. Note: While on an alternating work phase, students are afforded full-time academic status with the university, which protects enrollment status, financial aid and other student eligibilities, whether they are registered for any credit or not.

Continuous academic enrollment can be maintained through the parallel plan, wherein a student works part-time (approximately 20-29 hours per week) concurrent with full-time enrollment. Employers are generally located within commuting distance of the university.

In addition to gaining academically related work experience, Co-op students establish positive work ethics, receive remuneration for their educationally related experiences, and also may potentially arrange for course credit through an academic department.

Experiential Learning also includes internships. Internships vary in definition based on the employer and can be one-time or multiple semester work assignments that may or may not be curriculum-related, short or long duration and are paid or unpaid. Internships may qualify for the NMSU Cooperative Education and Internship program, if they meet the program requirements. Approved internship work assignments for continuing full-time students must be completed prior to graduation. Each semester (spring, summer & fall) that a student participates in an approved part-time or full-time Internship a notation is placed on his/her permanent academic transcripts. Internships may earn academic credit through the approval of an academic department.

All students interested in Cooperative Education or Internships must first register with the Cooperative Education and Internship Program office located in Career Services, Garcia Annex. Registration includes an NMSU Aggie CAREER Manager Account and an advising session.

For more information contact the Cooperative Education and Internship program MSC 3509, PO Box 30001, Las Cruces NM 88003-8001; (575) 646-4115; <http://careerservices.nmsu.edu> or [coop@nmsu.edu](mailto:coop@nmsu.edu).

### **CORBETT CENTER STUDENT UNION**

Corbett Center Student Union (CCSU) serves as the center for campus life, providing programs and services for students and other members of the university community. CCSU is a place to study, relax, meet with student groups, eat, work or play; CCSU offers students, faculty and staff a variety of services and activities. The union is the home to several administrative offices, Campus Activities, Associated Students of NMSU (ASNMSU), Housing & Residential Life, Campus Dining Services, the student radio station and student newspaper. Services offered include meeting rooms, an auditorium, multiple dining facilities (both retail and residential), ATMs, a computer lab, study areas, post office and a convenience store.

For more information contact the Corbett Center Information Desk; MSC CC; PO Box 30004; Las Cruces NM 88003-0004; (575) 646-4411 or (575) 646-4530; [ccsu.nmsu.edu](http://ccsu.nmsu.edu).

### **COUNSELING AND STUDENT DEVELOPMENT**

The Counseling Center provides students and the campus with a variety of services including individual, couples and group counseling, crisis intervention, career counseling, outreach programs and consultation. We assist students who are dealing with issues such as relationship concerns, depression, anxiety, stress management, trauma and self-esteem. All services are strictly confidential and are free. The Counseling Center is located in Garcia Annex Room 100, and is open Monday through Friday, 8am-5pm and other times as needed. The Counseling Center is staffed by professional counselors and psychologists and is accredited by the International Association of Counseling Services, Inc.

WAVE: Wellness, Alcohol and Violence Education Program is comprised of the Choices program that provides campus organizations, classes and other groups with information concerning the decisions that surround drinking alcohol and provides presentations on sexual assault and violence prevention.

Social Work Services (accessed through the Counseling Center at 646-2731) provides assistance in locating community resources such as food, shelter, health care, child care or locating financial assistance when a student's educational goals are impeded by a lack of such resources. Social Work Services operates the Aggie Cupboard, an on-campus food pantry that provides free and confidential service to NMSU students, faculty and staff. For questions regarding the Aggie Cupboard, please contact Lori Haussamen at [mlori@nmsu.edu](mailto:mlori@nmsu.edu). For more information contact Counseling and Student Development at: MSC 3575, PO Box 30001, Las Cruces NM 88003-8001; (575) 646-2731; <http://counselingcenter.nmsu.edu/>

The Career Exploration Center, in Room 132 of Garcia Annex provides students with assistance in career choice and selecting an appropriate area of study. Monday-Friday, 8am - 5pm by walk-in or appointment. For more information check our web site at <http://nmsu.edu/~counsel/>.

### **DISTANCE EDUCATION**

The Office of Distance Education extends New Mexico State University's reach beyond traditional programs to provide opportunities for students to meet their academic, professional and personal learning goals. Distance Education courses from NMSU are delivered using the most innovative technology and methods

available, including web-based technologies, ITV (Interactive Television), faculty exchanges and off-site classes.

Distance Education (DE) programs are designed to serve students who live a significant distance away from the Las Cruces campus or have scheduling conflicts due to family or work obligations and often find distance education as the best solution to educational advancement. DE at NMSU is defined as the formal education process of delivering educational instruction so students physically remote from the campus of program origin and/or instructor may participate. Distance education degree programs at NMSU are delivered using a variety of formats including 100% online, or combinations of ITV, online and face-to-face instruction at the Las Cruces campus or off-site locations such as NMSU community college campuses. Visit <http://distance.nmsu.edu/degree-programs/> for a complete listing of programs.

For further information, contact the Office of Distance Education (ODE) located in Milton Hall, room 185. Contact ODE by calling (575) 646-8231, or email: [distance@nmsu.edu](mailto:distance@nmsu.edu). For current information, visit: <http://distance.nmsu.edu/>.

#### **Bachelor's Degree Completion Programs**

All undergraduate degree programs offered through NMSU are bachelor's degree completion programs. These programs require that students have all lower-division (100 and 200 level) credits completed before admittance into the program. Bachelor degree completion programs normally require two years of 300 and 400 level upper-division coursework to finish. The undergraduate degree completion programs vary in delivery format. Some are 100% online; some use web-based delivery and online; and some use online combined with face-to-face or ITV instruction at off-site locations such as NMSU community college campuses. Visit <http://distance.nmsu.edu/degree-programs/> for a complete listing of programs.

#### **Off-Site/ Extension Programs**

Distance education programs listed under this category are delivered primarily face-to-face at off-site/extension locations. Often, these courses will enhance instruction and learning with technology. Programs are located at NMSU two-year and Albuquerque Center campuses, as well as other locations throughout the state. Several degree programs are available at one or more off-site/extension locations. Visit <http://distance.nmsu.edu/degree-programs/> for a complete listing of programs.

#### **Technology-Based Programs**

Distance Education programs listed under this category are delivered primarily using distance learning technologies. In some cases, programs may require brief residencies on the Las Cruces campus for orientation, assessment, or other activities. Technologies used to deliver distance education at NMSU include:

- **Instructor Canvas** - the learning management system enables instructors to utilize the Internet in the delivery of a course
- **Adobe Connect** - the web-conferencing system, offers a synchronous Web delivery solution for conducting virtual or live classroom events through the Web
- **Instructional Media Services** - provides course delivery primarily through ITV. However, a variety of synchronous and asynchronous technologies may also be used. Courses may use what is known as a "blended approach" to instruction by integrating two or more types of technologies shown above to promote engaging and effective learning.

### **EDGAR R. GARRETT SPEECH AND HEARING CENTER**

Combining instruction, evidence-based practical experience, state of the art technology, and service, the center provides training for students in Communication Disorders and renders service to the community. Students have opportunities to participate in diagnostic evaluations and to provide therapy in the areas of speech, language and hearing for clients across the lifespan. Referrals are accepted from all sources (self, medical, school, nonprofessionals). The Edgar R. Garrett Speech and Hearing Center is a fee-for-service clinic where university students, staff, faculty and their immediate family receive a reduced rate. All services are supervised by speech-language pathologists who are licensed in New Mexico and hold the Certificate of Clinical Competence in Speech-Language Pathology or Audiology from the American Speech-Language-Hearing Association. Services are available in English and Spanish.

For further information, contact the Edgar R. Garrett Speech and Hearing Center, MSC 3SPE, PO Box 30001, Las Cruces, New Mexico 88003-8001, (575) 646-3906; (TTY-(575) 646-6191); <http://spedcd.education.nmsu.edu/cd/shc/>.

## HOUSING AND RESIDENTIAL LIFE

Living on campus is an opportunity for an investment in a student's academic success. As campus residents, students are part of the campus community with more opportunities to join clubs and attend campus events. Students are walking distance to classes, the student union, activity center, library, bookstore and many other campus resources. The university strongly encourages students to take advantage of the many opportunities available through campus residency. Studies show that compared to their off-campus peers, students who live on campus are more likely to: maintain higher grade point averages, use campus resources, interact more with professors, student mentors and tutors and ultimately graduate on time.

### Application Procedures and Acceptance

To qualify for housing the student agrees to be enrolled continuously in at least half-time or more at either the undergraduate or graduate level during the fall or spring semesters as degree seeking. Completed applications for housing should be submitted as early as possible, preferably one regular semester in advance. Submission of housing application indicates acceptance of the terms and conditions of the applicable agreement. Housing applications require a deposit and fee at the time of application. Certain qualifications must be met to apply for summer housing, single student apartment and family housing. To view the various housing options visit the Housing and Residential Life website at <http://housing.nmsu.edu> or contact the housing office at (575) 646-3202.

Completed applications for Student Family Housing should be submitted at least six to eight weeks in advance. Family Housing occupants are assigned once the application process is completed. Applications are considered incomplete and cannot be processed if requested information and supporting documents are not provided and payment of the associated fees is not received. Family Housing applicants may select six, nine or twelve month agreement, with thirty (30) day notice to vacate or request for renewal, prior to expiration of agreement.

The university will assign accommodations subject to the space available. Assignments to a particular building, type of accommodation, specific room or apartment, single room or roommate(s) are not guaranteed. The university reserves the right to change or cancel assignments in the interest of order, health, safety or discipline with appropriate written notice. The university reserves the right to deny housing to any student. Examples of reasons for denial include, but are not limited to, individuals who have criminal histories, individuals who have behavioral problems which may, in the opinion of the university, negatively impact the group-living environment, individuals who have been previously terminated from campus housing, or individuals who have poor rental histories.

### Availability of Units for Students with Disabilities

There are a limited number of specially equipped residence hall rooms, single student apartments and family housing units available to students with disabilities (including students in wheelchairs) who wish to reside in campus housing. These are assigned on a first-come, first-served basis. Specific needs or requirements (i.e., roll-in showers, special door openers, etc.) should be discussed with the Office of Student Accessibility Services on an individual basis prior to submitting an application.

### Residence Halls

Residence halls offer furnished, mostly suite-style rooms, large lobbies and plenty of outdoor space. Each residence hall has its own personality and environment, offering students a variety of choices while providing the amenities, social interaction and academic support. Living Learning Communities, located within the residence halls, provide a benefit which allows members to live in the same hall and on the same floor with other students who share common academic & social interests. LLCs offer peer advising & mentoring, study groups, faculty & staff interaction and extracurricular activities & programs. See [housing.nmsu.edu](http://housing.nmsu.edu) for more details.

### Campus Apartments

Campus apartments offer students more than just affordable housing. Campus apartments offer a unique college atmosphere where neighbors share similar goals and together form an academic community unlike any found off campus. Available for second-year to graduate students, on-campus apartments have the

benefits of on-site staff, prompt maintenance and amenities such as a computer lab and laundromat. Efficiencies, one, two and four bedroom options are available and include living rooms and kitchens. Apartments are fully furnished and the semester rate includes utilities, cable TV and internet connectivity.

### Student Family Housing

Family units include married couples, married couples with children, single parents with dependent children and domestic partners (as defined by NMSU Policy found at <http://benefits.nmsu.edu/other/domestic-partner/>). Consideration is also given to veterans and non-traditional dependent family units. As part of the application process, a criminal history check will be conducted for all adult occupants over the age of 18. Current residents will undergo a criminal history check no less than once a year. In addition, a rental payment history will also be conducted. By signing the application, you authorize New Mexico State University to conduct this process. Results of the criminal history checks and rental payment history may be shared with the applicant.

Family Housing Units: Single and two-story housing units include two bedrooms, a bath, kitchen and living room. Four-bedroom units include two bathrooms, a kitchen and living room. All units offer a stove and refrigerator and are unfurnished. Washing machine hook-ups are provided in the single and two-story houses. The monthly rent includes utilities, cable TV, and internet connectivity. Some pets are allowed in parts of Student Family Housing, reference the pet policy at <http://housing.nmsu.edu>

### Community Development

Housing and Residential Life strives to develop a safe and engaged community supporting students' efforts to achieve academic success. Our live-in student and professional staff members work to meet students' needs, and create a fun, successful, and positive experience for our residents. Residents are encouraged to attend programs, and to join organizations such as the hall councils, Residence Hall Association and the National Residence Hall Honorary to help shape their community and develop leadership skills and experiences.

For more information about housing options and application procedures, contact Housing and Residential Life, MSC 3BB, PO Box 30001, Las Cruces NM 88003-8001; (575) 646-3202; <http://housing.nmsu.edu>

### Books, Supplies, Parking and Transportation

The New Mexico State University bookstore and parking office are both conveniently located at the corner of Jordan Street and University Avenue. The bookstore provides an avenue for students to obtain assistance with purchasing required books and supplies. The Parking & Transportation office assists with parking permits and transportation services questions.

## ID CARD SERVICES

The NMSU Aggie ID Card is the primary source of student identification for the campus. The Aggie ID Card serves as a membership card for meals, Aggie Cash, as a key in some residential buildings, carries proof of eligibility for access to athletic events and allows for other student services. This information is added to your card after registration for classes and financial arrangements have been completed. Please visit [idcard.nmsu.edu](http://idcard.nmsu.edu) for more information.

Aggie Cash is a pre-paid account that allows you to use your Aggie ID Card to make purchases at locations all over campus. The NMSU Enhanced Aggie ID Card allows your student card to also be your Wells Fargo debit card. The ID Card Services Office in Corbett Center Student Union, Room 137 has the information and applications you will need. For more information please contact us at (575) 646-4835.

## INFORMATION AND COMMUNICATION TECHNOLOGIES

Information and Communication Technologies (ICT) provides the university community with the computing resources and services that support the educational, research, and public service missions of the university. The resources include NMSU's central computing systems, the network that supports the systems and the wired and wireless functionality through which the internet is accessed. ICT operates the student computer labs found throughout the main campus, manages computer checkout, network registration of computers required for access to the NMSU network, discounts for purchases of computers and Aggie print at the university. ICT also provides support for NMSU technology users thorough the Help Desk.

For further information, contact ICT, MSC 3AT, PO Box 30001, Las Cruces, NM 88003-8001; (575) 646-1840 or email [help@nmsu.edu](mailto:help@nmsu.edu). ICT's web homepage is

located at <http://ict.nmsu.edu> and the helpdesk webpage is located at <http://help.nmsu.edu/>. The helpdesk is in room 141 of the Computer Center building.

### NATIONAL STUDENT EXCHANGE PROGRAM

Under the National Student Exchange Program (NSE), students may pay NMSU tuition and attend any of 180 colleges or universities across the nation. NSE allows students to broaden their academic, social, and cultural awareness through study in different geographical settings. To qualify for the program, an applicant must be a full-time student with a 2.5 grade-point average and must be a sophomore, junior, or senior at the time of exchange. Applications for the program are accepted from October through February for the following academic year. Late applications may be accepted if space permits.

Grades and credit hours earned at the host institution become part of the official NMSU transcript upon approval of the academic advisor and records officer. Grades are recorded according to the NMSU grading system.

### NEW MEXICO STATE UNIVERSITY LIBRARY

The New Mexico State University Library is a Destination for Discovery that offers access to rich content and research-level collections in two library facilities located in the heart of the campus. Zuhl and Branson libraries house over 1.8 million items and provide electronic access to scholarly journals and databases for both general academic and discipline-specific research. View the large geological collection and artworks on display at Zuhl Library and explore historical collections within the Archives and Special Collections Department at Branson Library. Reference assistance and research support are provided by a team of faculty and staff dedicated to student learning and success. There are a variety of study areas available including quiet and group spaces, some of which can be reserved. Over 100 PCs, scanners, laptops, and other resources are available for students to use. More detailed information may be found at <http://lib.nmsu.edu>.

### OFFICE OF INTERNATIONAL AND BORDER PROGRAMS (IBP)

The Office of International and Border Programs oversees the comprehensive internationalization of the university. It is the primary unit responsible for the welfare of incoming international students and outgoing education abroad students. IBP also represents the university with U.S. government agencies, foreign governments, international education professional associations and the private sector concerning international activities. The office also advocates for effective practices, policies and procedures to internationalize the university. The major program areas of the office are:

**Community Outreach and Public Service** - IBP adheres to the land-grant philosophy by providing programs and services to increase international understanding and awareness in the local and campus community, including southern New Mexico and the state of Chihuahua, Mexico.

**Education Abroad Programs and Exchange Student Services** – IBP's Education Abroad Office oversees all study, research, internship and service abroad programs, as well as coordinates faculty led study abroad programs through its Faculty Led International Programs (FLiP) office. This office also coordinates programs and services for visiting exchange students.

**International Initiatives, Development and Cooperation** - IBP facilitates the interests of faculty who wish to participate in international interdisciplinary projects requiring technical assistance, training or public outreach. This includes project identification, proposal development, project management and development of international cooperative agreements with international entities or institutions.

**International Student and Scholar Services (ISSS)** – IBP's ISSS Office is charged with ensuring that the needs of NMSU's international students and scholars are met. This includes orientation, advising and institutional compliance with U.S. Department of State and U.S. Department of Homeland Security regulations as they pertain to the F and J visa programs.

**US-Mexico Border Programs** -IBP is responsible for coordinating the university's involvement in US-Mexico cooperative projects including research, economic development and educational outreach.

### The Office of Education Abroad

This division of International and Border Programs is the international education program development and coordination unit that assists colleges and

departments with integrating study abroad into the undergraduate and graduate curriculum. It manages support services for outbound study abroad students and inbound international exchange students and coordinates all international partner exchange agreements, intensive language immersion and faculty-led programs as well as all credit-bearing international research, service and internships. The division also sponsors the Study Abroad Ambassadors Club, a chartered student organization that provides support to international exchange students at NMSU. Additionally, the Office of Education Abroad works closely with Housing and Campus Life to provide leadership and oversight for the Global Village Living and Learning Community.

Students on the main campus and at all the branch community colleges in the NMSU system may apply to study abroad while maintaining NMSU student status to receive regular course credit (graded A+ through F), international distance education language and teacher education credit (graded A+ through F), and/or transfer credit (graded CR). For exchanges with international partner institutions, students must have completed two full semesters of university study, maintained a 2.75+ grade-point-average, and obtained permission of their college to receive transfer credit. For other programs, students must be in good standing academically at NMSU, and receive permission to enroll from the course instructor or program coordinator. International Business majors must receive permission from their department for study abroad to count as required in their degree plan. At least four weeks of a study abroad program may count for 3 credits of Viewing the Wider World (<http://studyabroad.nmsu.edu>).

### PARKING OFFICE

NMSU requires a parking permit to park in campus parking lots or curbside on streets. Parking meters require payment. Free parking is available near the Pan American Center. The campus parking map is available online at [park.nmsu.edu](http://park.nmsu.edu). Parking regulations are enforced between the hours of 7:30am - 4:30pm. Disabled parking spaces, emergency/fire zones, service zones and yellow curbs are enforced 24 hours a day. Parking Regulations are available at [park.nmsu.edu](http://park.nmsu.edu).

Information on purchasing a parking permit is also available online at [park.nmsu.edu](http://park.nmsu.edu) or at the Parking Department located at 1400 E. University Ave. (southwest corner of the Auxiliary Services building between Barnes & Noble and Panda Express) Monday through Friday from 8am - 4:30pm. When visiting, you may park for free in designated spots just south of the building. Aggie Transit is a free campus shuttle service available to all students. Bus route maps are available at [park.nmsu.edu](http://park.nmsu.edu).

Transportation and Parking Services is responsible for issuing parking permits, enforcing parking regulations and developing parking lots as well as maintaining information related to the university fleet.

### STUDENT ACCESSIBILITY SERVICES

Students Accessibility Services (SAS) coordinates university efforts, to provide access and opportunity to students with disabilities, including students who have disabilities that are apparent and non-apparent. Students wanting to learn more about services or accommodations available to those with a documented disability should contact the SAS office. Advanced notice in planning services is strongly encouraged. NMSU is committed to providing an accessible institution to all individuals.

For more information, please visit the SAS office in Corbett Center: Room. 208, MSC 4149, PO Box 30001, Las Cruces, NM 88003-0001 575-646-6840; <http://sas.nmsu.edu> or [sas@nmsu.edu](mailto:sas@nmsu.edu).

### SUSTAINABILITY COURSES AT NMSU

The following courses have been identified as being Sustainability-Focused. These courses may be used to attain an 18 credit minor in a sustainability related discipline offered in the departments of Anthropology, Engineering Technology, Management and Plant and Environmental Science.

AG E 315V	World Agriculture and Food Problems	3
AG E 337G	Natural Resource Economics	3
AGRO 100G	Introductory to Plant Sciences	4
AGRO 315	Crop Physiology	3
AGRO 483	Sustainable Production of Agronomic Crops	4

ANTH 362	Environmental Anthropology	3
B A 448	Small Business Consulting	3
BIOL 301	Principles of Ecology	3
BIOL 462	Conservation Biology	3
C E 330	Environmental Management Seminar I	1
E S 110G	Introductory Environmental Science	3
E T 300	Special Topics	1-3
E T 360V	Technology in Business and Society	3
E T 381	Renewable Energy Technologies	3
E T 386	Sustainable Construction & Green Building Design	3
E T 400	Special Topics	1-3
GEOG 295	Introduction to Climate Science	4
HON 305V	Global Environment	3
HORT 100G	Introductory to Plant Sciences	4
HORT 315	Crop Physiology	3
HRTM 450	Special Topics	1-4
HRTM 492	Special Problems	1-4
MGT 375V	Global Environmental Assessment and Management	3
MGT 448	Small Business Consulting	3
MGT 490	Selected Topics	1-18
PHLS 305V	Global Environmental Health Issues	3
SOC 465V	Environmental Sociology	3
WERC 300	Introduction to Pollution Prevention and Application	3
WERC 330	Environmental Seminar I	1

## STUDENT SUCCESS CENTERS

New Mexico State University offers a variety of learning assistance, advising and tutorial services via the Student Success Center. The Student Success Center provide services to assist NMSU students in reaching their academic potential. The Student Success Center provides study skills assistance in such areas as: time management; memory; concentration; note taking; reading; test preparation; test taking; math; science; speed reading; critical thinking; financial literacy, as well as graduate school and professional skills test preparation. The services are available to students in the following formats:

1. Individualized assistance is provided to any student who walks in at The Student Success Center
2. Degree credit is offered under UNIV 110, Personal Learning Skills; UNIV 112, Academic and Personal Effectiveness; UNIV 113, Speed Reading; UNIV 150, The Freshman Year Experience; UNIV 300, Preparing for the GRE; UNIV 350, Peer Education; and UNIV 395, Independent Study.
3. Learning strategies and study-skills workshops provide quick assistance in one-hour presentations offered throughout the semester.
4. Professional and graduate school workshops provide development in such areas as speed reading, getting into graduate school, preparing for the GRE, GMAT, LSAT, MCAT, or NMTA.
5. Student Success Center staff provide outreach presentations on learning and study-skills topics to classes, programs and organizations on campus.
6. Cross Campus Advising assists students with academic advising, changing or exploring majors, seeking connections within a college or

needing assistance navigating administrative procedures at the University.

7. The Campus Tutoring Service (CTS) provides walk-in and online tutoring at no charge; and the QuickConnect Early Alert and Intervention Program is an early warning and intervention system, utilized by faculty, focused on first-year students.

For comprehensive information on all programs and services offered by the Student Success Center please visit us at the Hardman and Jacobs Undergraduate Learning Center Room 128, call (575)646-3136, or review our services online at <http://ssc.nmsu.edu>.

## TESTING SERVICES

Testing Services provides test information and registration materials for the following tests: American College Testing Assessment (ACT); College Level Examination Program (CLEP); High School Equivalency (HSE); General Education Development (GED) and HiSet; Graduate Management Admission Test (GMAT); Graduate Record Exam (GRE); Miller Analogies Test (MAT); Pearson VUE Test Site; PRAXIS Series; Pre-Professional Skills Test (PPST); New Mexico Teacher Assessments; and others.

For more information contact, Testing Services, MSC 3DA, PO Box 30001, Las Cruces, NM 88003; (575) 528-7294; <http://dacc.nmsu.edu/testing>.

## TRIO STUDENT SUPPORT SERVICES PROGRAM

TRIO Student Support Services program offers academic and social support to ensure that program participants succeed at NMSU. Services that are provided to participants include the following:

- **Mentoring** – participants meet with a mentor each week for assistance in adjusting to college, learning and using campus resources, developing effective study skills, accessing financial aid, using academic peer advising, staying motivated and dealing with personal issues associated with college.
- **Tutoring** – individual tutoring is available by appointment in science, math, engineering, agriculture, social sciences, humanities, business and foreign languages. Tutors are certified by the College Reading and Learning Association.
- **Computer Lab** – complete assignments and check email.
- **Cultural Activities** – participants receive tickets to cultural/educational activities such as plays, dance productions and symphonies.
- **Equipment Loans** - digital recorders and programmable calculators are available to participants.

To qualify for the program, students must be a first generation college student (neither parent received a four-year baccalaureate degree), meet income guidelines set by the US Department of Education, demonstrate an academic need or have a learning or physical disability. Admission to the TRIO Student Support Services is highly competitive with only 350 slots available for eligible students. Students should apply early in Corbett Center Student Union, Room 148. Visit our web site at: <http://ssc.nmsu.edu/trio-student-support-service/> or call: (575) 646-1336.

For comprehensive information on program services offered by the TRIO Student Support Services Program please visit us in the Student Success Center located at the Hardman and Jacobs Undergraduate Learning Center Room 128, call (575) 646-1336, or review our services online at <http://ssc.nmsu.edu/trio-student-support-services/>

## UNDERGRADUATE RESEARCH PROGRAMS

New Mexico State University has a variety of faculty-mentored undergraduate research programs that offer students the opportunity to demonstrate knowledge gained within the classroom and apply it to scholarly research projects. Listed is a sample sub-set of research programs available to undergraduates:

- Aggie Innovation Space
- Building Research Achievement in Neuroscience (BRAiN)
- Fred Hutchinson Partnership for the Advancement of Cancer Research Project
- Howard Hughes Medical Institute (HHMI)

- iCREDITS Center
- New Mexico Alliance for Minority Participation (AMP)
- Maximizing Access to Research Careers (MARC)

### WESTERN INTERSTATE COMMISSION FOR HIGHER EDUCATION

NMSU collaborates with the Western Interstate Commission for Higher Education (WICHE) in recommending graduates of the university for programs in dentistry, graduate library studies, occupational therapy, optometry, osteopathy, podiatry, public health and veterinary medicine in universities of other western states. The State of New Mexico subsidizes the education of New Mexico residents when approved for training in these fields in other states. This subsidy is a loan-for-service program which permits New Mexico residents to attend state-supported institutions at in-state tuition rates and private institutions at approximately one-third the standard tuition cost if they practice in New Mexico for an equal number of years after graduation. This program is contingent upon funding by the state legislature.

For further information write the Certifying Officer for New Mexico, WICHE's Student Exchange Program, New Mexico Higher Education Department, 2048 Galisteo St., Santa Fe, NM 87505-2100.

## ACADEMIC PROGRAMS

### ASSOCIATE DEGREE PROGRAMS

NMSU awards both designated and undesignated associate degrees following completion of at least 60 semester credits (excluding "N" suffix courses). The last 15 to 30 credits, depending on the requirements of the college in which the degree is pursued, must be completed at NMSU or one of its Community Colleges. (Service personnel enrolled under the two-year Servicemembers Opportunity College Program may be exempt from this requirement.)

The designation Meritorious Graduate is awarded to the top 15 percent of the students receiving associate degrees within each college in any one academic year; the students must have completed 45 or more credits with computable grades at NMSU.

### Las Cruces Campus

Detailed information on admission requirements, curricula, and associate degree or certificate requirements will be found in the section of this catalog devoted to the administering department/college.

#### Associate of Arts

Administered by the Community Colleges

#### Associate of Fine Arts

Administered by the Community Colleges

#### Associate of Science

Administered by the Community Colleges

#### Associate of Science in Engineering Technology

Administered by the College of Engineering

### Designated Associate Degrees

The following designated associate degrees are granted to students completing the specified requirements of the degree.

**Associate in Art and Graphic Design**, administered by the Community Colleges

**Associate in Criminal Justice**, administered by the Community Colleges

**Associate in Education**, administered by the Community Colleges

**Associate in Pre-business**, administered by the College of Business

**Associate of Arts in Heritage Interpretation**, administered by the Community Colleges

### Community Colleges

Many of the associate degrees offered on Las Cruces campus, as well as other programs, are available at NMSU's four community college campuses. For more information on community college campus offerings, refer to the "Community

Colleges" chapter in this catalog and to their respective catalogs or admissions offices.

Please see the Community College Catalogs for more information about the Associate Degree Programs.

Alamogordo Catalog

Dona Ana Catalog

Carlsbad Catalog

Grants Catalog

### UNDERGRADUATE PROGRAMS

For a full listing of all Undergraduate Programs offered at New Mexico State University, please see the Undergraduate Admissions webpage <http://admissions.nmsu.edu/academics/>.

### GRADUATE DEGREE PROGRAMS

For a full listing of the Graduate Programs offered at New Mexico State University, please see the Graduate Admissions webpage <http://gradadmissions.nmsu.edu/graduate-programs/>.

## RECOGNITION OF ACADEMIC ACHIEVEMENT

NMSU has a number of university-wide programs that recognize academic achievement. These include the Honors College, the Crimson Scholars Program, the dean's report of academic achievement and graduation with honors. In addition, many colleges and departments have their own programs and awards that recognize the academic achievement of their students.

### THE HONORS COLLEGE

The Honors College provides motivated undergraduate students with opportunities to broaden and enrich their academic programs. In small classes taught by master teachers, honors students engage in lively discussion and collaborative investigation of interdisciplinary topics. By taking honors courses, students may also work toward completing general education requirements and disciplinary requirements in the major. There are two program options available to students: University Honors and the Honors Certificate. Each option has separate eligibility requirements, benefits, and forms of recognition for the student. For details concerning eligibility and requirements, see the Honors College section of the catalog.

### Crimson Scholars Program

Crimson Scholars is a recognition program for academically superior students. Crimson Scholars receive a number of benefits, including:

- Automatic eligibility for all Honors courses
- Early registration
- Recognition in the commencement program
- A lapel pin

For eligibility criteria, see the Honors College section of the catalog.

### Dean's Report of Academic Achievement

Following the close of the semester, each college dean publishes a list of students who have achieved honor standing in grades for the previous semester. To be eligible, a student must have been enrolled in 12 or more semester credits with a computable grade in each. The top 15 percent of eligible students by college for that semester will be named to the Dean's Honor List.

### Graduation with Honors

To be eligible for a four-year degree with honors, a student must have earned at least 60 semester credits in computable grades while in residence at New Mexico State. Courses taken in the Honors College and graded S will be counted as a part of the minimum of 60 credits. The number of students at graduation, by college, receiving degrees with honors in any one year shall not exceed 15 percent. To receive high honors, a student must be in the top 1.5 percent of the graduating class by college. One person from each college will receive highest honors. In case of a tie, the student with the greatest numbers of credits earned

at NMSU with computable grades will be awarded highest honors for each college. Of the students receiving highest honors from the fall and spring commencements, the student with the highest grade-point average and the greatest number of credits earned at NMSU with computable grades will be awarded the Class of 1919 Scholarship Plaque.

## GRADUATION REQUIREMENTS

For the baccalaureate degree each student must complete a minimum of 120 credits including at least 48 credits numbered 300 or above. However, to satisfy the requirements of accreditation, licensure, program depth or rigor, or other needs, some majors require coursework in excess of the 120 credit hour minimum.

Each college has its own requirements for graduation listed under its curricula. However, there are certain graduation requirements common to all undergraduate colleges:

- A student must have a cumulative GPA of 2.0 in all courses taken at NMSU.
- The student will be required to show proficiency in written English in all class work at the university. Any instructor may remand a student to the English remedial laboratory for further training in written English. In each case, the student must complete the remedial laboratory work prior to submitting the application to graduate.
- Each student must complete at least 30 of the last 36 credits necessary for the baccalaureate degree at NMSU. Of these 36 credits, 21 credits must be upper division and at least 12 of these upper division credits must be in the major. Colleges or Departments may require that more than 12 of the upper division credits be from the major, and they may direct that certain number of these credits be course specific.
- Curricular requirements for a specific degree may be met by completing all of the course requirements for that degree as set forth in the catalog of matriculation provided that the selected catalog is not more than six years old when the requirements for graduation are met. This rule applies only to the course requirements and number of credits as specified for the degree. In all other cases, the current catalog is effective. The catalog is effective Summer Session I through Spring Semester.

Special provisions consistent with the NMSU Servicemembers Opportunity College (SOC) and other agreements apply for active military and veterans- see section Military and Veterans Programs.

Upon completion of all requirements, multiple majors for a single degree (e.g., B.A.) will be noted on the academic record. Multiple bachelor's degrees (e.g., B.A. and B.S.) may be granted if all requirements for the degrees have been completed. Multiple degrees may be granted at one commencement if all requirements have been met. Graduation fees must be paid for each degree.

Both designated and undesignated associate degree residency requirements vary with the college awarding the degree. Requirements for the two-year associate degrees and for the certificates are found in the section(s) concerning these degrees.

- Arts and Sciences, Business Administration, Education, and Health and Social Services require that the last 15 credits be completed at NMSU or one of its Community College campuses.
- College of Agricultural, Consumer and Environmental Sciences requires that the last 30 credits be completed at NMSU or one of its Community College campuses.

### ATTENDANCE AT COMMENCEMENT

The academic colleges will confirm eligibility to participate in the commencement exercises held at the close of the fall and spring semesters. Eligible candidates (registered for final degree requirements, as certified by the college deans) and degree recipients from the previous summer session will participate in the fall ceremony. Students who complete degree requirements in the spring must attend the spring ceremony. Bachelor degree candidates wishing to participate in a

spring commencement ceremony prior to completing degree requirements in summer school must meet the following conditions:

1. Receive permission from appropriate Dean
2. Show a minimum cumulative grade-point average of 2.0
3. Lack 12 or fewer credit hours to complete degree requirements
4. Remaining credit hours must be offered in the upcoming summer schedule of classes
5. Submit degree application and approved petition form (available in the Dean's office) by the last day to apply for a degree in the spring Semester.

Commencement is a symbolic ceremony. Participation in commencement does not, in itself, mean that a student is considered an NMSU graduate. In order to be awarded a degree, a student must fulfill university requirements as determined by academic colleges. The degree will reflect the graduation date from the application for degree in which all degree requirements were determined by the academic colleges.

### DIPLOMA

Diplomas will be mailed to graduates approximately eight weeks after final grades have been processed by the Registrar's office, concluding a final degree audit by the individual Colleges. The diploma will be mailed to the address specified on the degree application, unless an address change has been requested before the end of the semester.

The name on the diploma will reflect the student's current official NMSU records. Name changes are processed only for currently admitted students. The degree title and major(s) will be printed on the diplomas, in accordance to the degree application award, determined by the academic colleges. Academic honors will also be printed on the diplomas below the degree and major(s).

All fees and bills owed the university must be paid in full before a student may receive a diploma or transcript of credits.

### FILING NOTICE OF DEGREE CANDIDACY

Degree candidates are required to file an Application for Degree and pay graduation fees for each degree sought. This fee (\$25 for certificates, \$25 for associate, \$25 for bachelors, and \$35 for graduate degrees) will be included in the total cost for the semester or session in which the candidate anticipates completing degree requirements. If degree requirements are not completed during the semester or session, the student must reapply and pay the appropriate fees. The Application for Degree form is available online through the MyNMSU website. It must be completed and submitted by the designated deadline for that semester. A \$25 late fee applies to applications received after the application deadline, and no applications will be accepted after the posted deadline date. A student must specify choice of catalog as indicated under Graduation Requirements.

The latest date for substitution or waiver of required courses for candidates for degrees is two weeks after the last date of registration for regular or summer terms.

## PREPROFESSIONAL PROGRAMS

NMSU offers a number of programs designed for transfer to professional schools through its undergraduate colleges. The programs are:

**Preveterinary Medicine** is administered by the College of Agricultural, Consumer And Environmental Sciences

**Prehealth** is administered by the College of Arts and Sciences (with the exception of prenursing which is administered by the College of Health and Social Services.)

**Prelaw** is administered by the College of Business and by the College of Arts and Sciences. Law schools will accept undergraduates who have earned bachelor's degrees in any major. Many prelaw students take some law courses in their undergraduate program. The College of Arts and Sciences supervises a Supplementary Major in Law and Society, which includes courses from a number of departments and several colleges. It is described under "Government" in the Arts and Sciences chapter. The College of Business offers a number of Business



Law courses which can be found under the prefix BLAW in the course description chapter later in this catalog.

Further information will be found in the sections of this catalog devoted to the colleges. (See also the paragraph on Western Interstate Commission for Higher Education)

## GENERAL EDUCATION COURSES

### THE NEW MEXICO COMMON CORE REQUIREMENTS

General Education at NMSU provides all students with a broad foundation and common framework upon which to develop knowledge and skills, social consciousness and respect for self and others, thus enabling them to function responsibly and effectively now and in the future. General education courses at NMSU can be identified by the G suffix.

The New Mexico General Education Common Core includes designated general education courses guaranteed to transfer to any New Mexico public college or university. A complete list of approved courses can be found on the New Mexico Higher Education Department web site at [www.hed.state.nm.us](http://www.hed.state.nm.us). The current approved NMSU courses are listed below under each of the five general education areas.

In accordance to state law (Chapter 21, Article 1B NMSA 1978), the New Mexico Higher Education Department has established policies to guarantee successful transfer of completed core courses between New Mexico postsecondary public institutions.

### LOWER DIVISION GENERAL EDUCATION COURSE TRANSFER CURRICULUM

The NMSU Prefix and Course Number will be listed first, the New Mexico Transfer Curriculum number will then be listed in parenthesis' followed by the course title and credit hours.

#### AREA I: COMMUNICATIONS (Select 9-10 credits; one course from each sub group)

##### English Composition-Level 1

ENGL 111G	(ENGL 1114)	Rhetoric and Composition	4
ENGL 111GH	(ENGL 1114)	Rhetoric and Composition, Honors	4
ENGL 111 M235		Rhetoric and Composition for International and Multilingual Studies	4

##### English Composition-Level 2

ENGL 203G	(ENGL 2113)	Business and Professional Communication	3
ENGL 211G	(ENGL 2113)	Writing in the Humanities and Social Sciences	3
ENGL 218G	(ENGL 2113)	Technical and Scientific Communication	3
ENGL 311G	(ENGL 2113)	Advanced Composition	3
ENGL 318G	(ENGL 2113)	Advanced Technical and Professional Communication	3

##### Oral Communication

AXED 201G	(COMM1213)	Effective Leadership and Communication in Agricultural Organizations	3
COMM 253G	(COMM1213)	Public Speaking	3
COMM 265G	(COMM1213)	Principles of Human Communication	3

HON 265G	(COMM1213)	Principles of Human Communication-Honors	3

#### AREA II: MATHEMATICS/ ALGEBRA (select 3-4 credits)

A ST 251G/ STAT 251G	(MATH 2123)	Statistics for Business and Behavioral Sciences	3
MATH 112G		Fundamentals of Elementary Mathematics II	3
MATH 121G	(MATH 1113)	College Algebra	3
MATH 142G		Calculus for the Biological and Management Sciences	3
MATH 190G		Trigonometry and Precalculus	4
MATH 191G		Calculus and Analytical Geometry I	4
MATH 192G		Calculus and Analytical Geometry II	4
MATH 192GH		Calculus and Analytic Geometry II Honors	4
MATH 210G		Math Appreciation	4
MATH 275G/ HON 275G		Spirit and Evolution of Mathematics	3
MATH 291G		Calculus and Analytical Geometry III	3
STAT 271G	(MATH 2133)	Statistics for Psychological Sciences	3

#### AREA III: LABORATORY SCIENCES (select 8 credits)

AGRO 100G/ HORT 100G		Introductory to Plant Science	4
ANTH 130G/ ANTH 130GL		Human's Place in Nature: Introduction to Biological Anthropology	4
ASTR 105G		The Planets	4
ASTR 110G		Introduction to Astronomy	4
BIOL 101G/ BIOL 101GL	(BIOL 1113/ BIOL 1111)	Human Biology	4
BIOL 110G		Contemporary Problems in Biology	4
BIOL 111G/ BIOL 111GL	(BIOL 1213/ BIOL 1211)	Natural History of Life	4
BIOL 211G/ BIOL 211GL	(BIOL 1223/ BIOL 1221)	Cellular and Organismal Biology	4
C S 171G		Introduction to Computer Science	4
CHEM 110G	(CHEM 1114)	Principles and Applications of Chemistry	4
CHEM 111G	(CHEM 1213)	General Chemistry I	4
CHEM 112G	(CHEM 1223)	General Chemistry II	4
E S 110G	(ENVS 1114)	Introductory to Environmental Science	4
FSTE 164G		Introduction to Food Science Technology	4
FSTE 263G		Food Science I	4

GEOG 111G		Geography of the Natural Environment	4
GEOL 111G		Survey of Geology	4
GEOL 212G	(GEOL 1114)	The Dynamic Earth	4
HON 205G		Life, Energy, and Evolution	4
HON 219G		Earth, Time, and Life	4
PHYS 110G		Great Ideas of Physics	4
PHYS 120G		Introduction to Acoustics	4
PHYS 211G/ PHYS 211GL	(PHYS 1113/ PHYS 1111)	General Physics I	4
PHYS 212G/ PHYS 212GL	(PHYS 1123/ PHYS 1121)	General Physics II	4
PHYS 215G/ PHYS 215GL	(PHYS 1213/ PHYS 1211)	Engineering Physics I	4
PHYS 216G/ PHYS 216GL	(PHYS 1223/ PHYS 1221)	Engineering Physics II	4
PHYS 221G/ PHYS 221GL		General Physics for Life Sciences	3
PHYS 222G/ PHYS 222GL		General Physics for Life Sciences II	3

**AREA IV: SOCIAL/BEHAVIORAL SCIENCES (select 6-9 credits)**

AG E 210G/ FSTE 210G		Survey of Food and Agriculture Issues	3
ANTH 120G		Human Ancestors	3
ANTH 125G	(ANTH 2113)	Introductions to World Cultures	3
ANTH 201G	(ANTH 1113)	Introduction to Anthropology	3
ANTH 202G	(ANTH 2213)	Introduction to Archaeology and Physical Anthropology	3
ANTH 203G		Introduction to Language and Cultural Anthropology	3
C EP 110G		Human Growth and Behavior	3
C J 101G	(CRJI 1113)	Introduction to Criminal Justice	3
ECON 201G		Introduction to Economics	3
ECON 251G	(ECON 2113)	Principles of Macroeconomics	3
ECON 252G	(ECON 2123)	Principles of Microeconomics	3
GEOG 112G		World Regional Geography	3
GEOG 120G		Culture and Environment	3
GOVT 100G	(POLS 1123)	American National Government	3
GOVT 110G	(POLS 1113)	Introduction to Political Sciences	3
GOVT 150G		American Political Issues	3
GOVT 160G		International Political Issues	3
HON 232G		The Human Mind	3
HON 235G		The World of Anthropology	3
HON 237G		Archaeology: Search for the Past	3
HON 248G		The Citizen and the State: Great Political Issues	3

HON 249G		American Politics in a Changing World	3
JOUR 105G		Media and Society	3
LING 200G		Introduction to Language	3
PHLS 150G		Personal Health and Wellness	3
PSY 201G	(PSYC 1113)	Introduction to Psychology	3
S WK 221G		Introduction to Social Welfare	3
SOC 101G	(SOCI 1113)	Introduction to Sociology	3
SOC 201G	(SOCI 2113)	Contemporary Social Problems	3
W S 201G		Introduction to Women's Studies	3
W S 202G		Representing Women Across Cultures	3

**AREA V: HUMANITIES AND FINE ARTS (select 6-9 credits)**

ART 101G	(ARTS 1113)	Orientation in Art	3
ART 110G	(ARTS 1013)	Visual Concepts	3
ART 295G	(ARTS 2113)	Introduction to Art History I	3
ART 296G	(ARTS 2123)	Introduction to Art History II	3
DANC 101G	(DANC 1113)	Dance Appreciation	3
ENGL 115G		Perspectives on Literature	3
ENGL 116G		Perspectives on Film	3
ENGL 220G		Introduction to Creative Writing	3
ENGL 244G		Literature and Culture	3
HIST 101G	(HIST 1053)	Roots of Modern Europe	3
HIST 102G	(HIST 1063)	Modern Europe	3
HIST 110G		Making History	3
HIST 111G		Global History to 1500	3
HIST 112G		Global History Since 1500	3
HIST 201G	(HIST 1113)	Introduction to Early American History	3
HIST 202G	(HIST 1213)	Introduction to Recent American History	3
HIST 211G		East Asia to 1600	3
HIST 212G		East Asia Since 1600	3
HIST 221G		Islamic Civilizations to 1800	3
HIST 222G		Islamic Civilizations Since 1800	3
HON 208G		Music in Time and Space	3
HON 216G		Encounters in Art	3
HON 222G		Foundations of Western Culture	3
HON 225G		History of Ethics	3
HON 226G		Puzzles, Paradoxes, and Truth	3
HON 227G		Plato and the Discovery of Philosophy	3
HON 229G		The New Testament as Literature	3
HON 230G		Bamboo and Silk: The Fabric of Chinese Literature	3
HON 234G		The Worlds of Arthur	3
HON 239G		Medieval Understandings: Literature and Culture in the Middle Ages	3

HON 241G		Telling American Stories: Society and Culture in Early America	3
HON 242G		Claiming an American Past	3
HON 244G		Masterpieces of World Literature	3
HON 270G		Theatre: Beginnings to Broadway	3
MUS 101G	(MUSI 1013)	Introduction to Music	3
MUS 201G	(MUSI 1413)	History of Jazz in Popular Music: A Blending of Cultures	3
PHIL 100G		Philosophy, Law and Ethics	3
PHIL 101G		The Art of Wondering	3
PHIL 124G		Philosophy of Music	3
PHIL 136G	(RELI 1113)	The Quest for God	3
PHIL 201G	(PHIL 1113)	Introduction to Philosophy	3
PHIL 211G	(PHIL 1213)	Informal Logic	3
PHIL 223G	(PHIL 1213)	Ethics	3
THTR 101G	(THTR 1013)	Introduction to Theatre	3

### Alternatives for Meeting General Education Requirements

Students taking nine or more credits in a specific subject area, even though the courses are not designated as General Education courses, will have met the general education requirements for that subject area. For example, a student may complete ART 150, 155 and 156 (9 hours) and thereby satisfy one course from the Area V: Humanities and Fine Arts category, even though none of those courses carries a G suffix. Please check with the college associate dean or with college advisors.

### NMSU VIEWING A WIDER WORLD REQUIREMENTS

The Viewing a Wider World (VWW) requirement fosters intelligent inquiry, abstract logical thinking, critical analysis, as well as the integration and synthesis of knowledge. The program strives for literacy in writing, reading, speaking and listening. It teaches mathematical structures, acquainting students with precise abstract thought about numbers and space. The program also encourages an understanding of science and scientific inquiry, as it provides a historical consciousness, including an understanding of one's own heritage as well as respect for other peoples and cultures. To achieve its goals, the program includes an examination of values and stresses the importance of a carefully considered values system as it fosters an appreciation of the arts and general education. It provides the breadth necessary to have a familiarity with the various branches of human understanding. All VWW courses can be identified by the "V" suffix.

Prior to graduating, NMSU students are required to take two courses from separate colleges from the Viewing a Wider World list in the Undergraduate Catalog. These courses are upper-division (300-400 level) Viewing a Wider World courses and should be taken in a student's junior and/or senior year. One of the two courses must be in a college other than their own. The other course may be taken within their home college, but this course (1) must be in a different department from their major department; (2) must not be cross-listed with a course in their home department; (3) cannot be counted as one of the requirements for the student's major.

These courses strongly emphasize the international character and multicultural influences in the fields of study and strengthen information retrieval skills. One of the courses (3 credits) can be replaced by study abroad experience, consisting of at least four weeks of a Study Abroad program or university coursework in a foreign country earning 3 credits.

*NOTE: This list is under continuous revision. Please check with the office of the college associate dean or with college advisors for additional eligible courses. Honors courses have a specific college designation based on course content. These are listed near the end of this section.*

### College of Agricultural, Consumer and Environmental Sciences

AG E 315V	World Agriculture and Food Problems	3
AG E 337V	Natural Resource Economics	3
AG E 384V	Water Resource Economics	3
AG E 445V	Agricultural Policy	
AGRO 303V	Genetics and Society	3
ANSC 312V	Companion Animals and the Human/Animal Bond	3
ANSC 351V	Agricultural Animals of the World	3
AXED 466V	John Muir: Lessons in Sustainability	3
EPWS 325V	Insects, Humans, and the Environment	3
EPWS 380V	Ecosystem Earth: The Impact of Human Activities	3
FCS 449V	Family Ethnicities and Subcultures	3
GENE 303V	Genetics and Society	3
HORT 302V	Forestry and Society	3
RGSC 302V	Forestry and Society	3

### College of Arts and Sciences

ANTH 305V	Contemporary Native Americans	3
ANTH 306V	Peoples of Latin America	3
ANTH 330V	Introduction to Religious Studies	3
ANTH 357V	Medical Anthropology	3
ANTH 360V	Food and Culture Around the World	3
ANTH 361V	Social Issues in the Rural Americas	3
ASTR 301V	Revolutionary Ideas in Science	3
ASTR 305V	The Search for Life in the Universe	3
ASTR 308V	Into the Final Frontier	3
ASTR 330V	Planetary Exploration	3
C J 440V	Comparative Criminal Justice Systems	3
CHEM 310V	Chemistry and Society	3
ENGL 321V	Modern European Drama	3
ENGL 325V	Contemporary International Literature	3
ENGL 327V	Shakespeare around the Globe	3
ENGL 328V	Literature of Science Fiction and Fantasy	3
ENGL 330V	Studies in Poetry	3
ENGL 335V	Studies in the Novel	3
ENGL 339V	Chicana/o Literature	3
ENGL 341V	American Indian Literature	3
ENGL 380V	Women Writers	3
ENGL 392V	Mythology	3
ENGL 394V	Southwestern Literature	3
FREN 365V	Perspectives in French Culture	3
GEOG 315V	World Agriculture and Food Problems	3
GEOG 325V	New Mexico and the American West	3
GEOG 328V	Geography of Latin America	3

GEOG 331V	Europe	3
GEOG 361V	Economic Geography	3
GEOG 363V	Cultural Geography	3
GEOG 365V	Urban Geography	3
GEOL 305V	Fossils and the Evolution of Life	3
GEOL 315V	The Geology of National Parks	3
GEOL 335V	Earthquakes, Volcanoes, Hurricanes, and Floods: The Role of Natural Hazards in Civ Past and Present	3
GER 333V	German Culture through Cinema	3
GOVT 374V	The European City: History and Culture	3
GOVT 380V	Contemporary World Political Ideologies	3
GPHY 340V	Planet Earth	3
HIST 302V	Science in Modern Society	3
HIST 311V	Colonial Latin America	3
HIST 312V	Modern Latin America	3
HIST 330V	Introduction to Religious Studies	3
HIST 366V	British Imperialism	3
HIST 374V	The European City: History and Culture	3
HIST 382V	Modern Russia	3
HIST 390V	The Holocaust	3
HIST 425V	History of Magic and Witchcraft in Medieval and Renaissance Europe	3
JOUR 377V	Mass Media Ethics	3
LING 302V	Language and Society	3
MATH 411V	Great Theorems: The Art of Mathematics	3
PHIL 323V	Engineering Ethics	3
PHYS 301V	Photonics	3
PHYS 303V	Energy and Society in the New Millennium	3
PHYS 305V	The Search for Water in the Solar System	3
PSY 417V	Intercultural Relations	3
SOC 330V	Introduction to Religious Studies	3
SOC 336V	Sociology of Pop Culture	3
SOC 360V	Introduction to Population Studies	3
SOC 361V	Social Issues in the Rural Americas	3
SOC 374V	Comparative Family Systems	3
SOC 376V	Social Change	3
SOC 394V	Sports and Society: A Global Perspective	3
SOC 458V	Comparative Global Family Systems	3
SOC 465V	Environmental Sociology	3
SPAN 364V	Culture and Civilization of Mexico	3
SPAN 365V	Culture and Civilization of Spanish America	3
THTR 307V	Society in Style: Fashion, History and Culture	3
THTR 321V	Modern European Drama	3

W S 374V	Comparative Family Systems	3
W S 380V	Women Writers	3
W S 381V	Women's Health Issues	3

**College of Business**

BLAW 313V	Sports and the Law	3
BLAW 385V	Consumers and the Law	3
BLAW 430V	American Indian Law and Policy	3
ECON 324V	Developing Nations	3
ECON 325V	Economic Development of Latin America	3
ECON 335V	Business and Government	3
ECON 337V	Natural Resource Economics	3
ECON 384V	Water Resource Economics	3
ECON 432V	Economics of Health Care	3
FIN 303V	Personal Financial Planning and Investing in a Global Economy	3
MGT 310V	The Faces of Entrepreneurs	3
MGT 315V	Human Relations in Organizations	3
MGT 335V	Business and Government	3
MGT 345V	Quality and Competitiveness: An International Perspective	3
MGT 360V	Negotiation and Business Conflict Resolution: Theory and Practice	3
MGT 375V	Global Environmental Assessment and Management	3
MGT 388V	Leadership and Society	3
MKTG 311V	Consumer Behavior	3

**College of Education**

C EP 300V	Human Relations Training	3
C EP 451V	Introduction to Counseling	3
DANC 451V	World Dance	3
EDUC 317V	Multicultural Issues in Society	3
ELA 350V	Introduction to Educational Leadership in a Global Society	3

**College of Engineering**

C E 355V	Technology and the Global Environment	3
CHME 395V	Brewing Science and Society	3
E T 309V	Manufacturing: History and Technology	3
E T 360V	Technology in Business and Society	3

**College of Health and Social Services**

CAST 301V	Introduction to Child Advocacy	3
PHLS 301V	Human Sexuality	3
PHLS 305V	Global Environmental Health Issues	3
PHLS 380V	Women's Health Issues	3
PHLS 464V	Cross-Cultural Aspects of Health	3
S WK 331V	Introduction to Social Policy: History	3

**University Library**

LIB 311V	Information Literacy	3
----------	----------------------	---

**HONORS- VIEWING A WIDER WORLD****College of Agricultural, Consumer and Environmental Sciences**

HON 320V	Food and Humanity: World in Crisis	3
HON 321V	Agriculture in an Urban World	3

**College of Arts and Sciences**

HON 304V	Dilemmas of War and Peace	3
HON 305V	Global Environment	3
HON 306V	Science, Ethics and Society	3
HON 308V	Into the Final Frontier	3
HON 317V	Cultural Lessons of Nazism	3
HON 318V	The World of Cinema	3
HON 322V	Science and Public Policy	3
HON 324V	Science and the Arts: Theatre and Story	3
HON 325V	Contemporary International Literature	3
HON 326V	Art and Mythology	3
HON 328V	Rock History: 20th Century Popular Music	3
HON 342V	God and Nature	3
HON 348V	Comparative Mythology: Myth, Ritual, and the Life Cycle	3
HON 349V	Islam and the West: Cultural Contacts, Conflicts, and Exchanges	3
HON 350V	Law, Culture, and Conflict	3
HON 351V	Interpersonal Relations and the Self	3
HON 352V	Crime, Justice, and Society	3
HON 353V	Justice without Prejudice	3
HON 365V	African and Caribbean: Literature and Film	3
HON 366V	The Gothic Imagination	3
HON 370V	Design: The Creative Act	3
HON 374V	The European City: History and Culture	3
HON 375V	The U.S. City: A History of Race, Space, and Urbanization	3
HON 379V	Literature as Film	3
HON 383V	The Sixties: Society, Culture, and Change	3
HON 387V	Comparative Perspectives on Women	3
HON 392V	Vietnam: Americas Longest War	3
HON 394V	Southwestern and Border Literature	3
HON 411V	Great Theorems: The Art of Mathematics	3
HON 425V	Magic and Witchcraft in Medieval and Renaissance	3

**College of Business**

HON 335V	Legal Issues in Modern Society	3
HON 340V	American Indian Law and Policy	3
HON 380V	Comparative Economic Systems	3
HON 384V	Ethical Decisions in Organizations	3
HON 385V	Consumers and the Law	3
HON 386V	Women in the Economy	3

**College of Education**

HON 347V	World Dance	3
HON 388V	Leadership and Society	3

**College of Engineering**

HON 378V	Technology and Policy	3
----------	-----------------------	---

**Honors College**

HON 450V	The Sundt Honors Seminar	3
----------	--------------------------	---

**Alternatives for Meeting Viewing a Wider World Requirements**

Students taking nine or more credits in a specific subject area, even though the courses are not designated as Viewing a Wider World courses, will have met the VWW requirements for that subject area.

The 9 credit hours must be in 300- to 400-level courses in one prefix area. For example, 9 upper-division ECON credits would fulfill one VWW area for students majoring in programs other than Economics.

## MILITARY AND VETERANS PROGRAMS (MVP)

NMSU is a military and veteran friendly university which strives to provide the best possible service to our current and former service members as they pursue their educational goals. NMSU Military and Veterans Programs promotes lifelong learning and professional development for veterans, active-duty military and their families, assisting them in their higher education goals by offering:

- Affordable, in-state tuition rates for active-duty military personnel and dependents using federal education benefits
- Affordable, in-state tuition rates for veterans and dependents receiving U.S. Department of Veterans Affairs education benefits
- Easily transferable credits that count toward degrees at NMSU
- Facilitation of all Department of Defense Tuition Assistance (TA) Benefits
- Courses taught online and at locations near regional military installations
- Innovative technology and course delivery methods
- Internships for veterans
- Student advocacy at every level, from admissions to graduation
- Resource materials from a variety of veteran and military service organizations
- Priority registration for all military and veteran students
- Veterans on Campus Training by Kognito, training faculty and staff on our student veterans and the unique value they bring to campus
- Salute Honor Society for student veterans
- Connection with student organizations
- A tradition of quality education

NMSU degree programs are approved by the State Approving Agency Directory at the New Mexico Higher Education Department. Eligible students may receive education benefits from the U.S. Department of Veterans' Affairs.

For further information, contact Military and Veterans Programs at: MSC 4740, PO Box 30001, Las Cruces, NM 88003-8001; (575) 646-4524; <http://mvp.nmsu.edu>.

**COSTS****Active-Duty**

Active-duty military personnel (Armed Forces) stationed in New Mexico or at Fort Bliss, Texas may complete a "Resident Tuition Application for Active Military, Veterans and Dependents of the US Armed Forces" waiver to qualify for in-state tuition. Spouses and minor children of active-duty personnel who are stationed in New Mexico and Fort Bliss, Texas who are not otherwise entitled to claim in-state residency, may apply for in-state tuition by submitting a "Resident Tuition Application for Active Military, Veterans and Dependents of the US Armed

Forces" waiver to the Military and Veterans Programs office. Applications are available at the Military and Veterans Programs Office, online at <http://mvp.nmsu.edu>, or through the Registrar's Office.

#### **Dependents Receiving VA Educational Benefits**

Per NM 2015 HB 427:

A spouse or child of a veteran of the armed forces is entitled to pay tuition and fees at the rate provided for New Mexico residents; provided that the spouse or child is eligible for benefits pursuant to the federal Post-9/11 Veterans Educational Assistance Act of 2008 or any other federal law authorizing educational benefits for a veteran and the dependents of a veteran. Applications are available by contacting Military and Veterans Programs office.

#### **Veterans**

Veterans receiving U.S. Department of Veterans Affairs education benefits are eligible for in-state tuition through the Veterans In-State Tuition Act by submitting a "Resident Tuition Application for Active Military, Veterans and Dependents of the US Armed Forces" waiver. For further information concerning approved programs and application process, eligible persons should contact Military and Veterans Programs office.

Veteran students enrolled under the following programs are responsible for their tuition and fees in the same manner as a nonveteran student:

- Montgomery GI Bill-Active Duty (CH30)
- Dependents (CH35)
- Montgomery GI Bill-Selected Reserve (CH1606)
- Reserve Educational Assistance Program (REAP) Tuition and fees of students enrolled under the Vocational Rehabilitation Program (CH31) will be paid by the U.S. Department of Veterans Affairs under contract with the university.

#### **MVP LAB**

The MVP lab serves as a one stop shop for military and veteran students with numerous resources on and off campus. Military and Veterans Programs can assist you with all matters at NMSU from admissions to graduation. Military and Veterans Programs has a lab containing 6 PCs and an iMac loaded with Adobe Creative Suite 6. Common Access Card (CAC) readers are available on 2 machines. The lab is open 8am-5pm, Monday through Friday and is available to all military and veteran students including dependents. Enjoy a free cup of coffee while doing your homework or just hang out and network with like-minded veterans. We offer free fax, copy and printing services to further accommodate our students.

#### **REGULATIONS**

*Note: These regulations apply to all campuses of NMSU and are effective with the publication of this catalog. Tuition amounts, fees, and similar items subject to annual review and change are all effective with the current catalog.*

#### **Credit for Military Service**

New Mexico State University will award academic credit to United States military personnel for courses and Military Occupational Specialties (MOS), based on the American Council of Education Guide (ACE) as well as through national standardized tests, such as CLEP, AP, PEP and DANTES. Credit for military-training is in accordance with NMSU Faculty Senate Legislation Proposition 24-07/08, which was passed in May 2008. Military Training and Military Occupational Specialties (MOS) must have a recommendation evaluation by ACE (in the ACE Guide) for credit to be awarded. Courses accepted for transfer credit become part of the student's official NMSU transcript and academic record. If a student wishes to appeal a decision regarding the acceptance of military training/education and/or MOS for academic credit, the student must submit a written statement of appeal to the Dean of the College to which the student has applied. The Dean will review the merits of the appeal and render a decision. The decision of the Dean is final.

Only Primary MOS (s) are eligible for academic credit in the initial review and evaluation. Credit for Duty and/or Secondary MOS may be eligible for academic credit if the student petitions the college's Associate Dean. Primary MOS is the primary specialty of a soldier and reflects the broadest and most in-depth scope of military experience. Veterans, active-duty personnel, National Guard and Reservists who are current students or students applying for admission to New Mexico State University may be granted academic credit on a case-by-case

basis upon evaluation of military transcripts - the Joint Service Transcript ([jst.doded.mil](http://jst.doded.mil)) and the Community College of the Air Force transcripts. Course equivalencies and credit hours awarded for a particular NMSU degree are determined by colleges and/or academic departments. Credit hours may be awarded for specific courses toward degree requirement, or as elective credit. The number of credit hours awarded will be determined by the college and/or academic department.

*NOTE: Students submitting military transcripts for credit evaluation must keep in mind the Maximum Time Frame policy. See Financial Aid Section.*

#### **Tuition Assistance**

Tuition Assistance (TA) is a benefit paid to eligible active duty members of the Air Force, Army, Coast Guard, Marines and Navy. The Department of Defense (DoD) has given each service the ability to pay up to \$250 per semester credit hour of the actual cost of tuition (no fees) during the fiscal year (Oct. 1 - Sept. 30). TA will pay for up to 13- semester hours of a bachelor's degree and up to 39 semester hours of a master's degree. TA must be requested and approved prior to the start date of the course.

Service members must first be admitted to NMSU before they may enroll in any classes at NMSU.

Please be aware of our admission and registration process:

1. Service members must apply online to be admitted,
  2. login to [my.NMSU.edu](http://my.NMSU.edu) to register for classes, and
  3. create an account and Request TA through their service online portal.
- Each service has its own criteria for eligibility, application process and restrictions. Refer to our website for service login information: <http://mvp.nmsu.edu/tuition-assistance>

It is important to request TA for the same class and section number as enrolled in NMSU for tuition and grading purposes. Only enrollments requested and approved through their service online portal will be eligible for TA. Refer to our website for further information at <http://mvp.nmsu.edu/tuition-assistance> or contact the Military Programs Coordinator for assistance at [mvp@nmsu.edu](mailto:mvp@nmsu.edu) or (575) 646-4524.

#### **Military/Veteran Graduate Student Status**

Veteran benefits are determined by the number of graded graduate credits of enrollment for a given semester or summer session. Listed below are the credit hours that determine student status for military veterans.

Fall and Spring semester: full-time enrollment includes 9 or more graded credit hours. Students are considered three-fourths time if they are enrolled in 7 to 8 credit hours. Half time enrollment is 5 hours. Veterans enrolled in less than 5 credit hours are reimbursed for tuition and allowable fees only.

There are several sessions within the summer term. For the 10 week summer session, full-time enrollment is 6 credit hours and half time enrollment is 3 credit hours. During the five week sessions, full-time enrollment is 4 graded credit hours.

#### **Military Withdrawal**

The following steps must be taken by all New Mexico State University students called up for active duty who wish to withdraw from all their classes:

1. Military and Veterans Programs: VA students ordered to Active Duty must provide a copy of orders to the MVP office, Garcia Annex, room 144. To assist in reporting accurate information to the VA Regional Office, student should also provide, in writing, last day of class attendance.
2. NMSU Registrar: All students presenting their orders to the NMSU Registrar's Office, (575) 646-3411, will receive a military withdrawal from classes and a full tuition and fees refund for that semester.
3. Bookstore: Students who still have their receipts for textbooks purchased the semester in which they are called to active duty will be given a full refund for these textbook purchases when they present their orders. (575) 646-4431.

**Veterans' Attendance and Satisfactory Progress**

The U.S. Department of Veterans Affairs requires all veterans receiving VA education benefits to make satisfactory progress and systematic advancement toward an educational objective or be liable for over-payments. Satisfactory progress and regular class attendance are expected of such students.

If a veteran receiving benefits is suspended for academic reasons, benefits are terminated and will be restored only after readmission to NMSU.

If the university has liability claims filed against it as a result of a veteran failing to meet compliance requirements of the U.S. Department of Veterans Affairs, the university will not release any academic records on the veteran until such time as the veteran has reimbursed the federal government for funds drawn in violation of those requirements.

A student receiving VA education benefits who is pursuing a degree program offered by New Mexico State University should adhere to the curriculum of that program. Failure to do so will result in the student being certified for less than full-time status or becoming liable for an overpayment.

**RESOURCES FOR STUDENTS****Military and Veteran Housing**

New Mexico State University is one of the first in the nation to offer on-campus housing specifically designated for student veterans and their families transitioning out of the military and into student life. The Department of Housing & Residential Life has worked in conjunction with the Student Veterans Organization of NMSU to offer affordable housing on campus to student veterans attending the university.

For more information, please contact Housing and Residential Life: (575) 646-3202, [housing@nmsu.edu](mailto:housing@nmsu.edu), <http://housing.nmsu.edu>.

**Servicemembers Opportunity Consortium (SOC)**

The NMSU system has been designated a Servicemembers Opportunity Colleges (SOC) Consortium university. As a member of SOC, NMSU has committed itself to fully support and comply with SOC principles and criteria, ensuring that servicemembers and their families share in the postsecondary educational opportunities available to other citizens. Those eligible are provided with appropriately accredited educational programs, courses, and services. Flexibility of programs and procedures particularly in admissions, counseling, credit transfer, course articulation, recognition of other applicable learning experiences, including those gained in the military, scheduling, course format and residency requirements are provided to enhance access of servicemembers and their families to undergraduate education programs. All SOC rules and regulations apply, including:

- Credit for military training and experience – NMSU recognizes and uses ACE Guide in evaluating military training experiences
- Reduced academic residency requirements – 25% maximum for most programs; 30% for 100% online programs
- No final year or semester requirement
- Credit for nationally-recognized testing programs such as CLEP (General and Subject exams), DSST (DANTES Standardized Subject Tests)

For further assistance contact the SOC coordinator through Military and Veterans Programs at MSC 4740, NMSU, P.O. Box 30001, Las Cruces, NM 88003-8001 or (575) 646-4524.

**RESPONSIBILITY OF VETERAN STUDENTS**

Students must be pursuing a degree in a specific program to be eligible for benefits. Admission procedures for veterans and other eligible persons are the same as for all students. Academic advisors must submit degree plans to Military and Veterans Programs prior to certification. For continued certification, students must submit a Concise Student Schedule to the MVP office every semester.

Veterans must notify the MVP office when any of the following occurs:

- Dropping or adding course(s)
- Withdrawing from course(s)
- Discontinuing regular class attendance
- Changing programs (academic majors)

VA education benefits are payable for regular attendance in courses that are part of the veteran's program (major) curriculum. VA educational benefits are not payable for:

- Classes not attended regularly
- Repeating a course for which a passing grade was received
- Classes for which credit is received through successful completion of a proficiency test or grade by examination
- Classes taken on an audit basis
- Classes that are dropped or withdrawn from
- Classes taken that are not part of the veteran's program (major) curriculum

**RESERVE OFFICE TRAINING CORPS (ROTC)**

The Reserve Officer Training Corps is a commissioning program designed to attract, motivate and train qualified students for military service as officers. The ROTC program is represented on the NMSU campus by the Department of Military Science (U.S. Army) and the Department of Aerospace Studies (U.S. Air Force).

Curricula in the Departments of Military Science and Aerospace Studies are divided into basic and advanced courses of two years each. Enrollment in the basic course is voluntary and involves no obligation. Participation in the advanced courses is on a contractual basis and leads to military service as a commissioned officer. Elective academic credit is granted by the university for ROTC classes.

Students with prior military service or Junior ROTC experience may receive credit, although not academic credit, for all or portions of the basic courses.

All qualified cadets enrolled in ROTC receive a stipend that varies dependent upon the year the cadet is in the program. Scholarships, which pay full college tuition as well as various laboratory, textbook and incidental fees, are available on a competitive basis.

For more detailed information about the ROTC programs, see the College of Arts and Sciences departments of Aerospace Studies and Military Science in this catalog. Additional information may be obtained by contacting the departments directly at: (575) 646-4030 (Army) and (575) 646-2136 (Air Force).

**UNIV 115- TRANSITION FROM MILITARY TO UNIVERSITY**

Making a positive transition from military to civilian life is a key to success. This course will cover a variety of topics ranging from time management to critical thinking. It is designed to assist military and veteran students in becoming more effective learners through self-awareness, effective study, learning strategies and interpersonal skills. Skills and techniques for managing military to civilian readjustment transition issues are discussed and examined.

**REGULATIONS & POLICIES**

These regulations are effective with the publication of this catalog and apply to all campuses within the NMSU system.

**ACADEMIC APPEALS****Academic Appeals Board**

Within each college of the university or the library, an academic appeals board will be appointed by the associate dean for academics to hear student appeals. The appeals board will consist of three faculty members and two students.

**Academic Misconduct**

Students at NMSU are expected to observe and maintain the highest academic, ethical, and professional standards of conduct. Any student found guilty of academic misconduct shall be subject to disciplinary action. Academic misconduct includes, but is not limited to, the following actions:

1. Cheating or knowingly assisting another student in committing an act of cheating or other forms of academic dishonesty
2. Plagiarism, which includes, but is not necessarily limited to: submitting examinations, themes, reports, drawings, laboratory notes, undocumented quotations, computer-processed materials, or other material as one's own work when such work has been prepared by another person or copied from another person.

3. Unauthorized possession of examinations, reserve library materials, or laboratory materials.
4. Unauthorized changing of grades on an examination, in an instructor's grade book, or on a grade report or unauthorized access to academic computer records.
5. Nondisclosure or misrepresentation in filling out applications or other university records in, or for, academic departments or colleges.

#### Maintenance of Records

Instructors and/or departments shall keep records used to compute individual grades for two years after the completion of a course. If a grade has been appealed, these records shall be kept for at least two years after completion of the appeal. Departments, colleges or the library may require that records be kept for longer periods.

#### Procedure for Initiating Grievance Complaints

This procedure has been established to provide a method to resolve undergraduate student grievances at the lowest administrative level in a fair and expeditious manner. For the purpose of this procedure, grievances are limited to alleged violations of university policy or procedures by the university or its employees, disputes with faculty and/or alleged unfair treatment. Usually this method is used to appeal a grade the student feels was not justified. Under no condition should these policies be used when the student has allegedly violated the University Code of Conduct or a contractual agreement, and at no hearing should either party have a lawyer. Any student who believes that he/she has been unjustly treated within the academic process may proceed as far as necessary in the steps detailed below. Should the alleged grievance not involve a faculty member or course, the student is to appeal directly to the department head or associate dean for academics in whose area or college the alleged grievance occurred.

The following are the steps and procedures for initiating a Grievance Complaint:

1. **Appeal to the faculty member:** The student is to submit a written appeal to the faculty member within 30 days after the start of the semester following the semester in which the alleged grievance occurred. Semester in this case refers to fall and spring only. If the alleged grievance occurs during the summer session, the student is to submit an appeal no later than 30 days into the fall semester following the summer session in which the alleged grievance occurred. The faculty member and the student are to discuss the problem. The faculty member will submit a written report outlining his or her decision to the student and department head or appropriate unit designee within ten working days of receiving the student's written appeal.
2. **Appeal to the department head or appropriate unit designee:** If a decision satisfactory to the student cannot be reached, the student may submit a written appeal to the department head or appropriate unit designee in which the course in question is taught. This is to be done within ten days of the receipt of the faculty member's written decision. The faculty member, the department head or appropriate unit designee, and the student are to meet to discuss the problem. The department head or appropriate unit designee will send a written response outlining his or her decision to the student and faculty member within ten days of this meeting.
3. **Appeals to the associate dean for academics or associate dean of the library:** If a satisfactory decision cannot be reached among the department head or appropriate unit designee, the faculty member, and the student, the student or the faculty member may submit a written state of appeal to the associate dean for academics of the college in which the course was taught. This is to be done within ten working days after the receipt of the written decision by the department head. The associate dean may request a written recommendation from an Academic Appeals Board. Should this be the case, the Academic Appeals Board will conduct a hearing with the student and faculty member (not necessarily at the same time) to review the merits of the appeal. They may also ask for supporting evidence for or against the appeal. The Academic Appeals Board will submit the written recommendation to the associate dean within five working days following the conclusion of their process. The associate dean may meet with the student, faculty member, and department

head to discuss the appeal (not necessarily at the same time). The associate dean will submit a written response outlining his or her decision to the student, faculty member, department head, and dean within ten days of the last meeting.

4. **Appeals to the dean:** The dean of the college or library in which the course is taught or in whose college the alleged grievance occurred may, at his or her discretion, review the appeal upon the written request of the student or faculty member and render a final decision. An appeal to the dean is the last step in the appeals process and the dean's decision cannot be appealed further. Should the dean not choose to review the appeal, the decision of the associate dean for academics or associate dean of the library is final.

5. **Exceptions to the time involved:** The associate dean for academics or associate dean of the library may waive the normal time frame for appeals for compelling reasons. Regardless of circumstances, academic appeals must be initiated with the course instructor within two years of the conclusion of the semester or summer session in which the course was taken.

6. **Enrollment:** A student need not be enrolled at the university to initiate an appeal.

#### ACADEMIC STANDING

When a student does not maintain adequate academic standing, he/she is placed in Academic Warning. If the student's academic standing does not improve, the placement progresses to Academic Probation I. Continued unimproved academic standing moves a student into Academic Probation II, then finally, Academic Suspension. Each stage imposes more structure and limitations on the student in order to help them return to normal academic standing. The intent is not to punish, but to help the student return to normal academic standing and success. Since some of these limitations involve limitations on the number of credit hours, students on Probation or Suspension may be subject to loss of financial aid. It is the responsibility of the student to determine the impact of their changed academic standing on their financial aid. Notification to students of academic warning, probation, or suspension appears on the student's grade report at the end of each grading period.

#### Academic Warning

Issued only once, the first time a student's cumulative GPA falls below a 2.0 while in good academic standing. The relevant Associate Dean for Academics or Campus Academic Officer (CAO) will send the student a letter detailing the consequences should the cumulative grade point remain below a 2.0 at the conclusion of the semester. A student on Academic Warning remains eligible for all extracurricular activities as governed by the rules of the specific activity.

While under Academic Warning the following restrictions apply:

1. The student may be required to enroll in a 3-credit hour special study skills/time management course specifically designed for students on Academic Warning, or an equivalent course approved by the appropriate associate dean or CAO of their campus.
2. Students will be required to enter into a contract with their advisor, approved by their department head that places further stipulations on Academic Warning. The contract may include, but is not limited to the following:
  - The student may be required to take at least one repeat course to try to improve their GPA.
  - Except for the special study skills/time management course, the student's coursework may be restricted to their major.
  - The student may be required to get tutoring help.
  - The student may be required to see an academic counselor on a specified time schedule.
  - The number of credit hours a student may register for may be restricted (due to extenuating circumstances such as the student's workload commitments).

The associate dean or CAO may place the student on Academic Probation I should the student not adhere to the stipulations of the contract.

If the student's semester GPA is less than a 2.0, and the cumulative GPA remains below a 2.0 at the end of the semester on Academic Warning, the student is



placed on Academic Probation I. If the semester GPA is greater than 2.0 but the cumulative GPA is still less than 2.0, the student will remain on Academic Warning. If the cumulative GPA is greater than a 2.0 at the end of the semester then the student is returned to good academic standing.

#### Academic Probation I

This occurs when a student under Academic Warning has a semester GPA less than 2.0, and the cumulative GPA remains below 2.0 at the conclusion of the semester or if the student maintains a semester GPA greater than 2.0 while on Academic Probation I but the cumulative GPA is still less than 2.0.

Under Academic Probation I the following conditions apply:

1. The student cannot enroll in more than 13 hours of coursework during the semester. *Note: Students falling below 12 credits in any one semester will jeopardize their financial aid.* Should this occur, students should see the associate dean in their college as soon as possible to try to implement corrective measures.
2. The student will enter into a contract or individualized education plan with their advisor and approved by the associate dean or CAO that place further stipulations on Academic Probation I. The associate dean or CAO may place the student on Academic Probation II or Academic Suspension should the student not adhere to the stipulations of the contract.
3. Students on Academic Probation receiving educational benefits from the Veterans' Administration must obtain counseling from the Military & Veterans Programs Office.
4. Students admitted under special provisions whose transcripts indicate less than a 2.0 GPA are admitted on Academic Probation I.

The student must maintain a semester GPA equal to or greater than 2.0 until such time that the cumulative GPA is greater than 2.0 at which time the student goes back to good academic standing. Until the transition happens the student remains on Academic Probation I. The student will be placed on Academic Probation II if he/she is unable to maintain a 2.0 semester GPA, and the cumulative remains below a 2.0 GPA, while under Academic Probation I. A student on Academic Probation I remains eligible for all extracurricular activities as governed by the rules of the specific activity.

#### Academic Probation II

Academic Probation II is issued in two ways. The first is when a student falls below a semester 2.0 GPA and the cumulative GPA remains below a 2.0 while on Academic Probation I. The second is when a student maintains a semester GPA greater than 2.0 while on Academic Probation II but the cumulative GPA is still less than 2.0.

The following restrictions are in place for student's in Academic Probation II:

1. The student cannot enroll in more than 7 credit hours of coursework during the semester.
2. As with rule 2 under Academic Warning and Academic Probation I and at the discretion of the associate dean or CAO, the student will be required to enter into a contract with their advisor, approved by the associate dean or CAO, to place further stipulations on Academic Probation II.

The associate dean or CAO may place the student on Academic Suspension should the student not adhere to the stipulations of the contract.

The student must maintain a semester 2.0 GPA or higher until the cumulative GPA reaches a 2.0 or higher at which time they are placed on good academic standing. A student unable to maintain a semester GPA of 2.0 or higher, and the cumulative remains below 2.0 GPA, while under Probation II will be placed on Academic Suspension. A student on Academic Probation II remains eligible for all extracurricular activities as governed by the rules of the specific activity.

#### Academic Suspension

When a student does not achieve a semester 2.0 GPA or higher, and the cumulative remains below a 2.0 while under Academic Probation II, they are placed on Academic Suspension. Students under Academic Suspension are not allowed to take NMSU courses while under suspension. Students on Academic Suspension must sit out a minimum of 1 semester and then petition the Provost or designee to be removed from Academic Suspension. At this time the suspension status will be evaluated for possible removal. Should the suspension be lifted, the student is placed on Academic Probation II until such time as the cumulative GPA

equals or exceeds a 2.0. At the discretion of the Provost or designee, the student will enter into a contract approved by the Provost or designee and the student's Dean or CAO, setting stipulations to have the suspension removed. Failure to adhere to the contract will return the student to Academic Suspension.

Under certain conditions, a student may be re-admitted at NMSU under regular status while under Academic Suspension when satisfactory progress has been demonstrated at another college or university (see Readmission- Degree Seeking). Credits earned at another university or college while under Academic Suspension from NMSU or another university or college will be accepted at NMSU only after the student demonstrates satisfactory progress over a period of two semesters after being re-admitted or admitted to NMSU. Acceptance of transfer credits that count toward degree requirements is still governed by the rules established by the student's respective college or campus.

#### Continuing in probationary status

Students may continue to enroll while on Academic Probation I or II provided they maintain a semester GPA of 2.0 or higher. If they withdraw from the university while on Academic Probation, they continue on that same level of Academic Probation.

#### Disciplinary Probation and Suspension

NMSU expects all students to regard themselves as responsible citizens on campus and in the community.

Repeated misconduct and major violations will cause the student to be subject to immediate suspension or expulsion from the university.

The general rules and regulations applicable to students are in the Student Code of Conduct of the Student Handbook or can be obtained from the Scheduling and Information Desk in Corbett Center.

#### Effect of summer attendance

A student may use summer classes to try to get warning or probationary status removed. Students suspended at the close of the spring semester may have their Academic Suspension rescinded if they attend summer session at NMSU or one of its Community College colleges. Such attendance must raise the combined spring semester and summer GPA to 2.0 or better. Under no circumstances may a student on Academic Warning or Academic Probation be allowed to register for an overload. Academic Warning status is continued if the student withdraws from the university and the probation or suspension status applies to all subsequent enrollments.

A certification of eligibility to attend summer sessions at NMSU after a spring semester Academic Suspension is available to the suspended student who wishes to attend summer sessions at other institutions.

#### Removal of Academic Probation

Such academic standing is removed when the cumulative GPA is raised to 2.0 or higher, with the following exceptions:

- (1) a transfer student may not remove probation by summer work alone;
- (2) if an I grade is removed after the student has enrolled, the new grade's effect on academic standing is based on its inclusion with grades for the term for which the student is enrolled;
- (3) exercise of the Adjusted Credit Option does not change academic status until subsequent grades are earned.

### GENERAL ACADEMIC

#### Attendance and Student Performance

Students are expected to attend regularly all classes for which they are registered. Students making satisfactory progress in their classes will be excused from classes when they are representing NMSU on a university sponsored event (e.g. ASNMSU president representing NMSU at legislative session, student athletes competing in NMSU scheduled athletic events, or students attending educational field trips and conferences). Authorized absences do not relieve the student of their class responsibilities. Prior written notice of the authorized absence will be provided to the instructor by the sponsoring department. Specific class attendance requirements are determined by the instructor of the course.

When the number of absences hinders a student's progress in a course, the instructor may initiate a statement of the student's excessive absences including

a recommendation of retention or expulsion from the class. Based on the recommendation of the instructor and with the concurrence of the course department head and the student's academic dean, a student will be dropped for persistent absences or for persistent failure to complete assignments. Similarly, a student may also be dropped from a class for engaging in behavior that interferes with the educational environment of the class. Any student who has been dropped from a class shall have the right to appeal that decision through the Student Academic Grievance Policy.

Only enrolled students, for credit or for audit, are permitted to attend classes. A student who has officially withdrawn from a course may continue to attend the course with the permission of the instructor for the remainder of the semester. Students not enrolled may visit classes only with the permission of the instructor.

### Basic Academic Skills

NMSU requires all students to demonstrate basic academic skills in both English and mathematics to ensure that they have the abilities to succeed in upper-division courses numbered 300 or higher. First-time students are evaluated using ACT or SAT test scores or diagnostic testing at the time of registration to determine basic academic competency. Based upon this evaluation, the university will require entering students to correct deficiencies by completing coursework in English and mathematics before enrolling in courses numbered 300 and above.

Transfer students with 45 or more credits will be allowed to enroll in upper-division courses for one semester. After that point, they must meet both of these requirements before enrolling in upper-division courses. The options for satisfying basic skills in English and mathematics are listed below.

Completion of basic skills requirements will not necessarily satisfy university general education requirements in English and mathematics. Students should consult the General Education Courses and Requirements section in this chapter for these requirements.

#### English Basic Skill Requirement Options

- **30 ACT English Score** - Students may satisfy basic skills requirements in English by scoring 30 or higher on ACT English exams. However, students must still earn credit for ENGL 111G by one of these options:
- **ENGL 111G or ENGL 111GH** - Students may satisfy English basic skills by passing ENGL 111G or ENGL 111GH with a grade of C- or higher.
- **CLEP Credit** - Students may earn credit for ENGL 111G or ENGL 111GH by taking the College Level Examination Program subject exam in freshman college composition with a score of 57 (top quartile) or higher. See Credit by College Level Placement Examination for details.
- **Advanced Placement Credit** - Students may receive advanced placement credit for ENGL 111G or ENGL 111GH by scoring 3, 4, or 5 on the English Advanced Placement Exam. See "Advanced Placement" for details.
- **Transfer Credits** - Students may receive credit for ENGL 111G by transferring 3 or more credits of college-level English composition, with a grade of C- or above from accredited institutions. International students may be required to satisfy the requirements under ENGL 111 M below.
- **Transfer Credits from Nonaccredited Institutions** - Students may receive credit for ENGL 111G by transferring 3 or more credits of college-level English composition with a grade of C- or higher from a nonaccredited institution, and by writing a theme which is judged adequate by the Department of English.
- **ENGL 111 M** - International students who took the TOEFL examination must complete ENGL 111 M with a satisfactory grade.
- **Developmental Courses** - Students who score 12 or below on the ACT English exam must pass two developmental English courses (CCDE 105N, CCDE 110N) before enrolling in ENGL 111G. Students who score 13 to 15 on the ACT English exam must pass one developmental English course (CCDE 110N) before enrolling in ENGL 111G. Developmental courses are included on the transcript and will be included in the calculation of the GPA; however, credits in developmental courses will not count toward a degree.

### Mathematics Basic Skills Requirement Options

- **23 ACT Mathematics Score** - Students may satisfy basic skills requirements in mathematics by scoring 23 or higher on ACT mathematics exams. However, students must still fulfill the general education math requirement.
- **Coursework** - Students scoring below 23 on ACT mathematics exams may satisfy basic skills in mathematics by earning a grade of C- or higher in one of the following courses or course combinations:
  - (a) CCDM 112N and CCDM 113N;
  - (b) CCDM 114N;
  - (c) MATH 111 and MATH 112G;
  - (d) any mathematics course numbered 120 or above, which includes A ST 251G, STAT 251G and STAT 271G.

New students are placed in these courses according to their high school GPAs and their ACT scores in mathematics. However, new engineering students must take the mathematics placement exam (MPE), and any new student may choose to take the MPE to test towards a higher placement. Placement does not earn academic credit, and placement in a mathematics course numbered 120 or higher does not satisfy the basic skills requirement.

- **Basic Skills Exam** - Students may take the Basic Skills Exam, which is offered twice a semester by the Department of Mathematical Sciences. A passing score will meet the basic skills requirement, although it will not appear as credit on the student's transcript.
- **Advanced Placement Credit** - Students may receive credit for courses which may satisfy basic skills in mathematics by taking the math Advanced Placement Exam. See Advanced Placement later in this chapter for details.
- **Developmental Courses** - Students who score below 23 on the ACT mathematics exam and whose score on the math placement exam, if taken, does not qualify them for placement into university-level mathematics courses will be placed into the appropriate development mathematics course or courses (CCDM). Placement into CCDM course(s) is dependent upon the student's ACT score and high school GPA. Students must pass the CCDM course or courses before enrolling in university-level mathematics courses. Developmental courses are included on the transcript and will be included in the calculation of the GPA; however, credits in developmental courses will not count toward a degree.

### Outcomes Assessment- Evaluating Your Academic Progress

New Mexico State University is committed to providing its students with a quality education and a supportive learning environment. Assessment is a process of rigorous review followed by implementation of changes to enhance and improve the quality of education students receive while at NMSU.

For assessment to be effective, students must be actively aware of and engaged in assessment activities. Faculty and staff at NMSU will communicate to students the value and implications of assessment. For their part, students will provide feedback on personal, professional and academic development. Students are expected to participate in all types of assessment when asked to do so. Types of assessment activities include class assignments, course projects, exams, exit interviews, standardized tests, surveys, focus groups, etc. Data gathered through these assessments will be published only in aggregate form. Efforts will be made to inform students of assessment results and the program improvements implemented as a result of assessment.

### Privacy Rights

The following information has been designated as directory information and is subject to release to the public under the Buckley Amendment (PL 98-380), "The Family Educational Rights and Privacy Act of 1974": student's name, address, telephone number, date and place of birth, honors and awards, and dates of attendance.

Other information regarding disclosure of student data is posted at the Registrar's Office in compliance with the Act.

Requests for withholding directory information must be filed in writing with the Registrar's Office. A student may choose to hide his/her address and phone number from the campus phone book through the my.NMSU portal. This will only

hide the information from the public but the records will still be kept within the Registrar's Office.

### Satisfactory Progress

A full-time student is making satisfactory progress when the cumulative number of credits earned at NMSU, divided by the number of semesters attended at NMSU, equals at least 12. Part-time students must earn a proportional number of credits in the same time period for purposes of financial aid.

In the case of new freshmen, this definition will not be applied until the beginning of the third semester of enrollment; however, for all other students, it will apply after one semester of enrollment. All students at the end of their second academic year must have a cumulative 2.0 GPA.

### Social Security Numbers in Student Records

As required by law, social security numbers are collected from prospective and current students who plan to seek employment on campus or, wish to receive financial aid. In addition, the university is mandated by federal tax regulations to provide tuition and fee payment information to the student and the Internal Revenue Service so that applicable educational tax credits may be computed. The social security number will be necessary to submit this tax reporting. The social security number is a confidential record and is maintained as such by the university in accordance with the Family Educational Rights and Privacy Act.

### Student Responsibility

The ultimate responsibility for planning an academic program in compliance with university, college and departmental requirements rests with the student. In addition, the student bears ultimate responsibility for understanding all matters of the Undergraduate Catalog.

### Transcripts

An official transcript, the University's certified statement of your complete NMSU academic record in chronological order by semester and year, includes coursework, grades and degrees earned. Credit hours earned through transfer work are not listed in detail, but do appear as cumulative totals. Transcripts are available as digitally signed PDFs or printed copies.

Transcripts can be ordered online at <http://mytranscript.nmsu.edu> and a fee will be charged. The name on the transcript will match the name on the student's official NMSU record. Name changes are only processed for current students. No transcripts will be released if the student is in debt to the university.

Transcript evaluation, student records and determination of residency is available at the Registrar's Office

at: MSC 3AR, PO Box 30001, Las Cruces NM 88003-8001; (575) 646-3411;  
<http://registrar.nmsu.edu/>.

## REGISTRATION AND GRADING

### Adjusted Credit Option

The adjusted credit option allows students who obtain a low grade-point average (less than 2.0 cumulative) during their first few semesters to get a fresh start. This option may be used only once and is not reversible. All courses carrying a grade of S, CR, C-, or better earned prior to the grading period in which the student requests the adjusted credit option (including transfer courses) are included as adjusted credit. All allowable credits are designated on the permanent academic record as "adjusted credit" and are omitted from the calculations of the cumulative grade-point average.

A fee of \$10 is required for the submission of an adjusted credit option application. Application forms are available in the offices of the academic deans. Students applying for this option must:

1. not hold a baccalaureate degree
2. be currently enrolled as a degree-seeking/nondegree undergraduate student
3. have a cumulative grade-point average of less than 2.0 at NMSU
4. have successfully accumulated fewer than 60 transfer plus NMSU credits
5. exercise the option only during the fall or spring semester before the last day to withdraw from the university
6. pass an additional 30 graded credits before they may be awarded an associate's degree.

Other courses taken during the period of credit adjustment are not calculated in the cumulative grade-point average. The repeat rule for courses starts anew for students who have taken the adjusted credit option.

Credits covered by this option are shown on the transcript with an appropriate notation, and all coursework attempted is shown. In no circumstances will a transcript of this record be issued that does not include all courses attempted at this university.

Probationary status and eligibility for on-campus employment is not affected by the exercise of the adjusted credit option.

Students are eligible for university honors if the criteria for university honors are met for all courses taken at NMSU after the period of adjusted credit.

### Advanced Placement

Students who have completed college-level courses in secondary schools and have taken the Advanced Placement Examinations of the College Examination Board with resulting composite scores of 3, 4 or 5 may receive college level credit. The amount of credit and the equivalent university courses for which credit will be granted will be determined by the head of the department in which the course is offered. Such credit will be treated as transfer credit without a grade, will count toward graduation and may be used in fulfilling specific curriculum requirements.

### Audits

A regularly enrolled student may register for any course prior to the last day of registration as an auditor without credit with the consent of instructor, provided the facilities are not required for regular students. The tuition and fees are the same as for credit courses. Audit courses are not considered in determining the maximum load except for students on probation and graduate students. A student may not change from credit to audit after the last day to register but may withdraw and continue to attend with the permission of the instructor.

### Changes in Registration

Registration changes may be processed only in accordance with university regulations and with appropriate signatures. It is the responsibility of the student to initiate official withdrawal from a course.

Forms are available from the Academic Advisor or in the Deans' offices. Courses may not be added or dropped after the cutoff date indicated in the university calendar, with the exception of petitions for retroactive withdrawal processed in accordance with Policy 6.92. For the refund policy see: <http://uar.nmsu.edu/withdrawals/>.

When a student officially drops a course, the rules for applying a W grade is as follows:

1. No grade is assigned during the registration period.
2. A W grade is assigned to any student who officially drops a course during the first half of its duration. A student may not officially withdraw from a course after this time.
3. A grade of W is assigned in all courses to any student officially withdrawing from the university prior to the last three weeks of classes.

A student found insufficiently prepared to carry a regular course may be transferred to a more elementary course in the same field any day before the last day to officially withdraw from an individual course.

Any person attending under Veterans Educational Assistance must notify the Military and Veterans Programs office if dropping or adding courses changes enrollment status for benefits.

### Class Load

The normal load in a regular semester (fall or spring) for a main campus student is 12-18 credits. A normal load for a summer term is 6 credits per session for a total of 12 credit hours. Some scholarships may require a 15 credit class load as a minimum requirement to be eligible for that scholarship.

An overload is more than 18 credits for a regular semester and more than 12 credits for the summer term. Written permission must be obtained from the Dean of the student's college and is required for a student to register for an overload. A one-credit course in physical education may be taken without being included in the calculation for determining an overload. To be eligible to take an overload the student must have no grades less than a C- and a cumulative grade-point

average of a 2.5 or higher for the last two semesters. No freshman will be permitted to assume an overload.

Students may only enroll in non-NMSU courses with approval from the Dean of their college and these courses will still be counted as part of a student's class load.

#### **Class Rank (Classification)**

A student's classification depends upon the number of credits completed toward graduation. Sophomore rank is achieved with successful completion of 28 credits; junior rank, 60 credits; senior rank, 90 credits.

#### **Credit by College Level Examination Program (CLEP)**

Prior to or during a student's enrollment at NMSU, credits may be earned through the College Level Examination Program (CLEP) of the College Entrance Examination Board. CLEP is a national program of credit by examination that offers the opportunity to earn credits for college level achievement wherever or however the student learned.

Earned CLEP credit will be treated as transfer credit without a grade, will count toward graduation, and may be used in fulfilling specific curriculum requirements.

A current NMSU CLEP policy as well as test schedule information is available through Testing Services DACC East Mesa, RM 210. Testing Services may be reached at: (575) 528-7294.

#### **Credit by Examination**

Any enrolled student with a cumulative GPA of at least 2.0 currently attending classes may, with permission of the appropriate department, challenge by examination any undergraduate course in which credit has not been previously earned except an independent study, research or reading course, or any foreign language course that precedes the final course in the lower-division sequence. The manner of administering the examination and granting permission shall be determined by the department in which the course is being challenged.

Students may not enroll in a single course, challenge it by examination, and drop it during the drop/add period, unless they enroll in an additional course.

In exceptional cases in which a student demonstrates outstanding ability in a course in which he is already registered, he may be permitted to challenge the course.

A student desiring to apply for special examination may obtain the necessary forms from the Office of the Registrar. The fee for challenging a course is the same as the approved tuition rate.

Courses may not be challenged under the S/U option.

The special examination privilege is based on the principle that the student, exclusively, has the responsibility for preparing for a special examination.

#### **Credit for Military Service**

New Mexico State University will award academic credit to United States military personnel for courses and Military Occupational Specialties (MOS), based on the American Council of Education Guide (ACE) as well as through national standardized tests, such as CLEP, AP, PEP and DANTES. Credit for military-training is in accordance with NMSU Faculty Senate Legislation Proposition 24-07/08, which was passed in May 2008. Military Training and Military Occupational Specialties (MOS) must have a recommendation evaluation by ACE (in the ACE Guide) for credit to be awarded. Courses accepted for transfer credit become part of the student's official NMSU transcript and academic record. If a student wishes to appeal a decision regarding the acceptance of military training/education and/or MOS for academic credit, the student must submit a written statement of appeal to the Dean of the College to which the student has applied. The Dean will review the merits of the appeal and render a decision. The decision of the Dean is final.

Only Primary MOS (s) are eligible for academic credit in the initial review and evaluation. Credit for Duty and/or Secondary MOS may be eligible for academic credit if the student petitions the college's Associate Dean. Primary MOS is the primary specialty of a soldier and reflects the broadest and most in-depth scope of military experience. Veterans, active-duty personnel, National Guard and Reservists who are current students or students applying for admission to New Mexico State University may be granted academic credit on a case-by-case basis upon evaluation of military transcripts - the Joint Service Transcript (jst.doded.mil) and the Community College of the Air Force transcripts. Course

equivalencies and credit hours awarded for a particular NMSU degree are determined by colleges and/or academic departments. Credit hours may be awarded for specific courses toward degree requirement, or as elective credit. The number of credit hours awarded will be determined by the college and/or academic department.

*NOTE: Students submitting military transcripts for credit evaluation must keep in mind the Maximum Time Frame policy. See Financial Aid Section.*

#### **Grade Point Average**

A student's NMSU semester and cumulative GPAs will be based solely on courses taken at NMSU or under an approved National Student Exchange.

#### **Graduate Study by University Seniors**

A student who is in the final semester of a bachelor's degree program and is completing all requirements for graduation may take up to 6 credits of graduate-level courses that are numbered from 450 through 598 for credit toward an advanced degree.

The student must also:

1. File an Application for Admission to Graduate Student Services and be admitted by a department into a graduate program
2. Have a grade-point average of 3.0 or better over the most recent semesters in which the last 45 semester hours were completed
3. File a petition for each course by the deadline to add courses for the semester in which the course was taken
4. Obtain approval by the instructor, department head and undergraduate dean

The combined total of graduate and undergraduate courses for the semester may not exceed 17 credits. Students should consult an admission representative at the Graduate Student Services.

If the student is not admitted into a graduate program, the course(s) will remain separate from the undergraduate record. If the student is admitted into a graduate program, the course(s) will become part of the graduate record and will not be used in the calculation of the student's undergraduate grade-point average or credit hours.

#### **Incomplete Grade**

The grade of I (incomplete) is given for passable work that could not be completed due to circumstances beyond the student's control. The following regulations are ways an I grade is assigned, removed or changed:

1. Instructors may assign I grades only if the student is unable to complete the course due to circumstances beyond the student's control that develop after the last day to withdraw from the course. Examples of appropriate circumstances include documented illness, documented death or crisis in the student's immediate family, and similar circumstances. Job related circumstances are generally not appropriate grounds for assigning an I grade. In no case is an I grade to be used to avoid the assigning of D, F, U, or RR grades for marginal or failing work.
2. To assign an I grade, the instructor must complete the "I Grade Information Form" and have the form delivered to the dean of the college the course is a part of. The instructor will state in writing on the "I Grade Information Form" the steps necessary to complete the remaining coursework or the instructor may indicate that the student will be required to re-enroll in the course to receive credit (in which case the I grade will not be removed). The student will sign this document or the dean will send a copy of the document to the student's official permanent address as recorded in the Registrar's Office.
3. The student is entitled to have the I grade removed from their transcript only if they complete the remaining coursework as specified on the "I Grade Information Form," in a manner satisfactory to the instructor. The work must be completed either within 12 months after the I grade is assigned and prior to the student's graduation, or within a shorter period of time if specified by the instructor on the "I Grade Information Form." If the student fails to complete the coursework, the instructor may change the I grade to any appropriate grade (including D, F, or U) provided that the instructor stated that this would occur on the "I Grade Information Form."
4. I grades can be removed from the student's transcript by the instructor only during the 12-month period following assignment of the

I grade or prior to the student's graduation, whichever comes first. To remove an I grade, the instructor must complete a "Change of Grade Form" and file the form with the Registrar's Office. The instructor may assign whatever grade is appropriate for the entire course. This may include grades of D, F, or U. An I grade not changed by the assigning instructor within 12 months and prior to graduation shall remain an I grade thereafter.

5. A student may re-enroll and receive credit for any course for which an I grade was previously received, but retaking the course will not result in a removal of the I grade from the student's transcript.

The effect of removing an I grade on a student's academic standing (scholastic warning, probation or suspension) depends on the date the transaction is officially recorded on the student's academic record. If the transaction is recorded before the student begins another semester, the grade replacing the I is included in the grade-point average calculation that establishes the student's academic standing. If the transaction is recorded after the student begins another semester, the new grade's effect on academic standing is based upon its inclusion with grades for the semester in which the student is enrolled.

### Independent Studies

Independent study courses (including directed reading and special topics courses which do not carry a subtitle) are for students capable of self-direction who meet the requirements for the S/U option, i.e., if the students are not eligible for the S/U option, they are not eligible for independent study. Each college determines the maximum number of credits that may be earned in independent study courses.

### Numbering of Courses

University courses numbered 100 through 299 are considered lower division and are for undergraduate credit only, these courses will not be applied toward a graduate degree at any time. Courses numbered 300 through 499 are considered upper division and are intended for the undergraduate level, but in some cases graduate credit may be obtained. Courses numbered 450 through 499 are designed for seniors and graduates; 500 through 599 are primarily for graduate students working on a master's degree and 600 through 700 are principally for students working on a doctoral degree.

In some cases, graduate credit may be obtained in courses numbered 300 through 449, to secure such credit, a written request must be filed with the dean of the Graduate School at the time of registration. However, these courses cannot be deficiencies, and no more than 4 credits will be granted toward a degree can be granted for courses numbered below 400. The total of courses numbered 300 through 449 cannot exceed 8 credits.

### Prerequisite/Corequisite

A prerequisite is an enforceable entry requirement for a particular course. Students must have successfully completed the prerequisite before enrolling in the subsequent course. A corequisite is a course that is required to be taken in conjunction with another course.

### Repeating Courses

A student may repeat a course in which a D or F grade has been earned. A computable grade (excluding I, W, RR, AU, CR, S, or U) in a repeated course may be substituted in the calculation of the grade-point average, though the original grade also remains on the transcript. The first occurrence with a C or better grade will count in earned/ passed hours. Future attempts will not count in earned/passed hours. If a student repeats a course eligible for grade substitution in which the student has earned a D and then fails the course, the second grade of F will not be substituted for the original grade.

Neither credits nor grade points may be earned by repeating a course for which a grade of C- or higher has already been received. Repeat option applies only to eligible courses that were completed prior to the time a student was awarded a degree at NMSU.

### RR Grade

The RR grade applies only to designated skill development undergraduate courses (CCDE, CCDL, CCDM & CCCR) approved by the University Curriculum Committee and indicates the student has made substantial progress toward completing the requirements of the course. It carries neither penalty nor credit. The student must re-enroll and successfully complete the course in order to earn

credit. The grade of RR may be received only once in any given course, and it remains on the student's transcript.

### S/U Option

Students with 28 credits at NMSU under traditional grading, with an overall average of 2.5 or better, may exercise the S/U option. The following limitations apply:

1. No more than 7 credits per semester or 4 credits per summer session.
2. Not to exceed a total of 21 semester credits.

These limitations do not apply to honors and courses officially designated S/U. Each course under this option must be requested during registration. Eligibility must be determined by the student's academic dean and certified by the student. The course must be taken outside the major. If the student changes majors, the new major department may require a traditional grade for a course previously passed with an S grade. The traditional grade change is made by the instructor or by a course challenge if the original instructor is no longer with the university. Eligibility for S/U grading must be re-established after adjusted credit has been approved.

Nondegree students who do not meet the above requirements may take courses under the S/U option. However, these courses may not be applied toward an undergraduate degree at NMSU.

Graduate students in regular standing may take courses for the S/U option, outside the major department, under regulations stated in the Graduate Catalog.

Each academic college of the university may designate courses in which the grading will be on a basis of S or U for all students enrolled in the courses. Credits in such courses are not included in the 21-credit limitation or the 7-credit-per-semester limit.

### Undergraduate Enrollment in Graduate Courses

Undergraduates who wish to enroll in a graduate-level course numbered 450 or higher for undergraduate credit must secure prior written permission from the instructor and course dean. Enrollment is by petition only and is limited to outstanding juniors and seniors.

### University Credits

The unit of university credit is the semester hour, which is the equivalent of one hour of recitation/lecture or a minimum of two hours of practice per week for one semester.

### University Grading System

Grade reports are not automatically mailed to students. Students can access grades and credits by the web using my.nmsu.edu. At the request of the student, the instructor will provide information on progress in the course prior to the last day to drop a course.

The NMSU system of grading is expressed in letters, which carry grade points used in calculating the cumulative grade-point average:

Letter Grade	Grade points per unit of credit
A+	4.0
A	4.0
A-	3.7
B+	3.3
B	3.0
B-	2.7
C+	2.3
C	2.0
C-	2.0
D+, D, D-	1.0
F	0
W — Withdrawal	0

<b>N — Grade not submitted</b>	<b>0</b>
<b>CR — Credit authorized, but not letter grade</b>	<b>0</b>
<b>IP — In progress</b>	<b>0</b>
<b>RR — Progress in undergraduate course</b>	<b>0</b>
<b>PR — Progress on graduate thesis</b>	<b>0</b>
<b>S* — Satisfactory work</b>	<b>0</b>
<b>U — Unsatisfactory work</b>	<b>0</b>
<b>I — Incomplete</b>	<b>0</b>
<b>AU — Audit</b>	<b>0</b>

\*An S grade is a grade satisfactory to the professor and is normally equivalent to the letter grade of C- or higher.

In computing the overall grade-point average, the total credits in which grades of A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, or F have been assigned is divided into the total number of grade points earned.

A course for which only CR, but no letter grade, is given and a course in which an S or PR grade is earned will be included in earned hours but is not computed in the grade-point average.

## WITHDRAWALS

### Administrative Withdrawals

When an administrative withdrawal from a course is initiated for a student who is representing the university at an official out-of-town event, the withdrawal will become effective upon the return of the university student from that event or five class days after the signed drop slip arrives in the dean's office, whichever is sooner.

### Military Withdrawal

The following steps must be taken by all New Mexico State University students called up for active duty who wish to withdraw from all their classes:

1. Military and Veterans Programs: VA students ordered to Active Duty must provide a copy of orders to the MVP office, in Garcia Annex, room 141. To assist in reporting accurate information to the VA Regional Office, student should also provide, in writing, last day of class attendance.
2. NMSU Registrar: All students presenting their orders to the NMSU Registrar's Office, (575) 646-3411, will receive a military withdrawal from classes and a full tuition and fees refund for that semester.
3. Bookstore: Students who still have their receipts for textbooks purchased the semester in which they are called to active duty will be given a full refund for these textbook purchases when they present their orders. (575) 646-4431

### Student Medical Withdrawal

A medical withdrawal applies to a student who becomes seriously ill, injured or hospitalized and is therefore unable to complete an academic term for which they are enrolled. The attending physician must provide a letter on official letterhead with an original signature, stating the date(s) within the semester that the student was under medical care and that the student must withdraw because of the medical condition. This letter must be submitted within the semester or no later than one academic year after the end of that term for which the withdrawal is being requested.

Once the information is reviewed a determination will be made if the student is eligible for consideration of tuition or other refunds (Students receiving funds awarded by the University Financial Aid and Scholarship Services should be aware of policies regarding withdrawal from the University). At the Las Cruces campus, medical withdrawal begins at the Registrar's Office. At all other campuses, medical withdrawal begins at the Student Services Office.

### Withdrawal Due to Medical Conditions of a Family Member

A student who must withdraw because of a medical condition of an immediate family member will need to submit a letter from the family member's attending physician on official letterhead with an original signature, stating the date(s)

within the semester that the student's immediate family member was under medical care, and confirm that the student must withdraw to attend to the immediate family member's medical condition. This letter must be submitted within the semester or no later than one academic year after the end of that term for which the withdrawal is being requested.

For purposes of this policy, "immediate family member" includes spouse, a domestic partner as defined in the NMSU Policy Manual 7.04 Domestic Partnerships, a child, parent or legal guardian, a sister or brother, a grandparent, or a grandchild. Such familial relationships created by law are also included (i.e. mother/father in law; half or step siblings); other relationships can be considered on a case-by-case basis.

Once the information is reviewed a determination will be made if the student is eligible for consideration of tuition or other refunds (Students receiving funds awarded by the University Financial Aid and Scholarship Services should be aware of policies regarding withdrawal from the University). At the Las Cruces campus, medical withdrawal begins at the Registrar's Office. At all other campuses, medical withdrawal begins at the Student Services Office.

### Withdrawal from NMSU

Withdrawal from any NMSU campus is an official procedure that must be approved as indicated on the withdrawal form. All such withdrawals will be registered on the student's transcript. It is the student's responsibility to initiate withdrawal from the university and to obtain necessary signatures. Students who leave without following the official procedure are graded appropriately by the instructor. On the Las Cruces campus, withdrawal begins at the Registrar's Office. At all other campuses, withdrawal begins at the Student Services Office. Applicable dates are published on the approved university academic calendar or under important dates at: <http://registration.nmsu.edu>.

Students who withdraw from all courses for the semester should do so in person through the Registrar's Office. Students who are unable to come in person may submit an e-mail using their NMSU e-mail account to [registra@nmsu.edu](mailto:registra@nmsu.edu).

A student who withdraws from all classes for the semester will retain access to their NMSU account per current policy but will lose access to other services and privileges available to enrolled students.

Financial information concerning drops and withdrawals can be found at <http://uar.nmsu.edu/withdrawals/>. Financial Aid Recipients should contact University Financial Aid and Scholarship Services before withdrawing. Students receiving funds awarded by the University Financial Aid and Scholarship Services should be aware of policies regarding withdrawal from the University. The Federal Higher Education Act requires the University to calculate a Return of Federal Student Aid Funds for students who withdraw (officially or unofficially) from all classes on or before the 60 percent attendance point in the semester. Using a pro-rata schedule, the percentage of the semester attended is used to calculate the amount of the student's earned versus unearned Federal student aid funds. The unearned portion of Federal student aid funds will be returned to the appropriate aid program(s). Students withdrawing from classes are responsible for payment of any balance due after the required return of Federal student aid funds.

## ACADEMIC MAJORS AND MINORS

### ACADEMIC MAJORS

A major is required for all baccalaureate degrees, except the Bachelor of Applied Studies and the Bachelor of Individualized Studies, and consists of at least 24 credits in the major field of which at least 18 credits must be upper-division courses.

### ACADEMIC MINORS

Students seeking a baccalaureate degree may elect to complete one or more minors from those available, and the minor will be designated on their transcripts. Minors cannot be earned after the degree has been conferred.

A minor consists of a minimum of 18 credits, at least 9 of which must be upper-division. The minor may be in a single department or may be interdepartmental. Specific requirements for these minors are available in printed form in departmental and deans' offices. Specific available minors follow.

**College of Agricultural, Consumer and Environmental Sciences**

Agricultural and Extension Education  
 Agricultural and Natural Resource Leadership  
 Agronomy  
 Child Advocacy Studies  
 Clothing, Textiles, and Fashion Merchandising  
 Conservation Ecology  
 Culinary Science  
 Entomology  
 Family and Child Science  
 Food Science  
 Horse Management  
 Horticulture  
 Hotel, Restaurant, and Tourism Management  
 Human-Animal Interaction  
 Livestock Production  
 Nutrition  
 Pest Management  
 Plant Pathology  
 Range Science  
 Soil Science  
 Turfgrass Science and Management  
 Weed Science  
 Wildlife Science

**College of Arts and Sciences**

Aerospace Studies  
 Algorithm Theory  
 American Government and Politics  
 Animation and Visual Effects  
 Anthropology  
 Art  
 Art History  
 Astronomy  
 Biochemistry  
 Bioinformatics  
 Biology  
 Chemistry  
 Child Advocacy Studies  
 Communication and National Security  
 Communication Studies  
 Comparative Politics  
 Computer Systems  
 Conservation Ecology  
 Contemporary Social Studies  
 Creative Writing  
 Digital Film Making  
 Economics  
 English  
 Environmental Chemistry  
 Ethics  
 Forensic Science  
 French  
 Genetics & Biotechnology  
 Geography  
 Geology  
 German  
 Geographic Information Science and Technology (GIS&T)  
 Government

History  
 Human Biology  
 International Relations  
 Journalism and Mass Communications  
 Linguistics  
 Literature  
 Mathematics  
 Medieval and Early Modern Studies  
 Microbiology  
 Military Science  
 Museum Conservation  
 Music  
 Native American Studies  
 Philosophy  
 Physics  
 Political Theory  
 Psychology  
 Public Administration  
 Public Law  
 Religious Studies  
 Rhetoric and Professional Communication  
 Sociology  
 Software Development  
 Spanish  
 Sustainable Development  
 Theatre Arts  
 Women's Studies

**College of Business**

Accounting  
 Advertising  
 Banking  
 Business Administration  
 Economics  
 Enterprise Systems  
 Finance  
 Information Systems  
 International Business  
 Management  
 Marketing  
 Risk Management and Insurance  
 Sports Marketing  
 Sustainability

**College of Education**

Counseling and Educational Psychology  
 Dance  
 Early Childhood Education  
 Educational Leadership and Administration  
 Exercise Science

**College of Engineering**

Aerospace Engineering  
 Agricultural Engineering  
 Biomedical Engineering  
 Computer Engineering  
 Digital Electronic Applications  
 Electrical Engineering  
 Entrepreneurship  
 Environmental Management  
 Information Technologies

Manufacturing  
Materials Engineering  
Mechanical Engineering  
Nuclear Energy  
Pre-Law in Intellectual Property  
Renewable Energy Technologies  
Security Technology  
Surveying Engineering

**College of Health and Social Services**

Child Advocacy Studies  
Gerontology  
Public Health Sciences  
U.S.-Mexico Border Health Issues



# COLLEGE OF AGRICULTURAL, CONSUMER AND ENVIRONMENTAL SCIENCES

Interim Dean • *James D. Libbin*

Interim Associate Dean and Director of Academic Programs • *Gerald M. Hawkes*

Associate Dean and Director of the Cooperative Extension Service • *Jon C. Boren*

Associate Dean and Director of the Agricultural Experiment Station • *David Thompson*

Scholarship Coordinator • *Lee-Ann Evans*

Assistant Director of Student Services • *Kristy Mason*

## Accreditation

The two teacher education options (Agricultural Education Teaching and Advanced Technology Education) in the Department of Agricultural and Extension Education are accredited by the National Council for the Accreditation of Teacher Education. It is critical that students consult their academic advisor prior to selection of courses for the agriculture, secondary science and teaching endorsements.

## Bachelor in Conservation Ecology

**Bachelor of Science in Agriculture** —Majors in: Agricultural Biology; 40Agricultural Economics and Agricultural Business; Agriculture and Community Development; Agricultural and Extension Education; Agronomy; Animal Science; General Agriculture; Horticulture; Natural Resource Economics and Policy; Rangeland Resources; Soil Science; Turfgrass Science and Management; and Wildlife Science. Programs in also in Preveterinary Medicine and Preforestry.

## Bachelor of Science in Environmental Science

**Bachelor of Science in Family and Consumer Sciences** —Majors in: Clothing, Textiles, and Fashion Merchandising; Family and Child Science; Family and Consumer Sciences Education; and Human Nutrition and Dietetic Sciences

## Bachelor of Science in Food Science and Technology

## Bachelor of Science in Genetics

## Bachelor of Hotel, Restaurant and Tourism Management

**Requirements for Bachelors of Science in Agriculture; Conservation Ecology; Family and Consumer Sciences; Genetics; and Hotel, Restaurant and Tourism Management:**

1. Courses required of all qualifying for this degree.
2. General education requirements.
3. Courses to be taken in the particular field of your major interest.
4. Free electives sufficient to bring the total number of credits to a minimum of 120 semester credits. Of this total at least 48 semester credits must be in upper-division courses (numbered 300 or above).
5. A grade-point average of no less than 2.0.
6. All students will have an official degree check on file in the Academic Dean's Office prior to start of senior year.

## Typical Curricula in Agriculture

The following suggested curricula are presented for your guidance. With the consent of the head of the department in which you are majoring, you may select electives and changes in a curriculum except in the case of constants.

## GENERAL AGRICULTURE

### DEGREE: BACHELOR OF SCIENCE IN AGRICULTURE MAJOR: GENERAL AGRICULTURE

The general agriculture major is designed for students searching for a well-rounded education that builds on the diversity of the other degree programs in the College of Agricultural, Consumer and Environmental Sciences (ACES). The flexibility of the general agriculture degree allows students to tailor a program to fit their individual interests and career goals. Students completing the program earn a Bachelor of Science in General Agriculture. Students choose general agriculture for a variety of reasons. Some may enter the program with a specific career goal in mind. Others may choose general agriculture to obtain a broader education that will give them more flexibility. The curriculum in General Agriculture is administered by the Department of Entomology, Plant Pathology and Weed Science.

### NEW MEXICO AND UNIVERSITY REQUIREMENTS

#### Area I. Communications (10 credits)

ENGL 111G	Rhetoric and Composition	4 cr.
-----------	--------------------------	-------

#### One course from the following:

AXED 201G	Effective Leadership and Communication in Agricultural Organizations	3 cr. (2+2P)
COMM 253G	Public Speaking	3 cr.
COMM 265G	Principles of Human Communication	3 cr.

#### One course from the following:

ENGL 203G	Business and Professional Communication	3 cr.
ENGL 211G	Writing in the Humanities and Social Sciences	3 cr.
ENGL 218G	Technical and Scientific Communication	3 cr.
ENGL 311G	Advanced Composition	3 cr.
ENGL 318G	Advanced Technical and Professional Communication	3 cr.

#### Area II. Mathematics (select 3 credits)

MATH 121G	College Algebra	3 cr.
MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)
MATH 190G	Trigonometry and Precalculus	4 cr. (3+2P)
MATH 191G	Calculus and Analytic Geometry I	4 cr.
MATH 210G	Mathematics Appreciation	3 cr.

#### Area III. Science, with Laboratory (8 credits)

See the "General Education Courses" section of this catalog.

#### Area IV. Social/ Behavioral Sciences (6-9 credits)

See the "General Education Courses" section of this catalog.

#### Area V. Humanities and Fine Arts (6-9 credits)

See the "General Education Courses" section of this catalog.

#### Viewing a Wider World (6 credits 300 or 400 Level)

Two viewing a wider world courses: one must be from a college outside of the College of Agricultural, Consumer and Environmental Sciences

### College Requirements in addition to the courses listed above (note that some ACES classes will meet general education requirements)

Students must select three areas of concentration from ACES departments. At least 18 credits must be taken from the primary department and at least 12 credits

must be taken from two secondary departments. A minimum of 52 credits (20 of which need to be 300+) of the 120 required for the degree, must be completed in courses offered by the College of Agricultural, Consumer, and Environmental Sciences.

**Concentration Areas (departments)**

- Agricultural Economics and Agricultural Business
- Agricultural and Extension Education
- Animal and Range Science
- Entomology, Plant Pathology and Weed Science
- Family and Consumer Sciences
- Fish, Wildlife and Conservation Ecology
- Plant and Environmental Sciences
- Hotel, Restaurant and Tourism Management

**VETERINARY MEDICINE (PREPROFESSIONAL TRAINING ONLY, NONDEGREE)**

The Doctor of Veterinary Medicine (D.V.M.) degree is a professional degree that is not offered by any college or university in New Mexico; however, you may complete the preparatory program required for admittance to the professional colleges of veterinary medicine at New Mexico State University.

The D.V.M. degree normally requires four years of training in a professional college subsequent to completion of a preveterinary program that requires at least three years of college-level instruction. In most instances a baccalaureate degree is a distinct advantage to the applicant.

Curriculum requirements are determined by the particular school or college of veterinary medicine. The Department of Animal and Range Sciences maintains current requirements for Colorado State University, Washington State, Oregon State and Texas A&M. You should check with an advisor for specific course requirements. As a student from New Mexico, you may be eligible for financial assistance under the program of the Western Interstate Commission for Higher Education (WICHE). See the section on WICHE in the General Information chapter under Resources for Students for more information.

## AGRICULTURAL ECONOMICS AND AGRICULTURAL BUSINESS

**Professor, Jay Lillywhite, Department Head**

**Professors** Gorman, Gutierrez, Hawkes, Hurd, Libbin, Lillywhite, Torell, Townsend, Ward; **Associate Professors** Acharya, Patrick; **Assistant Professors** Archambault; McNelis **College Professors** Bullock; **College Assistant Professor** Robinson

**phone:** (575) 646-3215

**website:** <http://www.aeab.nmsu.edu>

Specific courses meeting these and the university general education requirements are included for each major. A total of 120 credits are required for graduation. At least 48 credits must be at the 300+ level. You will develop schedules for specific semesters with the help of your academic advisor.

Agricultural Economics and Agricultural Business Course Descriptions

**DEGREE: BACHELOR OF SCIENCE IN AGRICULTURE  
MAJOR: AGRICULTURAL ECONOMICS AND BUSINESS**

**REQUIREMENTS**

**General and Departmental Requirements**

ENGL 111G	Rhetoric and Composition	4 cr.
MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)

**One course from the following:**

COMM 253G	Public Speaking	3 cr.
COMM 265G	Principles of Human Communication	3 cr.

AXED 201G	Effective Leadership and Communication in Agricultural Organizations	3 cr. (2+2P)
HON 265G	Principles of Human Communication Honors	3 cr.

**One course from the following:**

ENGL 203G	Business and Professional Communication	3 cr.
ENGL 211G	Writing in the Humanities and Social Sciences	3 cr.
ENGL 218G	Technical and Scientific Communication	3 cr.
ENGL 311G	Advanced Composition	3 cr.
ENGL 318G	Advanced Technical and Professional Communication	3 cr.

**Quantitative**

A ST 311	Statistical Applications	3 cr.
AG E 250	Technology and Communication for Business Management	3 cr. (2+2P)
AG E 342	Economic Analysis of Agribusiness	3 cr.
AG E 450	Advanced Microcomputer Applications in Agriculture	3 cr. (2+2P)
MATH 120	Intermediate Algebra	3 cr.
MATH 121G	College Algebra	3 cr.
	General education science with lab	8 cr.
	Social/Behavior Sciences	6-9 cr.
	Humanities and Fine Arts	6-9 cr.
	Viewing a Wider World	6 cr.

**General Business**

ACCT 221	Financial Accounting	3 cr.
ACCT 222	Management Accounting	3 cr.
BLAW 316	Legal Environment of Business	3 cr.
FIN 341	Financial Analysis and Markets	3 cr.
	MKTG 300+ course*	3 cr.
	MGT 300+ course*	3 cr.

\*MGT 300+: Select from MGT 309, MGT 315V, MGT 332, or MGT 361

**Economic Theory**

AG E 340	Agricultural Prices	3 cr.
ECON 251G	Principles of Macroeconomics	3 cr.
ECON 252G	Principles of Microeconomics	3 cr.
	ECON 300+ course*	3 cr.

\*ECON 300+: Select from ECON 304, ECON 324V, ECON 325V, ECON 332, ECON 350, ECON 371, ECON 372, or ECON 450

**Applied Economics/Business**

ACES 111	Freshman Orientation	1 cr.
ACES 121	Financial Fitness for College Students	1 cr.
AG E 100	Introductory Agricultural Economics and Business	3 cr.
AG E 101	Intro to Agribusiness Management	1 cr.
AG E 236	Agribusiness Management Principles	3 cr.
AG E 305	Marketing and Pricing Agricultural Products	3 cr.
AG E 337V	Natural Resource Economics	3 cr.
	or	
AG E 384V	Water Resource Economics	3 cr.
AG E 385	Applied Production Economics	3 cr.
AG E 400	Seminar	1 cr.
AG E 425	Agribusiness Financial Management	3 cr.
AG E 445V	Agricultural Policy	3 cr.
AG E 499	Senior Thesis	3 cr.
	or	
AG E 456	Agribusiness Management	3 cr.

**AREAS OF CONCENTRATION:**

Students are required to select one of the four concentrations. Concentrations represent focused study in a particular agricultural economics and/or business area (theme). Concentrations for the four standard themes identified below (i.e.

production, marketing, finance, and general agricultural economics) require students to take at least THREE courses (9 credits) from the predefined course lists approved by the department faculty. At least TWO of the THREE courses must be courses taught in the Department of Agricultural Economics and Agricultural Business (AG E prefix) or cross-listed with the AG E course.

#### General Agricultural Economics

AG E 454	Community Economic Development	3 cr.
AG E 491	Linear Programming Methods	1 cr.
	AG E 300+ Course approved by advisor	3 cr.
	AG E 300+ Course approved by advisor	3 cr.

#### Finance

AG E 311	Financial Futures Markets	3 cr.
AG E 325	Mastering Financial Agricultural Statements	3 cr.
AG E 456	Agribusiness Management	3 cr.
AG E 470	Real Estate Appraisal	3 cr. (2+2P)

#### Marketing

AG E 451	Agribusiness Market Planning	3 cr.
AG E 452	Food and Agricultural Products Marketing Research Techniques and Written and Oral Presentation Skill	3 cr.
MKTG 310	Marketing Research	3 cr.

#### Production

AG E 260	Farm and Ranch Records	3 cr.
AG E 314	Agricultural Law	3 cr.
AG E 375	Dairy Economics	3 cr.
AG E 440	Ranch Economics	3 cr.

### MAJOR: NATURAL RESOURCE ECONOMICS AND POLICY

#### REQUIREMENTS

##### General and Departmental Requirements

A ST 311	Statistical Applications	3 cr.
AG E 250	Technology and Communication for Business Management	3 cr. (2+2P)
ENGL 111G	Rhetoric and Composition	4 cr.
MATH 120	Intermediate Algebra	3 cr.
MATH 121G	College Algebra	3 cr.
MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)
	General education science with lab	8 cr.
	Social/Behavior Sciences	6-9 cr.
	Humanities and Fine Arts	6-9 cr.
	Viewing a Wider World	6 cr.

##### One course from the following:

COMM 253G	Public Speaking	3 cr.
COMM 265G	Principles of Human Communication	3 cr.
AXED 201G	Effective Leadership and Communication in Agricultural Organizations	3 cr. (2+2P)

##### One course from the following:

ENGL 203G	Business and Professional Communication	3 cr.
ENGL 211G	Writing in the Humanities and Social Sciences	3 cr.
ENGL 218G	Technical and Scientific Communication	3 cr.
ENGL 311G	Advanced Composition	3 cr.
ENGL 318G	Advanced Technical and Professional Communication	3 cr.

##### Applied Economics Core

ACES 111	Freshman Orientation	1 cr.
ACES 121	Financial Fitness for College Students	1 cr.
AG E 337V	Natural Resource Economics	3 cr.
AG E 384V	Water Resource Economics	3 cr.
AG E 385	Applied Production Economics	3 cr.
AG E 400	Seminar	1 cr.
AG E 450	Advanced Microcomputer Applications in	3 cr.

	Agriculture	(2+2P)
ECON 251G	Principles of Macroeconomics	3 cr.
ECON 252G	Principles of Microeconomics	3 cr.
ECON 371	Intermediate Microeconomic Theory	3 cr.
ECON 372	Intermediate Macroeconomic Theory	3 cr.

#### Science, Policy and Ethics

AG E 445V	Agricultural Policy	3 cr.
BIOL 301	Principles of Ecology	3 cr.
FWCE 110	Introduction to Natural Resources Management	3 cr.
FWCE 255	Principles of Fish and Wildlife Management	3 cr.
GEOG 381	Cartography and Geographic Information Systems	4 cr. (3+3P)
GOVT 324	Environmental Policy	3 cr.
PHIL 322	Environmental Ethics	3 cr.
RGSC 294	Rangeland Resource Management	3 cr.

## AGRICULTURAL AND EXTENSION EDUCATION

#### Professor, Frank E. Hodnett, Department Head

**Professors** Dormody, Hodnett, Seevers, VanLeeuwen; **Associate Professor** Rosencrans

**phone:** (575) 646-4511

**website:** <http://aces.nmsu.edu/academics/axed>

#### See your academic advisor for more information.

The department offers a broad-based curriculum with majors, options and minors that prepare students for many careers as professional educators, communicators and leaders in agricultural, natural resource, technology and related disciplines. Example occupations the department prepares its students to enter are agriculture teacher, media specialist, technology teacher, Extension agent, NMDA or USDA professional, industry educational specialist, and development specialist. Graduates work in domestic and/or international settings.

#### General Requirements

You must meet the general education and departmental requirements for the degree and the major, option or minor chosen. You must establish a cumulative grade-point average of not less than 2.5 before you are admitted into the student teaching or other internship program. You need a minimum of 48 hours in technical agriculture for the secondary teaching certificate program in agriculture.

You may select technical courses required for completion of the majors and options from the following areas: agricultural economics; agricultural mechanics; animal and range sciences; entomology, plant pathology and weed science; fish, wildlife and conservation ecology; engineering; also plant and environmental sciences.

### DEGREE: BACHELOR OF SCIENCE IN AGRICULTURE

#### MAJOR: AGRICULTURAL AND COMMUNITY DEVELOPMENT

#### REQUIREMENTS

##### Required Courses:

AXED 100	Introduction to Agricultural, Extension, and Technology Education	3 cr.
AXED 201G	Effective Leadership and Communication in Agricultural Organizations	3 cr. (2+2P)
AXED 360	Agricultural Communications	3 cr.
AXED 400	The Diffusion and Adoption of Agricultural Innovations	3 cr.
	or	
AXED 436	Keys for Agricultural and Rural Development	3 cr.

AXED 415	Youth Program Development and Management	3 cr.
	or	
AXED 430	Teaching Adults in Nonformal Settings	3 cr.
AXED 444	Planning and Methods in Nonformal Education	3 cr.
AXED 475	Leadership On Agricultural and Natural Resource Issues	3 cr.
	Agricultural Economics (at least 12 credits)	12 cr.
	Agricultural Mechanics and Technology (6 credits)	6 cr.
	Plant and Pest Sciences (at least 13 credits)	13 cr.
	Animal Science (at least 9 credits)	9 cr.
	Natural Resources (at least 9 credits)	9 cr.
	Internship/Emphasis Area (at least 12 credits)	12 cr.

### MAJOR: AGRICULTURAL AND EXTENSION EDUCATION

#### OPTION: Advanced Technology Education

##### Required Courses

AXED 100	Introduction to Agricultural, Extension, and Technology Education	3 cr.
AXED 201G	Effective Leadership and Communication in Agricultural Organizations	3 cr. (2+2P)
AXED 230	Early Field-Based Experience in Extension and Industry	0-2 cr.
AXED 445	Developing Excellent Programs in Career and Technical Education	3 cr.
AXED 446	Methods for Teaching Agricultural and Technology Education	3 cr.
AXED 447	Directed Teaching in Agricultural or Technology Education	12 cr.
AXED 460	Methods in Career and Technical Laboratory Instruction	2 cr.
EDUC 381	Secondary Field Experience	3 cr. (2+2P)
RDG 414	Content Area Literacy	3 cr. (2+2P)
SPED 350	Introduction to Special Education in a Diverse Society	3 cr.

#### At least 18 credits of upper division technical education, which may include:

AXED 331	Agricultural Structures	3 cr. (2+3P)
AXED 348	Advanced Technology in the Agricultural Industry	3 cr. (2+3P)
AXED 485	Methods of Teaching Biological Science in Agriculture	3 cr.

#### ET courses such as:

ET 300	Special Topics	1-3 cr.
ET 317	Manufacturing Technology	3 cr.
ET 365	Building Utilities	3 cr. (2+3P)
ET 480	Innovation and Product Development	3 cr.

#### OPTION: Agricultural Communications

This degree option includes a certificate in Creative Media Technology and a minor in either Journalism and Mass Communication or Communication Studies. See your academic advisor for more information.

#### OPTION: Agricultural Education Teaching

##### 28-33 credits from the following required courses:

AXED 100	Introduction to Agricultural, Extension, and Technology Education	3 cr.
AXED 201G	Effective Leadership and Communication in Agricultural Organizations	3 cr. (2+2P)
AXED 230	Early Field-Based Experience in Extension and Industry	0-2 cr.
AXED 380	Philosophy and Methods of Contests	3 cr.

AXED 445	Developing Excellent Programs in Career and Technical Education	3 cr.
AXED 446	Methods for Teaching Agricultural and Technology Education	3 cr.
AXED 447	Directed Teaching in Agricultural or Technology Education	12 cr.
AXED 460	Methods in Career and Technical Laboratory Instruction	2 cr.
EDUC 381	Secondary Field Experience	3 cr. (2+2P)
RDG 414	Content Area Literacy	3 cr. (2+2P)
SPED 350	Introduction to Special Education in a Diverse Society	3 cr.
	Agricultural Economics (at least 9 credits)	9 cr.
	Agricultural Mechanics (at least 12 credits)	12 cr.
	Plant, Pest and Soil Sciences (at least 12 credits)	12 cr.
	Animal Science, Horticulture, or Natural Resources (at least 12 credits from one of these three areas)	12 cr.

### MINOR: AGRICULTURAL AND EXTENSION EDUCATION

The department offers a minor in agricultural and extension education, which may be earned by completion of 18 credits in the department. The minor must include 9 credits of upper-division courses.

### MINOR: AGRICULTURAL AND NATURAL RESOURCE LEADERSHIP

The department offers a minor in agricultural and natural resource leadership, which may be earned by completing 12 credits of leadership related courses in the department, a three-credit agricultural or natural resource policy course, and a three-credit leadership related course from outside of the Department of Agricultural and Extension Education. The minor must include 9 credits of upper division courses.

## ANIMAL AND RANGE SCIENCES

#### Professor, Glenn Duff, Department Head

**Professors** Bailey, Cibils, Fernald, Hallford, Holechek, Ivey, Löest, Soto, Wise; **Associate Professors** Burcham, Fasenko, Scholljegerdes; **Assistant Professors** Ashley, Ganguli, Summers, White; **Instructors** Campbell, Priest; **Co-operators (USDA)** Estell, Havstad, Herrick, Peters; **Cooperative Extension Service** Turner (CES); **Emeritus Faculty** Abbott, Allred, McDaniel, Ross, Thomas  
**phone: (575) 646-2514**

**website: <http://aces.nmsu.edu/academics/anrs/>**

The Department of Animal and Range Sciences provides opportunities for you to follow a variety of interests in modern scientific agriculture. The animal science curriculum provides a background for many phases of the food animal industry, from farm animal production on rangelands to management positions in the food processing industry to highly technical careers in research and companion animal management. The range science curriculum provides you with knowledge and skills necessary to sustainably manage rangelands for multiple uses. These curricula allow you to acquire the background necessary to adjust easily to variations in specific job opportunities. If you are majoring in either animal science or range science, you must meet general education requirements, have a minimum of 48 credits of upper-division courses (numbered 300 and above), and complete a minimum of 35 credits in courses in the College Agricultural, Consumer and Environmental Sciences.

### DEGREE: BACHELOR OF SCIENCE IN AGRICULTURE MAJOR: ANIMAL SCIENCE

The animal industry option includes courses that prepare you for work in many phases of the livestock industry, such as livestock production on farms and

ranches, the meat industry, the feed industry, livestock breed associations, and livestock publications. The science option provides you with a strong background in technical science and prepares you for advanced studies leading to graduate or professional degrees. In addition to the background in livestock, students may also choose an emphasis equine science or companion animal management.

## REQUIREMENTS

### Animal Science Core Requirements

Required of Industry and Science options

A ST 311	Statistical Applications	3 cr.
ANSC 100	Introductory Animal Science	3 cr.
ANSC 100 L	Introductory Animal Science Laboratory	1 cr. (2P)
ANSC 220	Animal Science Career Development	1 cr.
ANSC 303	Livestock, Meat and Wool Evaluation	4 cr. (3+2P)
ANSC 304	Feeds and Feeding	3 cr. (2+2P)
ANSC 370	Anatomy and Physiology of Farm Animals	4 cr. (3+2P)
ANSC 402	Animal Science Seminar	1 cr.
ANSC 421	Physiology of Reproduction	4 cr. (3+2P)
ANSC 422	Animal Nutrition	3 cr.
ANSC 423	Animal Breeding	3 cr. (2+2P)
AXED 201G	Effective Leadership and Communication in Agricultural Organizations	3 cr. (2+2P)
	or	
COMM 265G	Principles of Human Communication	3 cr.
BIOL 111G	Natural History of Life	3 cr.
BIOL 111GL	Natural History of Life Laboratory	1 cr. (3P)
CHEM 111G	General Chemistry I	4 cr. (3+3P)
MATH 121G	College Algebra	3 cr.
	or	
MATH 191G	Calculus and Analytic Geometry I	4 cr.
RGSC 294	Rangeland Resource Management	3 cr.

### One course from the following:

ECON 201G	Introduction to Economics	3 cr.
ECON 251G	Principles of Macroeconomics	3 cr.
ECON 252G	Principles of Microeconomics	3 cr.

### OPTION: Industry

#### Required Courses

AG E 260	Farm and Ranch Records	3 cr.
	or	
ANSC 325	Mastering Financial Agricultural Statements	3 cr.
ANSC 200	Introduction to Meat Animal Production	3 cr. (2+2P)
ANSC 201	Introduction to Genetics for Animal Production	3 cr.
	or	
ANSC 305	Principles of Genetics	3 cr.
ANSC 261	Introduction to Animal Metabolism	3 cr.

### Meat science electives (two courses)

ANSC 262	Introduction to Meat Science	3 cr. (2+3P)
ANSC 301	Animal and Carcass Evaluation	3 cr.

		(2+2P)
ANSC 363	Meat Technology	3 cr.

### Production electives (three courses)

	Any three production courses offered in the department.	9 cr.
--	---	-------

### Plant science electives (one course)

RGSC 318	Watershed Management	3 cr. (2+2P)
RGSC 325	Rangeland Restoration Ecology	3 cr.
RGSC 357	Grass Taxonomy and Identification	3 cr. (1+4P)
RGSC 440	Rangeland Resource Ecology	3 cr.
SOIL 252	Soils	3 cr.

### Business electives (one course)

ACCT 222	Management Accounting	3 cr.
AG E 305	Marketing and Pricing Agricultural Products	3 cr.
AG E 440	Ranch Economics	3 cr.
FIN 303V	Personal Financial Planning and Investing in a Global Economy	3 cr.
MGT 315V	Human Relations in Organizations	3 cr.

### OPTION: Science

#### Required Courses

ANSC 305	Principles of Genetics	3 cr.
BIOL 211G	Cellular and Organismal Biology	3 cr.
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr. (3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
CHEM 211	Organic Chemistry	4 cr. (3+3P)
	or	
CHEM 313	Organic Chemistry I	3 cr.
CHEM 314	Organic Chemistry II	3 cr.
CHEM 315	Organic Chemistry Laboratory	2 cr. (6P)
BCHE 341	Survey of Biochemistry	4 cr. (3+3P)

### Meat science electives (one course)

ANSC 262	Introduction to Meat Science	3 cr. (2+3P)
ANSC 301	Animal and Carcass Evaluation	3 cr. (2+2P)
ANSC 363	Meat Technology	3 cr.

### Designated electives (one course)

MATH 191G	Calculus and Analytic Geometry I	4 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.
PHYS 211G	General Physics I	3 cr.
	and	
PHYS 211GL	General Physics I Laboratory	1 cr.
PHYS 212G	General Physics II	3 cr.
	and	
PHYS 212GL	General Physics II Laboratory	1 cr.

### Designated electives (one course)

ANSC 462	Parasitology	3 cr.
ANSC 480	Environmental Physiology of Domestic Animals	3 cr.
ANSC 484	Ruminant Nutrition	3 cr.
TOX 361	Basic Toxicology	3 cr.
TOX 461	Toxicology I	3 cr.

Credits sufficient to bring total to 128.

**EMPHASIS BLOCK: Companion Animal**

**Required Electives**

ANSC 112	Companion Animals in Society	3 cr.
ANSC 285	Companion Animal Management	3 cr.
ANSC 311	Companion Animal Behavior and Training	3 cr.
ANSC 312V	Companion Animals and Human-Animal Interaction	3 cr.
ANSC 390	Internship	1-3 cr.
ANSC 412	Companion Animal Health and Diseases	3 cr.

**EMPHASIS BLOCK: Equine**

**Required Electives**

ANSC 103	Introductory Horse Science	3 cr. (2+2P)
ANSC 288	Horse Fitting and Selling	3 cr.
ANSC 289	Management of Equine Operations and either	3 cr.
ANSC 383	Equine Reproductive Management	3 cr. (1+4P)
	or	
ANSC 488	Equine Nutrition and Exercise Physiology	3 cr. (2+2P)

**MAJOR: RANGE SCIENCE**

The following course work prepares you for study and management of rangelands through an integrated ecological approach with special emphasis on rangeland plants, livestock, wildlife, soils and watersheds. The course work is also well designed for those who want to continue study in graduate school. Any undergraduate student majoring in Range Science must earn a grade of C- or higher in Range Science (RGSC prefix) courses to satisfy degree requirements. Students earning a D or F in a Range Science (RGSC prefix) course will be expected to repeat that course until the student earns a grade of C- or higher. The following courses are required for a major in rangeland resources.

**REQUIREMENTS**

**Range Science Core**

A ST 311	Statistical Applications	3 cr.
ANSC 261	Introduction to Animal Metabolism	3 cr.
	or	
CHEM 211	Organic Chemistry	4 cr. (3+3P)
AXED 201G	Effective Leadership and Communication in Agricultural Organizations	3 cr. (2+2P)
	or	
COMM 265G	Principles of Human Communication	3 cr.
BIOL 111G	Natural History of Life	3 cr.
BIOL 211G	Cellular and Organismal Biology	3 cr.
CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
EPWS 314	Plant Physiology	3 cr.
FWCE 255	Principles of Fish and Wildlife Management	3 cr.
GEOG 381	Cartography and Geographic Information Systems	4 cr. (3+3P)
	or	
	a 300/400-level GIS course	
MATH 121G	College Algebra	3 cr.
PHIL 100G	Philosophy, Law and Ethics	3 cr.
	or	

PHIL 223G	Ethics	3 cr.
RGSC 150	Rangeland Science Profession	1 cr.
RGSC 294	Rangeland Resource Management	3 cr.
RGSC 302V	Forestry and Society	3 cr.
RGSC 316	Rangeland Plants	3 cr. (2+3P)
RGSC 317	Rangeland Communities	3 cr.
RGSC 318	Watershed Management	3 cr. (2+2P)
RGSC 325	Rangeland Restoration Ecology	3 cr.
RGSC 357	Grass Taxonomy and Identification	3 cr. (1+4P)
RGSC 402	Seminar	1 cr.
RGSC 440	Rangeland Resource Ecology	3 cr.
RGSC 440 L	Rangeland Resource Ecology Lab	1 cr. (2P)
RGSC 452	Vegetation Measurements for Rangeland Assessment	4 cr. (2+4P)
RGSC 460	Rangeland and Natural Resource Planning and Management	4 cr. (3+3P)
SOIL 252	Soils	3 cr.
SOIL 252 L	Soils Laboratory	1 cr.
SOIL 472	Soil Morphology and Classification	4 cr. (2+2P)
	ANSC Elective above 300	3 cr.

**One course from the following:**

ECON 201G	Introduction to Economics	3 cr.
ECON 251G	Principles of Macroeconomics	3 cr.
ECON 252G	Principles of Microeconomics	3 cr.

**MINOR: HORSE MANAGEMENT**

**REQUIREMENTS**

A minor in Horse Management consists of at least 20 credits. Animal science majors may NOT minor in Horse Management.

**Required Courses:**

ANSC 103	Introductory Horse Science	3 cr. (2+2P)
ANSC 288	Horse Fitting and Selling	3 cr.
ANSC 289	Management of Equine Operations	3 cr.
	or	
ANSC 390	Internship	1-3 cr.
ANSC 304	Feeds and Feeding	3 cr. (2+2P)
ANSC 308	Horse Evaluation	4 cr. (2+4P)
ANSC 320	Equine Behavior and Training	3 cr. (6P)
	or	
ANSC 321	Advanced Equine Behavior and Training	3 cr. (6P)
ANSC 383	Equine Reproductive Management	3 cr. (1+4P)

**MINOR: HUMAN ANIMAL INTERACTION**

**REQUIREMENTS**

A minor in Human Animal Interaction consists of at least 18 credits. Animal Science majors may NOT minor in Human Animal Interaction.

**Requirements-List**

ANSC 112	Companion Animals in Society	3 cr.
----------	------------------------------	-------

	or	
ANSC 288	Horse Fitting and Selling	3 cr.
ANSC 285	Companion Animal Management	3 cr.
	or	
ANSC 302	Therapeutic Horseback Riding I	3 cr.
ANSC 311	Companion Animal Behavior and Training	3 cr.
	or	
ANSC 320	Equine Behavior and Training	3 cr. (6P)
ANSC 390	Internship	1-3 cr.
	or	
ANSC 450	Equine Assisted Learning	3 cr.
ANSC 412	Companion Animal Health and Diseases	3 cr.

### MINOR: LIVESTOCK PRODUCTION

#### REQUIREMENTS

A minor in Livestock Production consists of at least 19 credits. Animal science majors may NOT minor in Livestock Production.

#### Required Courses:

ANSC 100	Introductory Animal Science	3 cr.
	or	
ANSC 200	Introduction to Meat Animal Production	3 cr. (2+2P)
ANSC 262	Introduction to Meat Science	3 cr. (2+3P)
ANSC 303	Livestock, Meat and Wool Evaluation	4 cr. (3+2P)
ANSC 304	Feeds and Feeding	3 cr. (2+2P)

### MINOR: RANGE SCIENCE

A minor in Range Science consists of at least 18 credits in courses with a RGSC prefix and a cumulative grade-point of 2.0.

## ENTOMOLOGY, PLANT PATHOLOGY AND WEED SCIENCE

#### Professor, Gerald K. Sims, Department Head

**Professors** Creamer, Bundy, Sanogo, Thomas, Thompson; **Associate Professors** Hanson, Mesbah, Pierce; **Assistant Professors** Romero, Schutte; **Affiliated Faculty** Ashigh, Banks, Murray, Schroeder, Sweet Leeper; **College Professor** Arnold; **College Assistant Professor** Lewis; **Research Faculty** Randall; **Emeritus Professor** Richman

phone: (575) 646-3225

website: <http://epws.nmsu.edu/>

Specific courses that meet these and the university general education requirements and additional courses in biology, chemistry, mathematics and seminar are included below in departmental requirements. A total of 120 credits are required for graduation. At least 48 credits must be 300-level courses and above. Schedules in specific semesters will be developed with the help of a student's academic advisor.

### DEGREE: BACHELOR OF SCIENCE IN AGRICULTURE MAJOR: AGRICULTURAL BIOLOGY

The agricultural biology course work prepares you for a variety of careers in the biological sciences and agriculture. You will develop your curriculum with an

academic advisor to attain your individual goals. Many will pursue advanced degrees in the sciences or prepare for admittance to professional schools (medical, dental, etc.). A diverse program is offered with five separate options that allow you to tailor your program for careers in the commercial sector, such as agricultural consulting, and pest management or for careers with county, state, or federal agencies, such as research technicians, land managers, and extension agents. A minimum of 120 credit hours is required for graduation. Any undergraduate student majoring in Agricultural Biology must earn a grade of C- or higher in core (EPWS prefix) courses to satisfy degree requirements. Students earning a D or F in a core (EPWS prefix) course will be expected to repeat that course until the student earns a grade of C- or higher. The following courses are required for a major in Agricultural Biology.

### REQUIREMENTS

#### Departmental Requirements

A ST 311	Statistical Applications	3 cr.
ANSC 305	Principles of Genetics	3 cr.
BIOL 111G	Natural History of Life	3 cr.
BIOL 211G	Cellular and Organismal Biology	3 cr.
BIOL 311	General Microbiology	3 cr.
BIOL 313	Structure and Function of Plants	3 cr. (2+3P)
	or	
BIOL 322	Zoology	3 cr. (2+3P)
CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
ENGL 111G	Rhetoric and Composition	4 cr.
EPWS 100	Introduction to Pest Management	3 cr.
EPWS 100 L	Pest Management Lab	1 cr.
EPWS 301	Agricultural Biotechnology	3 cr. (2+2P)
EPWS 302	General Entomology	4 cr.
EPWS 310	Plant Pathology	4 cr. (3+2P)
EPWS 311	Introduction to Weed Science	4 cr. (3+2P)
EPWS 447	Seminar	1 cr.
MATH 121G	College Algebra	3 cr.

#### One course from the following:

COMM 253G	Public Speaking	3 cr.
COMM 265G	Principles of Human Communication	3 cr.
AXED 201G	Effective Leadership and Communication in Agricultural Organizations	3 cr. (2+2P)

#### One course from the following:

ENGL 211G	Writing in the Humanities and Social Sciences	3 cr.
ENGL 218G	Technical and Scientific Communication	3 cr.
ENGL 311G	Advanced Composition	3 cr.

#### General education electives from the following categories

	Humanities and Fine Arts	6-9 cr.
	Social and Behavioral Sciences	6-9 cr.

#### Viewing a Wider World (6 credit 300 or 400 Level)

	Two general education courses: one must be from a college outside of the College of Agricultural, Consumer and Environmental Sciences	6 cr.
--	---	-------

### Agricultural Biology Options

In addition to the departmental requirements listed above, you must also complete all of the courses in at least one of the options listed below. Courses with higher numbered prefixes may replace courses listed as departmental requirements in some cases.

**OPTION: Applied Biology/Preprofessional**

The Applied Biology option prepares you for professional advancement including admittance to medical, dental, veterinary and graduate schools. Students interested in the health professions must register with the Health Professional Advisory Committee no later than the sophomore year. Students should check the specific entrance requirements for the professional or graduate school of their choice prior to selecting electives within this option.

**Required Courses**

BCHE 341	Survey of Biochemistry	4 cr. (3+3P)
CHEM 313	Organic Chemistry I	3 cr.
CHEM 314	Organic Chemistry II	3 cr.
CHEM 315	Organic Chemistry Laboratory	2 cr. (6P)
MATH 190G	Trigonometry and Precalculus	4 cr. (3+2P)
MATH 191G	Calculus and Analytic Geometry I	4 cr.
PHYS 211G	General Physics I	3 cr.
PHYS 211GL	General Physics I Laboratory	1 cr.

**Two courses from the following:**

ANSC 370	Anatomy and Physiology of Farm Animals	4 cr. (3+2P)
BIOL 312	Plant Taxonomy	3 cr. (2+3P)
BIOL 330	Comparative Anatomy and Embryology	4 cr. (3+3P)
BIOL 354	Physiology of Humans	3 cr.
BIOL 377	Cell Biology	3 cr.
EPWS 314	Plant Physiology	3 cr.
EPWS 373	Fungal Biology	3 cr. (2+2P)
EPWS 481	Plant Nematology	3 cr. (2+2P)

**Suggested Electives**

MATH 192G	Calculus and Analytic Geometry II	4 cr.
PHYS 212G	General Physics II	3 cr.

**OPTION: Applied Microbiology**

The Applied Microbiology option prepares you for professional positions in algal biofuels, environmental monitoring and improvement, industrial applications of microbiology, food sanitation, research or graduate study.

**Required Courses**

BCHE 341	Survey of Biochemistry	4 cr. (3+3P)
BIOL 311 L	General Microbiology Laboratory	2 cr. (4P)
BIOL 451	Physiology of Microorganisms	3 cr.
BIOL 473	Ecology of Microorganisms	3 cr. (2+3P)
CHEM 313	Organic Chemistry I	3 cr.
CHEM 314	Organic Chemistry II	3 cr.
CHEM 315	Organic Chemistry Laboratory	2 cr. (6P)
EPWS 373	Fungal Biology	3 cr. (2+2P)
EPWS 420	Environmental Behavior of Pesticides	3 cr.
EPWS 486	Plant Virology	3 cr.
MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)
	PHYS 110G or above	4 cr.

**Two courses from the following:**

A ST 456	Statistical Methods and Data Analysis	3 cr. (2+2P)
AGRO 471	Plant Mineral Nutrition	3 cr.
BIOL 477	Applied and Environmental Microbiology	4 cr.

E S 301	Principles of Ecology	3 cr.
E S 370	Environmental Soil Science	3 cr.
EPWS 455	Advanced Integrated Pest Management	3 cr.
EPWS 462	Parasitology	3 cr.
EPWS 481	Plant Nematology	3 cr. (2+2P)
EPWS 492	Diagnosing Plant Disorders	3 cr. (2+3P)
FSTE 320	Food Microbiology	3 cr. (2+3P)
SOIL 252	Soils	3 cr.
SOIL 312	Soil Management and Fertility	3 cr.
SOIL 476	Soil Microbiology	3 cr.
TOX 361	Basic Toxicology	3 cr.
TOX 423	Environmental Toxicology	3 cr.

**OPTION: Entomology**

The Entomology option prepares you for graduate degrees in entomology. Emphasis is placed on a broad background in field and laboratory aspects of insect biology and management.

**Required Courses**

MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)
BIOL 465	Invertebrate Zoology	4 cr. (3+3P)
CHEM 211	Organic Chemistry	4 cr. (3+3P)
EPWS 303	Economic Entomology	4 cr. (3+2P)
EPWS 325V	Insects, Humans, and the Environment	3 cr.
EPWS 455	Advanced Integrated Pest Management	3 cr.
	or	
EPWS 456	Biological Control	3 cr.
EPWS 462	Parasitology	3 cr.
EPWS 475	Urban Entomology	3 cr.
EPWS 481	Plant Nematology	3 cr. (2+2P)
EPWS 491	Insect Physiology	3 cr.
EPWS 492	Diagnosing Plant Disorders	3 cr. (2+3P)

**Three courses from the following (at least):**

EPWS 314	Plant Physiology	3 cr.
EPWS 451	Special Topics	1-4 cr.
BIOL 301	Principles of Ecology	3 cr.
AGRO 365	Principles of Crop Production	4 cr. (3+3P)
AGRO 471	Plant Mineral Nutrition	3 cr.
SOIL 252	Soils	3 cr.

**OPTION: Environmental Biology**

The Environmental Biology option prepares you for professional positions in environmental impact, regulation, compliance and improvement.

**Required Courses**

CHEM 211	Organic Chemistry	4 cr. (3+3P)
E S 301	Principles of Ecology	3 cr.
E S 330	Environmental Management Seminar I	1 cr.
E S 430	Environmental Management Seminar II	1 cr.
EPWS 380V	Ecosystem Earth: The Impact of Human Activities	3 cr.
EPWS 314	Plant Physiology	3 cr.
EPWS 455	Advanced Integrated Pest Management	3 cr.
EPWS 492	Diagnosing Plant Disorders	3 cr. (2+3P)
MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)



PHYS 211G	General Physics I	3 cr.
PHYS 211GL	General Physics I Laboratory	1 cr.
SOIL 252	Soils	3 cr.
TOX 361	Basic Toxicology	3 cr.

**Two courses from the following (at least):**

A ST 456	Statistical Methods and Data Analysis	3 cr. (2+2P)
AGRO 365	Principles of Crop Production	4 cr. (3+3P)
AGRO 471	Plant Mineral Nutrition	3 cr.
BCHE 341	Survey of Biochemistry	4 cr. (3+3P)
E S 370	Environmental Soil Science	3 cr.
EPWS 451	Special Topics	1-4 cr.
EPWS 481	Plant Nematology	3 cr. (2+2P)
GEOG 381	Cartography and Geographic Information Systems	4 cr. (3+3P)
SOIL 257	Introduction to Weather Science	4 cr. (3+3P)
SOIL 312	Soil Management and Fertility	3 cr.
TOX 423	Environmental Toxicology	3 cr.

**OPTION: Pest Biology and Management**

This option prepares you for careers such as insect, weed and disease management; in both field and urban environments, including IPM and Sustainable/Organic Techniques research technician; federal and state agencies; border security; agricultural consulting; and extension positions.

**Required Courses**

CHEM 211	Organic Chemistry	4 cr. (3+3P)
EPWS 314	Plant Physiology	3 cr.
EPWS 455	Advanced Integrated Pest Management	3 cr.
EPWS 481	Plant Nematology	3 cr. (2+2P)
	or	
EPWS 462	Parasitology	3 cr.
EPWS 492	Diagnosing Plant Disorders	3 cr. (2+3P)
MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)
PHYS 110G	The Great Ideas of Physics	4 cr. (3+3P)
SOIL 252	Soils	3 cr.
SOIL 312	Soil Management and Fertility	3 cr.
TOX 361	Basic Toxicology	3 cr.

**One course from the following:**

BIOL 312	Plant Taxonomy	3 cr. (2+3P)
RGSC 357	Grass Taxonomy and Identification	3 cr. (1+4P)
RGSC 316	Rangeland Plants	3 cr. (2+3P)

**One course from the following:**

EPWS 451	Special Topics	1-4 cr.
EPWS 486	Plant Virology	3 cr.
AGRO 365	Principles of Crop Production	4 cr. (3+3P)
AGRO 471	Plant Mineral Nutrition	3 cr.
BIOL 301	Principles of Ecology	3 cr.
RGSC 317	Rangeland Communities	3 cr.

**MINOR: ENTOMOLOGY****REQUIREMENTS (18 CREDITS)****Required Courses:**

EPWS 100	Introduction to Pest Management	3 cr.
EPWS 100 L	Pest Management Lab	1 cr.
EPWS 302	General Entomology	4 cr.
EPWS 303	Economic Entomology	4 cr. (3+2P)
EPWS 451	Special Topics	1-4 cr.
EPWS 456	Biological Control	3 cr.
EPWS 462	Parasitology	3 cr.

*EPWS 303: required for the minor.*

**MINOR: PEST MANAGEMENT****REQUIREMENTS (18 CREDITS)****Required Courses:**

EPWS 100	Introduction to Pest Management	3 cr.
EPWS 100 L	Pest Management Lab	1 cr.
EPWS 310	Plant Pathology	4 cr. (3+2P)
EPWS 311	Introduction to Weed Science	4 cr. (3+2P)
EPWS 451	Special Topics	1-4 cr.
	Upper-division EPWS course(s)	3-6 cr.

*EPWS 303, EPWS 310, and EPWS 311: required for the minor.*

**MINOR: PLANT PATHOLOGY****REQUIREMENTS (18 CREDITS)****Required Courses:**

BIOL 311	General Microbiology	3 cr.
BIOL 311 L	General Microbiology Laboratory	2 cr. (4P)
EPWS 100	Introduction to Pest Management	3 cr.
EPWS 100 L	Pest Management Lab	1 cr.
EPWS 310	Plant Pathology	4 cr. (3+2P)
EPWS 314	Plant Physiology	3 cr.
EPWS 373	Fungal Biology	3 cr. (2+2P)
EPWS 481	Plant Nematology	3 cr. (2+2P)
EPWS 486	Plant Virology	3 cr.
EPWS 492	Diagnosing Plant Disorders	3 cr. (2+3P)

*EPWS 310, EPWS 481, EPWS 486: required for the minor.*

**MINOR: WEED SCIENCE****REQUIREMENTS (18 CREDITS)****Required Courses:**

BIOL 312	Plant Taxonomy	3 cr. (2+3P)
BIOL 408	Ecology of Plants	3 cr.
EPWS 100	Introduction to Pest Management	3 cr.
EPWS 100 L	Pest Management Lab	1 cr.
EPWS 311	Introduction to Weed Science	4 cr. (3+2P)
EPWS 314	Plant Physiology	3 cr.
EPWS 449	Special Problems	1-3 cr.

*EPWS 311, EPWS 314, and EPWS 449: required for the minor.*

## FAMILY AND CONSUMER SCIENCES

### Professor, Esther Devall, Department Head

**Professors** Bock, Devall, Eastman, Munson-McGee; **Associate Professors** Chavez, Montanez, Smitley, Vaillancourt; Bartley **Assistant Professors** Golem, Marin; **Emeritus Professors** Cummings, Del Campo  
**phone: (575) 646-3936**

**website: <http://aces.nmsu.edu/academics/fcs/>**

Courses and curricula in the department are designed to educate you as an individual and as a citizen in a changing society. They also develop a scientific attitude and the ability to conduct research directed toward solutions of problems affecting the quality of life for individuals, families and communities.

You must complete general education requirements, and a sequence of specialized course work is then identified for each major.

The following prefixes are used for courses: CTFM—Clothing, Textiles, and Fashion Merchandising; FCSC—Family and Consumer Sciences; FCS—Family and Child Science; FCSE—Family and Consumer Sciences Education; FSTE—Food Science and Technology; HNDS—Human Nutrition and Dietetic Sciences.

### DEGREE: BACHELOR OF SCIENCE IN FAMILY AND CONSUMER SCIENCES

#### MAJOR: CLOTHING, TEXTILES AND FASHION MERCHANDISING

The Clothing, Textiles and Fashion Merchandising major prepares students to achieve career goals in the diverse field of fashion merchandising and apparel design. Students are prepared with courses in fashion merchandising, marketing, retail management, textiles and apparel design. With knowledge and skills attained from the academic preparation, graduates can compete in today's fashion industry. Skills attained in garment construction, draping and flat pattern allow for additional technical and costing abilities to meet the creative environment of the fashion industry. A GPA of 2.5 or better is required to enroll in CTFM 402: Field Experience Marketing Training to complete the degree requirements.

### REQUIREMENTS

#### General Education Requirements

A list of specific general education requirements is available in the department. Please check with your advisor.

#### Departmental Requirements

CTFM 178	Fundamentals of Fashion	3 cr.
CTFM 255	Applied Principles in Clothing Selection	3 cr.
CTFM 270	Fashion Illustration	3 cr. (1+4P)
CTFM 273	Concepts in Apparel Construction	3 cr. (1+4P)
CTFM 366	Historic Fashion	3 cr.
CTFM 371	Textile Science	3 cr. (1+4P)
CTFM 372	Fashion Merchandising	3 cr.
CTFM 402	Field Experience Marketing Training	3-6 cr.
CTFM 474	Fashion Promotion	3 cr.
CTFM 475	Fashion Buying	3 cr.

*Any two courses with FCS, FCSE or FRMG prefixes that are 300 or 400 level. (6)*

#### Nondepartmental Requirements

A ST 311	Statistical Applications	3 cr.
	or	
STAT 251G	Statistics for Business and the Behavioral Sciences	3 cr.
ACCT 222	Management Accounting	3 cr.
	or	
ACCT 221	Financial Accounting	3 cr.
ART 110G	Visual Concepts	3 cr. (2+4P)

CHEM 110G	Principles and Applications of Chemistry	4 cr. (3+3P)
	or	
CHEM 111G	General Chemistry I	4 cr. (3+3P)
	and	
CHEM 112G	General Chemistry II	4 cr. (3+3P)
ECON 252G	Principles of Microeconomics	3 cr.
ENGL 111G	Rhetoric and Composition	4 cr.
MATH 120	Intermediate Algebra	3 cr.
MATH 210G	Mathematics Appreciation	3 cr.
MGT 309	Human Behavior in Organizations	3 cr.
MGT 315V	Human Relations in Organizations	3 cr.
PSY 201G	Introduction to Psychology	3 cr.
SOC 101G	Introductory Sociology	3 cr.
	General Education HIST Course	3 cr.
	Viewing a Wider World	6 cr.

#### One course from the following:

MKTG 303	Principles of Marketing	3 cr.
MKTG 313	Retail Management	3 cr.
MKTG 324	Product/Service Development	3 cr.

#### One course from the following:

AXED 201G	Effective Leadership and Communication in Agricultural Organizations	3 cr. (2+2P)
COMM 253G	Public Speaking	3 cr.
COMM 265G	Principles of Human Communication	3 cr.

#### One course from the following:

AG E 250	Technology and Communication for Business Management	3 cr. (2+2P)
BCIS 110	Introduction to Computerized Information Systems	3 cr.
C S 110	Computer Literacy	3 cr.

#### One course from the following:

ENGL 203G	Business and Professional Communication	3 cr.
ENGL 211G	Writing in the Humanities and Social Sciences	3 cr.
ENGL 218G	Technical and Scientific Communication	3 cr.
ENGL 311G	Advanced Composition	3 cr.
ENGL 318G	Advanced Technical and Professional Communication	3 cr.

### Electives

Choose in consultation with CTFM advisor to round out curriculum of 120 credits.

**At least 48 credits must be courses labeled 300 or above. Choose from the following:**

CTFM 373	Advanced Apparel Techniques	3 cr.
CTFM 374	The Production of Textile and Fashion Accessories	3 cr.
CTFM 384	Clothing for Special Needs	3 cr.
CTFM 460	Cultural Perspectives in Dress	3 cr.
CTFM 470	Global Fashion Industry Trends	3 cr.
CTFM 476	Apparel Design by Draping and Pattern Drafting	3 cr. (1+4P)
CTFM 478	Apparel Design Through Flat Pattern	3 cr.
MGT 332	Human Resources Management	3 cr.
MGT 453	Leadership and Motivation	3 cr.
MKTG 317	International Marketing	3 cr.

*Check prerequisites before enrolling in courses.*

### MAJOR: FAMILY AND CHILD SCIENCE

This major stresses the interrelationship of individuals across the life span and the impact of social and economic factors on the family system. Graduates are prepared for professional work with social and community agencies and other

programs serving families. This degree program has been deemed a CFLE-approved academic program by the National Council on Family Relations' Certified Family Life Educator program so that you can apply through the abbreviated application process to become a CFLE upon graduation. You must work closely with an advisor. You must achieve a grade of C- or higher in your required core and minor courses, and must retake required courses with a grade lower than C-. You must have a GPA of 2.5 or higher before enrolling in FCS 424, Field Experience: Issues and Ethics; FCSC 400, Research Methods in Family and Consumer Sciences; and FCSE 348, Teaching in Informal Family and Consumer Sciences Settings.

## REQUIREMENTS

### General Education Requirements

A list of specific general education requirements is available in the department. Please check with your advisor.

### Departmental Requirements

CAST 301V	Introduction to Child Advocacy	3 cr.
CAST 302	Professional and Systems Responses to Child Maltreatment	3 cr.
CAST 303	Prevention, Trauma Informed Treatment and Advocacy	3 cr.
FCS 181	Interpersonal Skills in Intimate Relationships	3 cr.
FCS 210	Infancy and Early Childhood in the Family	3 cr.
FCS 211	Middle Childhood Development in the Family	3 cr.
FCS 212	Adolescent Development and the Family	3 cr.
FCS 213	Adult Development and Aging	3 cr.
FCS 301	Personal and Family Finance	3 cr.
FCS 302	Consumer Practices and Problems for Families	3 cr.
FCS 380	Family Dynamics	3 cr.
FCS 383	Parenting and Child Guidance	3 cr.
FCS 424	Field Experience: Issues and Ethics	4 cr.
FCS 449V	Family Ethnicities and Subcultures	3 cr.
FCSC 400	Research Methods in Family and Consumer Sciences	3 cr.
FCSE 345	Management Concepts in Family and Consumer Sciences Teaching	3 cr.
	or	
FCSE 348	Teaching in Informal Family and Consumer Sciences Settings	3 cr.
HNDS 251	Human Nutrition	3 cr.
	or	
PHLS 150G	Personal Health and Wellness	3 cr.

### Minor Courses (Select 3-6 courses; 9-18 credits)

With the approval of an FCS advisor, select a minor related to the FCS field such as CAST, C EP, ECED, GERO, PHLS, PSY, SOC, S WK and W S.

### Electives

Choose electives with approval of an FCS advisor sufficient to bring total to at least 120 credits with at least 48 credits labeled 300 or higher.

## MAJOR: FAMILY AND CONSUMER SCIENCES EDUCATION

This major prepares you to teach in middle or high school or in other settings such as the Cooperative Extension Service or community agencies. The major is an accredited education program which meets the teacher licensure requirements for the State of New Mexico. In the spring semester of the senior year, you will apply all the principles of teaching that you have learned in a semester of student teaching in a selected school. Requirements for admission to the student teaching component of the Family and Consumer Sciences Education are (1) an overall grade-point average of 2.5 or higher, and a grade-point average of 2.5 or higher in family and consumer sciences courses; (2) a C or better in all departmental courses; and (3) recommendation of the advisor. You must have a GPA of 2.5 or higher before enrolling in the following FCSE courses: FCSE 446, Teaching Methods I for Family and Consumer Sciences; FCSE 447 Teaching Methods II for Family and Consumer Sciences; and FCSE 448, Supervised Teaching in Family and Consumer Sciences.

## REQUIREMENTS

### General Education Requirements

A list of specific general education requirements is available in the department. Please check with your advisor.

### Departmental Requirements

CTFM 178	Fundamentals of Fashion	3 cr.
	or	
CTFM 255	Applied Principles in Clothing Selection	3 cr.
CTFM 273	Concepts in Apparel Construction	3 cr. (1+4P)
CTFM 371	Textile Science	3 cr. (1+4P)
FCS 181	Interpersonal Skills in Intimate Relationships	3 cr.
FCS 380	Family Dynamics	3 cr.
FCS 383	Parenting and Child Guidance	3 cr.
FCS 212	Adolescent Development and the Family	3 cr.
FCS 210	Infancy and Early Childhood in the Family	3 cr.
FCSE 245	Overview of Family and Consumer Sciences Teaching	3 cr.
FCSE 345	Management Concepts in Family and Consumer Sciences Teaching	3 cr.
FCSE 445	Career and Technical Education Programs	3 cr.
FCSE 446	Teaching Methods I for Family and Consumer Sciences	3 cr.
FCSE 447	Teaching Methods II for Family and Consumer Sciences	3 cr.
FCS 301	Personal and Family Finance	3 cr.
FCSE 331	Management of Family Life and Resources	3 cr.
FCSE 235	Housing and Interior Design	3 cr.
FSTE 164G	Introduction to Food Science and Technology	4 cr. (3+2P)
FSTE 263G	Food Science I	4 cr. (4+3P)
	FSTE food science 300+ elective (see advisor for selections)	3 cr.
HNDS 251	Human Nutrition	3 cr.
	HNDS nutrition 300+ elective (see advisor for selections)	3 cr.

### Nondepartmental Requirements

HRTM 221	Introduction to Hospitality Management	3 cr.
HRTM 231	Safety, Sanitation and Health in the Hospitality Industry	2 cr.
HRTM 363	Quantity Food Production and Service	6 cr. (1+10P)
SPED 350	Introduction to Special Education in a Diverse Society	3 cr.

### One course from the following:

AG E 250	Technology and Communication for Business Management	3 cr. (2+2P)
C S 110	Computer Literacy	3 cr.
BCIS 110	Introduction to Computerized Information Systems	3 cr.

### Choose two Viewing a Wider World:

PHLS 301V	Human Sexuality	3 cr.
BLAW 385V	Consumers and the Law	3 cr.
MKTG 311V	Consumer Behavior	3 cr.
	One approved VWW Course	3 cr.

### Specific Teaching Requirements

FCSE 448	Supervised Teaching in Family and Consumer Sciences	9-12 cr.
RDG 414	Content Area Literacy	3 cr. (2+2P)

**MAJOR: HUMAN NUTRITION AND DIETETIC SCIENCES****OPTION: Nutrition Education**

This option prepares students to become nutrition educators that work within the community and public health settings. This option focuses on health and wellness, the association between nutrition and health, and teaching healthy living. Graduates from the Nutrition Education option will have learned the skills to communicate evidence-based nutrition information, provide nutrition education, and blend nutrition with other health science subjects. The job opportunities for those graduating from this program include working as a nutrition educator or nutrition assistant in county agencies, Extension Services, community nutrition programs, schools and with health organizations.

Unlike the Dietetics option, this option does **not** prepare students to pursue the credential of a Registered Dietitian.

**General Education Requirements**

Areas I-III are incorporated into the Nutrition Education course list below. Students are able to select the five required courses from Areas IV-V and two required courses from the Viewing a Wider World section in the General Requirements section of the catalog. Please refer to the HNDS Undergraduate Student Handbook for a list of recommended courses to choose from in order to fulfill these requirements.

**Departmental Requirements**

FCS 181	Interpersonal Skills in Intimate Relationships	3 cr.
FCSC 400	Research Methods in Family and Consumer Sciences	3 cr.
FCSE 245	Overview of Family and Consumer Sciences Teaching	3 cr.
FCSE 345	Management Concepts in Family and Consumer Sciences Teaching	3 cr.
FCSE 446	Teaching Methods I for Family and Consumer Sciences	3 cr.
FCSE 447	Teaching Methods II for Family and Consumer Sciences	3 cr.
FSTE 263G	Food Science I	4 cr. (4+3P)
FSTE 320	Food Microbiology	3 cr. (2+3P)
HNDS 201	Seminar 1- The Field of Dietetics	1 cr.
HNDS 251	Human Nutrition	3 cr.
HNDS 350	Nutrition Throughout the Lifecycle	3 cr.
HNDS 363	Quantity Food Production and Service	6 cr. (1+10P)
HNDS 403	Community Nutrition	3 cr.
HNDS 407	Field Experience Community Nutrition	1-8 cr.
HNDS 420	Nutrition Counseling and Communication	3 cr.

**Nondepartmental Requirements**

ENGL 111G	Rhetoric and Composition	4 cr.
ENGL 203G	Business and Professional Communication	3 cr.
	or	
ENGL 218G	Technical and Scientific Communication	3 cr.
	or	
ENGL 318G	Advanced Technical and Professional Communication	3 cr.
AXED 201G	Effective Leadership and Communication in Agricultural Organizations	3 cr. (2+2P)
	or	
COMM 253G	Public Speaking	3 cr.
	or	
COMM 265G	Principles of Human Communication	3 cr.
MATH 121G	College Algebra	3 cr.
	or	
MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)

BIOL 111G	Natural History of Life	3 cr.
BIOL 111GL	Natural History of Life Laboratory	1 cr. (3P)
	and	
CHEM 111G	General Chemistry I	4 cr. (3+3P)
AG E 250	Technology and Communication for Business Management	3 cr. (2+2P)
	or	
C S 110	Computer Literacy	3 cr.
	or	
BCIS 110	Introduction to Computerized Information Systems	3 cr.
BIOL 225	Human Anatomy and Physiology I	4 cr. (3+3P)
BIOL 226	Human Anatomy and Physiology II	4 cr. (3+3P)
PHLS 100	Introduction to Health Science	1 cr.
PHLS 150G	Personal Health and Wellness	3 cr.
PHLS 275	Foundations of Health Education	3 cr.
PHLS 320	Human Stress Management	3 cr.
PHLS 395	Foundations of Public Health	3 cr.
PHLS 459	Infectious and Noninfectious Disease Prevention	3 cr.
PHLS 464V	Cross-Cultural Aspects of Health	3 cr.
RDG 414	Content Area Literacy	3 cr. (2+2P)

**Viewing a Wider World**

Refer to the "List of Recommended GE courses" for HNDS students in the HNDS Undergraduate Student Handbook for a list of field-related course options that can be selected from the GE Core Curriculum and Viewing a Wider World course requirements.

**OPTION: Pre-Dietetics/Dietetics**

The Dietetics option prepares students to become registered dietitians (RD) and dietetic technicians, registered (DTR). This option encompasses nutritional science, clinical dietetics, community nutrition, food science and food service management.

All students enrolled in this option begin as Pre-Dietetics students. **All Pre-Dietetics students are required to apply for admission into the Dietetics option in the fall semester of their junior year as indicated on the Pre-Dietetics/Dietetics road map.** Please refer to the HNDS Undergraduate Student Handbook for information on the admissions criteria, application instructions, and the application process. Pre-Dietetic students are termed Dietetic students upon formal notification of admission into the Dietetics program.

The Dietetics option is a Didactic Program in Dietetics (DPD) that is accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND). This option enables graduates to continue pursuing the credentials of a registered dietitian (RD). Becoming an RD is currently a three-step process:

1. Successfully complete an ACEND-accredited DPD program (e.g. the NMSU Dietetics Option), earn a degree and a verification statement
  - a. The verification statement ensures eligibility to apply to the next step.
2. Successfully complete an ACEND-accredited Dietetic Internship (DI) program, earn another verification statement.
  - a. This 2nd verification statement ensures eligibility to begin the next step.
3. Pass the Commission on Dietetic Registration (CDR) registration exam.

**General Education Requirements**

Areas I-III are incorporated into the Pre-Dietetics/Dietetics course list below. Students are able to select the five required courses from Areas IV-V and two required courses from the Viewing a Wider World section as stated in the General Requirements section of the catalog. Please refer to the HNDS Undergraduate Student Handbook for a list of recommended courses to choose from in order to fulfill these requirements.

**Departmental Requirements**

FCSE 348	Teaching in Informal Family and Consumer Sciences Settings	3 cr.
FSTE 263G	Food Science I	4 cr. (4+3P)
FSTE 320	Food Microbiology	3 cr. (2+3P)
HNDS 201	Seminar I- The Field of Dietetics	1 cr.
HNDS 251	Human Nutrition	3 cr.
HNDS 350	Nutrition Throughout the Lifecycle	3 cr.
HNDS 360	Food for Health	4 cr.
HNDS 401	Field Experience- Clinical Dietetics	1-8 cr.
HNDS 403	Community Nutrition	3 cr.
HNDS 405	Seminar II- Entering the Field of Dietetics	1 cr.
HNDS 407	Field Experience Community Nutrition	1-8 cr.
HNDS 409	Dietetic Science Capstone	3 cr.
HNDS 420	Nutrition Counseling and Communication	3 cr.
HNDS 430	Food Service Organization and Management	3 cr.
HNDS 440	Nutrition Education and Research	3 cr.
HNDS 446	Diet Therapy I	3 cr.
HNDS 448	Advanced Nutrition	3 cr.
HNDS 449	Diet Therapy II	3 cr.
HNDS 450	Special Topics	1-4 cr.

**Nondepartmental Requirements**

ENGL 111G	Rhetoric and Composition	4 cr.
ENGL 203G	Business and Professional Communication	3 cr.
ENGL 218G	Technical and Scientific Communication	3 cr.
ENGL 318G	Advanced Technical and Professional Communication	3 cr.
AXED 201G	Effective Leadership and Communication in Agricultural Organizations	3 cr. (2+2P)
COMM 253G	Public Speaking	3 cr.
COMM 265G	Principles of Human Communication	3 cr.
MATH 121G	College Algebra	3 cr.
MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)
BIOL 111G	Natural History of Life	3 cr.
BIOL 111GL	Natural History of Life Laboratory	1 cr. (3P)
CHEM 111G	General Chemistry I	4 cr. (3+3P)
A ST 311	Statistical Applications	3 cr.
STAT 251G	Statistics for Business and the Behavioral Sciences	3 cr.
ACCT 221	Financial Accounting	3 cr.
BCHE 341	Survey of Biochemistry	4 cr. (3+3P)
BIOL 225	Human Anatomy and Physiology I	4 cr. (3+3P)
SP M 271	Anatomy & Physiology I	3 cr.

SP M 271 L	Anatomy and Physiology Laboratory	1 cr.
BIOL 226	Human Anatomy and Physiology II	4 cr. (3+3P)
SP M 371	Anatomy and Physiology II	3 cr.
SP M 371 L	Anatomy and Physiology II Lab	1 cr.
BIOL 227	Pathophysiology	3 cr.
CHEM 112G	General Chemistry II	4 cr. (3+3P)
CHEM 211	Organic Chemistry	4 cr. (3+3P)
HRTM 263	Food Production and Service Fundamentals	3 cr. (1+4P)

**Viewing a Wider World**

Refer to the "List of Recommended GE courses" for HNDS students in the HNDS Undergraduate Student Handbook for a list of field-related course options that can be selected from the GE Core Curriculum and Viewing a Wider World course requirements.

**DEGREE: BACHELOR OF SCIENCE IN FOOD SCIENCE AND TECHNOLOGY  
MAJOR: FOOD SCIENCE AND TECHNOLOGY**

Students in this major study diverse scientific disciplines including chemistry, microbiology, nutrition and engineering. These principles from these disciplines are then applied to the industrial and practical aspects of product development, food processing, quality control/quality assurance, food preservation and sensory evaluation of foods. Background courses required in English, communication, biology, chemistry, core food science and technology. Necessary courses will cover production, preparation, analysis, safety, nutritional and aesthetic principles. This will provide students with a solid background to understand the nature, deterioration and processing of foods. These critical thinking, analytical, and application skills are necessary to translate those principles into the selection, processing, preservation, packaging, distribution and use of a safe, adequate, and high-quality food supply. Concentration areas in science, engineering and technology, culinary science and meat science allow students to focus on an area of interest.

You must achieve a grade of C- or higher in all classes with CHEM, BCHE, BIOL, FSTE and HNDS prefixes.

**REQUIREMENTS****Basic Science and Background Requirements:**

BCHE 341	Survey of Biochemistry	4 cr. (3+3P)
BIOL 211G	Cellular and Organismal Biology	3 cr.
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr. (3P)
BIOL 311	General Microbiology	3 cr.
BIOL 311 L	General Microbiology Laboratory	2 cr. (4P)
CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
CHEM 211	Organic Chemistry	4 cr. (3+3P)
ENGL 111G	Rhetoric and Composition	4 cr.
MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)
	Humanities and Fine Arts General Education Requirements*	6-9 cr.
	Social/ Behavioral Sciences General Education Requirements*	6-9 cr.

\*The total credits from Humanities and Fine Arts and Social/Behavior Sciences General Education requirements must total at least 15 credits with at least 6 credits from each category.

**One course from the following:**

ENGL 218G	Technical and Scientific Communication	3 cr.
ENGL 318G	Advanced Technical and Professional Communication	3 cr.

**One course from the following:**

A ST 311	Statistical Applications	3 cr.
STAT 251G	Statistics for Business and the Behavioral Sciences	3 cr.

**One course from the following:**

AG E 250	Technology and Communication for Business Management	3 cr. (2+2P)
BCIS 110	Introduction to Computerized Information Systems	3 cr.
C S 110	Computer Literacy	3 cr.

**One course from the following:**

AXED 201G	Effective Leadership and Communication in Agricultural Organizations	3 cr. (2+2P)
COMM 253G	Public Speaking	3 cr.
COMM 265G	Principles of Human Communication	3 cr.

**Food Science and Technology Core Requirements:**

ANSC 262	Introduction to Meat Science	3 cr. (2+3P)
FSTE 164G	Introduction to Food Science and Technology	4 cr. (3+2P)
FSTE 210G	Survey of Food and Agricultural Issues	3 cr.
FSTE 263G	Food Science I	4 cr. (4+3P)
FSTE 320	Food Microbiology	3 cr. (2+3P)
FSTE 325	Food Analysis	3 cr.
FSTE 328	Introduction to Food Engineering	4 cr. (3+2P)
FSTE 331	Food Preservation	3 cr. (2+3P)
FSTE 421	Food Chemistry	3 cr.
FSTE 423	Food Processing Technologies	4 cr. (3+2P)
FSTE 425	Sensory Evaluation of Foods	3 cr. (2+2P)
FSTE 429	Product Development	0-3 cr. (2+2P)
HNDS 251	Human Nutrition	3 cr.

FSTE majors must take FSTE 429 for 3 credits.

**CONCENTRATION: Culinary Science****Required Courses:**

ANTH 360V	Food and Culture Around the World	3 cr.
HRTM 231	Safety, Sanitation and Health in the Hospitality Industry	2 cr.
HRTM 263	Food Production and Service Fundamentals	3 cr. (1+4P)
HRTM 307	Professional Development	1 cr.
HRTM 363	Quantity Food Production and Service	6 cr. (1+10P)
HRTM 408	Hospitality Internship	1 cr.
HRTM 413	Restaurant Operations Management	4 cr. (1+6P)
HRTM 414	International Food and Wine	3 cr.
	Viewing a Wider World	3 cr.

**CONCENTRATION: Meat Science****Required Courses:**

ANSC 200	Introduction to Meat Animal Production	3 cr. (2+2P)
ANSC 301	Animal and Carcass Evaluation	3 cr. (2+2P)

ANSC 351V	Agricultural Animals of the World	3 cr.
ANSC 363	Meat Technology	3 cr.
PHYS 211G	General Physics I	3 cr.
PHYS 211GL	General Physics I Laboratory	1 cr.
	Viewing a Wider World	3 cr.

**CONCENTRATION: Science, Technology and Engineering****Required Courses:**

FSTE 175	ACES in the Hole Foods I	4 cr. (2+8P)
FSTE 275	ACES in the Hole Foods II	4 cr. (2-8P)
FSTE 375	ACES in the Hole Foods III	4 cr. (2-8P)
FSTE 475	ACES in the Hole Foods IV	1-4 cr. (2P)
PHYS 211G	General Physics I	3 cr.
PHYS 211GL	General Physics I Laboratory	1 cr.
	Two Viewing a Wider World courses	6 cr.

FSTE majors with the Science, Technology, and Engineering concentration must take FSTE 175, 275, 375 and 475 for 4 credits each (a total of 16 credits).

Students are encouraged to use the elective hours to complete a minor in a related area such as chemistry, microbiology, and business. Consult an advisor for requirements.

**MINOR: CHILD ADVOCACY STUDIES (CAST)**

A minor in Child Advocacy Studies (CAST) is available. The minor requires a minimum of 18 hours of which 9 hours are specifically concentrated in the area of child advocacy at the 300 or higher level. Specific coursework requirements apply and consultation with an advisor for course requirements and scheduling is urged.

**MINOR: CLOTHING, TEXTILES AND FASHION MERCHANDISING**

A minor in Clothing, Textiles and Fashion Merchandising is available. The minor requires a minimum of 18 hours of which a minimum of 9 hours must be at the 300 or higher level. Specific coursework requirements may apply. See an advisor for course requirements and scheduling.

**MINOR: CULINARY SCIENCE**

A minor in Culinary Science is available. The minor requires a minimum of 18 credits of which a minimum of 9 hours must be at the 300 or higher level. Specific coursework requirements apply and depend on the student's specific major. See an advisor for course requirements and scheduling.

**MINOR: FAMILY AND CHILD SCIENCE**

A minor in Family and Child Science is available. The minor requires a minimum of 18 hours of which a minimum of 9 hours must be at the 300 or higher level. Specific coursework requirements may apply. See an advisor for course requirements and scheduling.

**MINOR: FOOD SCIENCE**

A minor in Food Science is available. The minor requires a minimum of 18 hours of which a minimum of 9 hours must be at the 300 or higher level. Specific coursework requirements may apply. See an advisor for course requirements and scheduling.

**MINOR: NUTRITION**

A minor in Nutrition is available. The minor requires a minimum of 18 hours of which a minimum of 9 hours must be at the 300 or higher level. Specific coursework requirements may apply. See an advisor for course requirements and scheduling.

# FISH, WILDLIFE AND CONSERVATION ECOLOGY

**Professor, Kathryn E. Stoner, Department Head**

**Professors** Boeing, Caldwell, Cowley, Desmond, Roemer; **Associate Professor** Cain; **Assistant Professor** Carleton; **College Associate Professors** Boykin, Frey, Sallenave

phone: (575) 646-1544

website: <http://aces.nmsu.edu/academics/fwsw/>

**DEGREE: BACHELOR IN CONSERVATION ECOLOGY**

**MAJOR: CONSERVATION ECOLOGY**

**Co-directors of the Program:**

**Associate Professor, Ralph Preszler**, Department Head, Biology

**Professor, Kathryn E. Stoner**, Department Head, Fish, Wildlife and Conservation Ecology

**Professors** Boecklen, Boeing, Caldwell, Cowley, Desmond, Houde, Milligan, Nishiguchi, Roemer, G. Smith; **Associate Professors** Bailey, Cain, Hanley, Mabry, Preszler, Wright; **Assistant Professors** Carleton.

New Mexico State University offers an interdisciplinary, undergraduate program in Conservation Ecology. The goal of this program is to train biologists for the current and future challenges that we face in the conservation and wise use of our Earth's natural resources. An overriding principle of the program is to provide a solid foundation in basic science coupled with a practical approach towards sustainability and stewardship. The curriculum encompasses several disciplines and includes a wide variety of courses from Biology, Fish, Wildlife and Conservation Ecology, Geography and Range Science.

The educational experience will provide students with an overview of global biodiversity and an understanding of the ecological and evolutionary processes that have created and sustained it. Courses in population and community ecology coupled with population viability analysis and risk assessment will give students the necessary background to understand the theory and development of these fields as well as the tools to tackle real-world problems. Courses in basic genetics, evolution, and conservation genetics will expose students to the importance of conserving genetic variation in order to maintain adaptive potential within populations, thereby sustaining the evolutionary process. Students will also receive background on wildlife law and environmental policy, information vital for assisting governing bodies in making decisions regarding the protection and wise use of our natural resources. Skills obtained in the application of geographic information systems, molecular genetics, and professional communication can also be acquired through various electives. In sum, we seek to provide undergraduate students with an education that will allow them the opportunity to contribute to the conservation of all life on Earth.

The requirements are listed below. In addition each required course must be passed with a grade of C- or better.

## NEW MEXICO AND UNIVERSITY REQUIREMENTS

*NOTE: Areas IV and V are linked; you must take a total of 15 credits between the two areas, for example, either 9 credits in Area IV and 6 credits in Area V or vice versa.*

### Area I. Communications (10 credits)

ENGL 111G	Rhetoric and Composition	4 cr.
ENGL 218G	Technical and Scientific Communication	3 cr.
	or	
ENGL 318G	Advanced Technical and Professional Communication	3 cr.
	and	
AXED 201G	Effective Leadership and Communication in Agricultural Organizations	3 cr. (2+2P)
	or	
COMM 253G	Public Speaking	3 cr.
	or	
COMM 265G	Principles of Human Communication	3 cr.

### Area II. Mathematics (3 credits)

MATH 121G	College Algebra	3 cr.
-----------	-----------------	-------

### Area III. Science, with Laboratory (8 credits)

BIOL 111G	Natural History of Life	3 cr.
	and	
BIOL 111GL	Natural History of Life Laboratory	1 cr. (3P)
	and	
BIOL 211G	Cellular and Organismal Biology	3 cr.
	and	
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr. (3P)
	or	
PHYS 211G	General Physics I	3 cr.
	and	
PHYS 211GL	General Physics I Laboratory	1 cr.
	and	
PHYS 212G	General Physics II	3 cr.
	and	
PHYS 212GL	General Physics II Laboratory	1 cr.
	or	
PHYS 221G	General Physics for Life Sciences I	3 cr.
	and	
PHYS 221GL	Laboratory to General Physics for Life Science I	1 cr.
	and	
PHYS 222G	General Physics for Life Sciences II	3 cr.
	and	
PHYS 222GL	Laboratory to General Physics for Life Sciences II	1 cr.

### Area IV. Social/Behavioral Sciences (6-9 credits)

ECON 201G	Introduction to Economics	3 cr.
	or	
ECON 252G	Principles of Microeconomics	3 cr.

*\*See Catalog, Required Courses section.*

### Area V. Humanities and Fine Arts (6-9 credits)

	See Catalog*	6-9 cr.
--	--------------	---------

*Note: Areas IV and V are linked. You have to take a total of 15 credits between these two areas.*

### Viewing a Wider World (6 credits)

*Note: 3 credits can be taken inside the College of ACES, but 3 credits must also be taken outside the College of ACES or 9 credits can be taken within a single department (e.g. Biology) that is outside the College of Aces.*

### Core Curriculum

A ST 311	Statistical Applications	3 cr.
CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
CHEM 211	Organic Chemistry	4 cr. (3+3P)
ECON 337V	Natural Resource Economics	3 cr.

### Physiology—Any physiology course among the following

ANSC 370	Anatomy and Physiology of Farm Animals	4 cr. (3+2P)
BIOL 314	Plant Physiology	3 cr.
BIOL 354	Physiology of Humans	3 cr.
	and	
BIOL 354 L	Laboratory of Human Physiology	1 cr. (3P)
BIOL 381	Animal Physiology	3 cr.
FWCE 432	Environmental Biology of Fishes	4 cr. (3+3P)

FWCE 438	Vertebrate Physiological Ecology	3 cr.
----------	----------------------------------	-------

**Major Requirements (56 credits)**

BIOL 111G	Natural History of Life and	3 cr.
BIOL 111GL	Natural History of Life Laboratory	1 cr. (3P)
BIOL 211G	Cellular and Organismal Biology and	3 cr.
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr. (3P)
BIOL 301	Principles of Ecology or	3 cr.
FWCE 301	Wildlife Ecology	3 cr.
AGRO 305	Principles of Genetics or	3 cr.
BIOL 305	Principles of Genetics	3 cr.
BIOL 312	Plant Taxonomy or	3 cr. (2+3P)
RGSC 316	Rangeland Plants	3 cr. (2+3P)
BIOL 313	Structure and Function of Plants	3 cr. (2+3P)
BIOL 322	Zoology	3 cr. (2+3P)
BIOL 462	Conservation Biology	3 cr.
BIOL 467	Evolution	3 cr.
BIOL 488	Principles of Conservation Genetics	3 cr.
FWCE 110	Introduction to Natural Resources Management	3 cr.
FWCE 255	Principles of Fish and Wildlife Management	3 cr.
FWCE 330	Natural History of the Vertebrates	4 cr. (3+3P)
FWCE 402	Seminar in Natural Resource Management	1 cr.
FWCE 409	Introduction to Population Ecology	3 cr.
FWCE 447	Wildlife Law and Policy	3 cr.
FWCE 464	Management of Aquatic and Terrestrial Ecosystems	4 cr. (3+2P)
MATH 142G	Calculus for the Biological and Management Sciences or	3 cr. (2+2P)
MATH 190G	Trigonometry and Precalculus and	4 cr. (3+2P)
MATH 191G	Calculus and Analytic Geometry I and	4 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.

**Requirements in Diversity of Life: Any two courses (6-8 credits)**

BIOL 408	Ecology of Plants	3 cr.
BIOL 465	Invertebrate Zoology	4 cr. (3+3P)
BIOL 480	Animal Behavior	3 cr.
BIOL 447	Ornithology	4 cr. (3+3P)
	or	
FWCE 430	Avian Field Ecology	4 cr. (3+3P)
FWCE 431	Mammalogy	4 cr. (3+2P)
FWCE 467	Herpetology	4 cr.
FWCE 482	Ichthyology	4 cr.

		(3+2P)
--	--	--------

**Recommended Electives**

BCHE 341	Survey of Biochemistry	4 cr. (3+3P)
BIOL 436	Disease Vector Biology	3 cr.
BIOL 442	Genomics Technology	3 cr.
BIOL 446	Bioinformatics and NCBI Database	3 cr.
BIOL 469	Biology of Emerging Infectious Diseases	3 cr.
BIOL 489	Genetic Aspects of Population Biology	3 cr.
FWCE 457	Ecological Biometry	3 cr.
FWCE 471	GIS for Natural Resource Scientists	4 cr.
GEOG 381	Cartography and Geographic Information Systems	4 cr. (3+3P)
GEOG 481	Fundamentals of Geographic Information Science and Technology (GIS & T)	4 cr. (3+3P)

**Other Related Courses**

GEO 111G	Survey of Geology	4 cr. (3+3P)
GEO 295	Environmental Geology	3 cr.
GOVT 378	U.S.-Mexico Border Politics	3 cr.
RGSC 318	Watershed Management	3 cr. (2+2P)
RGSC 325	Rangeland Restoration Ecology	3 cr.
RGSC 452	Vegetation Measurements for Rangeland Assessment	4 cr. (2+4P)
TOX 423	Environmental Toxicology	3 cr.

**DEGREE: BACHELOR OF SCIENCE IN AGRICULTURE****MAJOR: WILDLIFE SCIENCE**

The Department of Fish, Wildlife and Conservation Ecology prepares you for careers in a variety of natural resource fields related to the management of wild animal populations and the natural systems they share. Within the major you are offered two options. The Wildlife Ecology and Management Option is for students who plan to focus on terrestrial organisms, and the Aquatic Ecology and Management Option is for students who want to focus on fish and aquatic organisms. To graduate, an overall grade point average of 2.0 is required in courses taken in the major field and in all courses taken at NMSU. The department offers a minor in Wildlife Science for students majoring in other disciplines. The minor includes a minimum of 20 credits, with 17 credits in required courses and 3 in electives.

To become a certified wildlife biologist and be eligible for work as a wildlife biologist with the federal government you should have a total of 9 credit hours of Plant Biology and, therefore, must include at least one additional elective in plant biology. If you wish to become a certified fisheries biologist, you should include the following courses in your curriculum: FWCE 432 and FWCE 482.

**NEW MEXICO AND UNIVERSITY REQUIREMENTS****Area I. Communications (10 credits)**

ENGL 111G	Rhetoric and Composition	4 cr.
ENGL 218G	Technical and Scientific Communication or	3 cr.
ENGL 318G	Advanced Technical and Professional Communication and	3 cr.
AXED 201G	Effective Leadership and Communication in Agricultural Organizations or	3 cr. (2+2P)
COMM 253G	Public Speaking or	3 cr.
COMM 265G	Principles of Human Communication	3 cr.

**Area II. Mathematics (3 credits)**

MATH 142G	Calculus for the Biological and Management Sciences or	3 cr. (2+2P)
MATH 191G	Calculus and Analytic Geometry I	4 cr.



**Area III. Science, with Laboratory (8 credits)**

BIOL 111G	Natural History of Life	3 cr.
BIOL 111GL	Natural History of Life Laboratory	1 cr. (3P)
PHYS 110G	The Great Ideas of Physics	4 cr. (3+3P)
	or	
PHYS 211G	General Physics I	3 cr.
PHYS 211GL	General Physics I Laboratory	1 cr.

**Area IV. Social/Behavioral Sciences (6-9 credits)**

ECON 251G	Principles of Macroeconomics	3 cr.
	or	
ECON 252G	Principles of Microeconomics	3 cr.
	See Catalog*	3-6

\*Required Courses section

**Area V. Humanities and Fine Arts (6-9 credits)**

	See Catalog*	6-9 cr.
--	--------------	---------

Note: Areas IV and V are linked. You have to take a total of 15 credits between these two areas.

\* Required Courses section.

**Viewing a Wider World (6 credits)**

	See Catalog*	3 cr.
--	--------------	-------

Note: 3 credits can be taken inside the College of ACES, but 3 credits must also be taken outside the College of ACES or 9 credits can be taken within a single department (e.g. Biology) that is outside the College of ACES.

**DEPARTMENTAL REQUIREMENTS****Extra-Departmental Core Courses**

A ST 311	Statistical Applications	3 cr.
AGRO 305	Principles of Genetics	3 cr.
BIOL 211G	Cellular and Organismal Biology	3 cr.
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr. (3P)
BIOL 322	Zoology	3 cr. (2+3P)
CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
GEOL 111G	Survey of Geology	4 cr. (3+3P)
	or	
SOIL 252	Soils	3 cr.
	and	
SOIL 252 L	Soils Laboratory	1 cr.

Students intending to pursue graduate studies should also take CHEM 211.

**Departmental Core Courses**

FWCE 110	Introduction to Natural Resources Management	3 cr.
FWCE 255	Principles of Fish and Wildlife Management	3 cr.
FWCE 301	Wildlife Ecology	3 cr.
FWCE 330	Natural History of the Vertebrates	4 cr. (3+3P)
FWCE 391	Internship	1 cr.
FWCE 393	Professional Experience and Communication	3 cr.
FWCE 402	Seminar in Natural Resource Management	1 cr.
FWCE 409	Introduction to Population Ecology	3 cr.
FWCE 447	Wildlife Law and Policy	3 cr.
FWCE 457	Ecological Biometry	3 cr.
	or	
BIOL 488	Principles of Conservation Genetics	3 cr.
FWCE 464	Management of Aquatic and Terrestrial Ecosystems	4 cr. (3+2P)

FWCE 110: Off campus students can take FWCE 110 Distance Education

**Departmental Botany Requirements**

BIOL 312	Plant Taxonomy	3 cr. (2+3P)
	or	
RGSC 316	Rangeland Plants	3 cr. (2+3P)
	and	
BIOL 313	Structure and Function of Plants	3 cr. (2+3P)
	and	
BIOL 314	Plant Physiology	3 cr.
	or	
RGSC 325	Rangeland Restoration Ecology	3 cr.
	or	
RGSC 357	Grass Taxonomy and Identification	3 cr. (1+4P)
	or	
RGSC 440	Rangeland Resource Ecology	3 cr.

**Departmental Physiology Requirements**

One course from the following:

FWCE 432	Environmental Biology of Fishes	4 cr. (3+3P)
FWCE 438	Vertebrate Physiological Ecology	3 cr.
ANSC 370	Anatomy and Physiology of Farm Animals	4 cr. (3+2P)
	or	
BIOL 314	Plant Physiology	3 cr.
	or	
BIOL 381	Animal Physiology	3 cr.

**Students Must Declare One of the Two Following Options**

A maximum of 3 credits of FWCE 448 can count towards the Option. More credits can be taken towards the degree.

**OPTION: Aquatic Ecology and Management**

(5 classes: 1 techniques, 1 management, 2 organismal, 1 Wildlife Ecology and Management)

**Category 1: Techniques**

FWCE 357	Fisheries Management and Analysis	4 cr. (3+2P)
----------	-----------------------------------	-----------------

**Category 2: Management**

FWCE 434	Aquatic Contaminants and Toxicology	4 cr. (3+3P)
FWCE 459	Aquatic Ecology	4 cr.
RGSC 318	Watershed Management	3 cr. (2+2P)

**Category 3: Organismal Biology**

(At least one course chosen must be a vertebrate taxonomy course with FWCE prefix, i.e., one of FWCE 467 or FWCE 482).

BIOL 465	Invertebrate Zoology	4 cr. (3+3P)
EPWS 462	Parasitology	3 cr.
FWCE 467	Herpetology	4 cr.
FWCE 482	Ichthyology	4 cr. (3+2P)

**Electives**

ACES 111	Freshman Orientation	1 cr.
FWCE 433	Fisheries Management	4(3+2P)
FWCE 448	Problems	1-3 cr.
FWCE 450	Special Topics	1-4 cr.
FWCE 471	GIS for Natural Resource Scientists	4 cr.
FWCE 472	Wildlife Museum Internship	1-4 cr.

**OPTION: Wildlife Ecology and Management**

(5 classes: 1 techniques, 1 management, 2 organismal, 1 Aquatic Ecology and Management)

**Category 1: Techniques**

FWCE 355	Wildlife Techniques and Analysis	4(3+2P)
----------	----------------------------------	---------

**Category 2: Management**

FWCE 436	Large Mammal Ecology, Conservation and Management	3 cr.
FWCE 437	Wildlife Damage Management	3 cr.
FWCE 439	Game Bird Ecology and Management	3 cr.
RGSC 325	Rangeland Restoration Ecology	3 cr.

**Category 3: Organismal Biology**

(At least one course chosen must be a terrestrial vertebrate taxonomy course with FWCE prefix, i.e., one of FWCE 430, FWCE 431, or FWCE 467).

BIOL 484	Animal Communication	3 cr.
EPWS 303	Economic Entomology	4 cr. (3+2P)
EPWS 462	Parasitology	3 cr.
FWCE 430	Avian Field Ecology	4 cr. (3+3P)
	or	
BIOL 447	Ornithology	4 cr. (3+3P)
FWCE 431	Mammalogy	4 cr. (3+2P)
FWCE 440	Wildlife Habitat Relationships	3 cr.
FWCE 467	Herpetology	4 cr.

**Additional Electives**

Take additional credits so the total adds up to at least 128 credits including 55 credits 300- and 400-level classes.

Students are encouraged to pursue a minor course of study with a department of their choosing.

Compatible minors include, but are not limited to: animal science, biology, chemistry, environmental science, forensic sciences, geography, journalism, management, and range science.

**Notes:**

1. No more than 6 credits of Physical Education classes will count towards your degree.
2. Maximum of two grades of 'D' in FWCE classes will count towards a student's degree.

**MINOR: CONSERVATION ECOLOGY**

A minor in Conservation Ecology is available for students who choose to major in other areas, but wish to include Conservation Ecology in their academic training. The minor must include a minimum of 20 credits in the discipline with 9 of these coming from upper-division courses.

**REQUIREMENTS****Core Curriculum (14 credits)**

BIOL 111G	Natural History of Life	3 cr.
BIOL 111GL	Natural History of Life Laboratory	1 cr. (3P)
BIOL 301	Principles of Ecology	3 cr.
	or	
FWCE 301	Wildlife Ecology	3 cr.
BIOL 462	Conservation Biology	3 cr.
FWCE 330	Natural History of the Vertebrates	4 cr. (3+3P)
FWCE 447	Wildlife Law and Policy	3 cr.
ECON 337V	Natural Resource Economics	3 cr.

ECON 384V	Water Resource Economics	3 cr.
HORT 302V	Forestry and Society	3 cr.

**Electives (6 credits)**

BIOL 322	Zoology	3 cr. (2+3P)
BIOL 408	Ecology of Plants	3 cr.
BIOL 465	Invertebrate Zoology	4 cr. (3+3P)
BIOL 467	Evolution	3 cr.
BIOL 488	Principles of Conservation Genetics	3 cr.
ECON 337V	Natural Resource Economics	3 cr.
FWCE 330	Natural History of the Vertebrates	4 cr. (3+3P)
FWCE 409	Introduction to Population Ecology	3 cr.
FWCE 464	Management of Aquatic and Terrestrial Ecosystems	4 cr. (3+2P)
HORT 302V	Forestry and Society	3 cr.

**MINOR: WILDLIFE SCIENCE**

The Department offers a minor in Wildlife Science for students majoring in other disciplines. The minor includes a minimum of 20 credits, with 17 credits required courses and 3 in wildlife electives.

**REQUIREMENTS****Required Courses**

FWCE 255	Principles of Fish and Wildlife Management	3 cr.
FWCE 301	Wildlife Ecology	3 cr.
FWCE 330	Natural History of the Vertebrates	4 cr. (3+3P)
FWCE 464	Management of Aquatic and Terrestrial Ecosystems	4 cr. (3+2P)
BIOL 462	Conservation Biology	3 cr.

## PLANT AND ENVIRONMENTAL SCIENCES

**Professor, Rolston St. Hilaire, Interim Department Head**

**Professors** Bosland, Cramer, Guldan, Leinauer, O'Connell, O'Neill, Picchioni, Pratt, Ray, Sengupta-Gopalan, Shukla, Ulery, Zhang; **Associate Professors** Angadi, Flynn, Goss, Heerema, Marsalis, Puppala; **Assistant Professors** Burney, Carroll, Grover, Holguin, Lombard, Yao; **College Professors** Lauriault; **College Associate Professor** Stringam; **College Assistant Professors** DuBois  
**phone: (575) 646-3405**

**website: <http://aces.nmsu.edu/academics/pes/>**

The minors require a minimum of 18 credits of which at least 9 hours must be at the 300 or higher level. Specific coursework requirements apply. See advisor for course requirements and scheduling.

The undergraduate program in Plant and Environmental Science prepares you for a variety of careers in agriculture and related fields. Accordingly, a flexible curriculum has been designed that will allow specific programs to be developed in consultation with your academic advisor. Programs may also be developed if you wish to prepare for advanced studies in graduate school. In addition to the courses listed for each major, 35 credits must be taken in the College of Agricultural, Consumer and Environmental Sciences, and the university general education requirements must be met.

**DEGREE: BACHELOR OF SCIENCE IN AGRICULTURE  
MAJOR: AGRONOMY**

Agronomy is an understanding of the principles of plant and soil science and an application of these principles in the production of crops. Commercial sector careers include positions in agricultural consulting companies, agricultural seed or chemical companies, research and development with commercial companies, as well as farm and/or ranch management. Careers in county, state or federal

agencies are in the areas of USDA, Cooperative Extension Service, Natural Resources Conservation Service, Forest Service and Bureau of Land Management.

Two options are available in the agronomy major. In addition to the completion of the requirements of the major listed above, you must elect an option and complete 25 credits from the requirements for that option. To deviate from the courses required within an option, you must file a formal petition, subject to approval by departmental committee. You should develop a specific program of study in consultation with a departmental agronomy advisor.

### REQUIREMENTS

**At least 24 credits from agronomy and soil science courses with a grade of C- or above, including the following:**

AGRO 100G	Introductory Plant Science	4 cr. (3+2P)
AGRO 305	Principles of Genetics	3 cr.
AGRO 365	Principles of Crop Production	4 cr. (3+3P)
AGRO 447	Seminar	1 cr.
AGRO 483	Sustainable Production of Agronomic Crops	4 cr. (3+2P)
SOIL 252	Soils	3 cr.
SOIL 252 L	Soils Laboratory	1 cr.
SOIL 312	Soil Management and Fertility	3 cr.
SOIL 312 L	Soil Management and Fertility Lab	1 cr.

#### Other required courses include:

A ST 311	Statistical Applications	3 cr.
AG E 250	Technology and Communication for Business Management	3 cr. (2+2P)
BIOL 111G	Natural History of Life and	3 cr.
BIOL 211G	Cellular and Organismal Biology	3 cr.
CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
CHEM 211	Organic Chemistry	4 cr. (3+3P)
	MATH – to equal the proficiency level of MATH 142G or MATH 121G	3 cr.

#### One course from the following:

EPWS 303	Economic Entomology	4 cr. (3+2P)
EPWS 310	Plant Pathology	4 cr. (3+2P)
EPWS 311	Introduction to Weed Science	4 cr. (3+2P)

Two options are available in the agronomy major. In addition to the completion of the requirements of the major listed above, you must elect an option and complete 25 credits from the requirements for that option. To deviate from the courses required within an option, you must file a formal petition, subject to approval by departmental committee. You should develop a specific program of study in consultation with a departmental agronomy advisor.

#### OPTION: Crop Consulting

##### Required courses:

AG E 236	Agribusiness Management Principles	3 cr.
AG E 315V	World Agriculture and Food Problems	3 cr.
AG E 450	Advanced Microcomputer Applications in Agriculture	3 cr. (2+2P)
AGRO 311	Introduction to Weed Science	4 cr.
AGRO 365	Principles of Crop Production	4 cr. (3+3P)
AGRO 462	Plant Breeding	3 cr.

AGRO 483	Sustainable Production of Agronomic Crops	4 cr. (3+2P)
AGRO 492	Diagnosing Plant Disorders	3 cr. (2+3P)
B A 202	Small Business Enterprise	3 cr.
EPWS 314	Plant Physiology	3 cr.
EPWS 455	Advanced Integrated Pest Management	3 cr.
EPWS 456	Biological Control	3 cr.
HORT 471	Plant Mineral Nutrition	3 cr.
HORT 485	Vegetable Crop Management	4 cr. (3+2P)
SOIL 456	Irrigation and Drainage	3 cr.
SPAN 111	Elementary Spanish I	4 cr.
SPAN 211	Intermediate Spanish I	3 cr.

*AGRO 365, AGRO 462, AGRO 483, AGRO 492: These courses are mandatory*

#### OPTION: General Agronomy

##### Required courses:

AG E 236	Agribusiness Management Principles	3 cr.
AG E 305	Marketing and Pricing Agricultural Products	3 cr.
AG E 315V	World Agriculture and Food Problems	3 cr.
AGRO 391	Internship	1-6 cr.
AGRO 471	Plant Mineral Nutrition	3 cr.
AGRO 492	Diagnosing Plant Disorders	3 cr. (2+3P)
BIOL 312	Plant Taxonomy	3 cr. (2+3P)
BIOL 313	Structure and Function of Plants	3 cr. (2+3P)
BLAW 316	Legal Environment of Business	3 cr.
EPWS 314	Plant Physiology	3 cr.
HORT 250	Plant Propagation	3 cr. (2+2P)
HORT 485	Vegetable Crop Management	4 cr. (3+2P)
RGSC 294	Rangeland Resource Management	3 cr.
RGSC 325	Rangeland Restoration Ecology	3 cr.
SOIL 456	Irrigation and Drainage	3 cr.

*AGRO 471, AGRO 492, and BIOL 313: These courses are mandatory*

#### MAJOR: HORTICULTURE

Horticulture includes a wide variety of topics that relate to fruit, vegetable and ornamental crops. Careers range from production management to processing and marketing, retail and wholesale management, greenhouse and nursery production, floriculture, landscaping, turf management, research and development, various service activities and positions with local, state and federal agencies.

### REQUIREMENTS

#### Required Courses

BIOL 111G	Natural History of Life	3 cr.
	or	
BIOL 211G	Cellular and Organismal Biology	3 cr.
CHEM 111G	General Chemistry I	4 cr. (3+3P)
	and	
CHEM 112G	General Chemistry II	4 cr. (3+3P)
	or	
CHEM 114	General Chemistry for Engineers	4 cr. (3+3P)
	and	
CHEM 211	Organic Chemistry	4 cr. (3+3P)

EPWS 303	Economic Entomology	4 cr. (3+2P)
EPWS 310	Plant Pathology	4 cr. (3+2P)
EPWS 314	Plant Physiology	3 cr.
HORT 447	Seminar	1 cr.
MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)
	or	
MATH 121G	College Algebra	3 cr.
SOIL 252	Soils	3 cr.

**At least 29 credits from horticulture courses with a grade of C- or above.**

Choose from the following courses

HORT 100G	Introductory Plant Science	4 cr. (3+2P)
HORT 200	Special Topics	1-4 cr.
HORT 205	Introduction to Horticulture	3 cr.
HORT 210	Ornamental Plants I	4 cr. (3+2P)
HORT 211	Ornamental Plants II	4 cr. (3+2P)
HORT 240	Floral Quality Evaluation and Design	2 cr. (1+2P)
HORT 241	Floriculture Field Practicum	1 cr.
HORT 250	Plant Propagation	3 cr. (2+2P)
HORT 300	Special Topics	1-4 cr.
HORT 302V	Forestry and Society	3 cr.
HORT 305	Principles of Genetics	3 cr.
HORT 307	Landscape Design	3 cr. (1+4P)
HORT 310	Medicinal Herbs	3 cr.
HORT 365	Principles of Crop Production	4 cr. (3+3P)
HORT 377	Introduction to Turfgrass Management	4 cr. (3+3P)
HORT 391	Internship	1-6 cr.
HORT 447	Seminar	1 cr.
HORT 449	Special Problems	1-3 cr.
HORT 450	Special Topics	1-4 cr.
HORT 462	Plant Breeding	3 cr.
HORT 465	Landscape Construction and Maintenance	4 cr. (3+2P)
HORT 471	Plant Mineral Nutrition	3 cr.
HORT 485	Vegetable Crop Management	4 cr. (3+2P)
HORT 488	Greenhouse Management	4 cr. (3+3P)
HORT 492	Diagnosing Plant Disorders	3 cr. (2+3P)

Five options are available in the horticulture major. In addition to the completion of the requirements of the major listed above, you must elect an option and complete the requirements for that option. You should develop a specific program of study in consultation with a departmental horticulture advisor. If you want to apply for certification as a professional horticulturist, you should also complete HORT 305, Genetics, and either BCHE 341, Biochemistry, or CHEM 211, Organic Chemistry. To deviate from the courses required within an option, you should develop a specific program of study in consultation with a departmental horticulture advisor.

**OPTION: Crop Consulting**

Four courses from the following:

HORT 365	Principles of Crop Production	4 cr. (3+3P)
----------	-------------------------------	-----------------

HORT 462	Plant Breeding	3 cr.
HORT 471	Plant Mineral Nutrition	3 cr.
HORT 485	Vegetable Crop Management	4 cr. (3+2P)
HORT 492	Diagnosing Plant Disorders	3 cr. (2+3P)

**Eight courses from the following:**

AG E 236	Agribusiness Management Principles	3 cr.
AG E 250	Technology and Communication for Business Management	3 cr. (2+2P)
AG E 315V	World Agriculture and Food Problems	3 cr.
AG E 450	Advanced Microcomputer Applications in Agriculture	3 cr. (2+2P)
AGRO 311	Introduction to Weed Science	4 cr.
AGRO 483	Sustainable Production of Agronomic Crops	4 cr. (3+2P)
BIOL 301	Principles of Ecology	3 cr.
BIOL 313	Structure and Function of Plants	3 cr. (2+3P)
EPWS 373	Fungal Biology	3 cr. (2+2P)
EPWS 455	Advanced Integrated Pest Management	3 cr.
EPWS 456	Biological Control	3 cr.
EPWS 481	Plant Nematology	3 cr. (2+2P)
FSTE 320	Food Microbiology	3 cr. (2+3P)
FSTE 421	Food Chemistry	3 cr.
SOIL 312	Soil Management and Fertility	3 cr.
SOIL 456	Irrigation and Drainage	3 cr.
SOIL 476	Soil Microbiology	3 cr.
SPAN 111	Elementary Spanish I	4 cr.
SPAN 211	Intermediate Spanish I	3 cr.

**OPTION: General Horticulture**

Four courses from the following:

A ST 311	Statistical Applications	3 cr.
BCHE 341	Survey of Biochemistry	4 cr. (3+3P)
CHEM 211	Organic Chemistry	4 cr. (3+3P)
HORT 210	Ornamental Plants I	4 cr. (3+2P)
HORT 211	Ornamental Plants II	4 cr. (3+2P)
HORT 250	Plant Propagation	3 cr. (2+2P)
HORT 305	Principles of Genetics	3 cr.
HORT 307	Landscape Design	3 cr. (1+4P)
HORT 315	Crop Physiology	3 cr.
HORT 365	Principles of Crop Production	4 cr. (3+3P)
HORT 462	Plant Breeding	3 cr.
HORT 465	Landscape Construction and Maintenance	4 cr. (3+2P)
HORT 471	Plant Mineral Nutrition	3 cr.
HORT 485	Vegetable Crop Management	4 cr. (3+2P)
HORT 488	Greenhouse Management	4 cr. (3+3P)
HORT 492	Diagnosing Plant Disorders	3 cr. (2+3P)

**Eight courses from the following:**

A ST 311	Statistical Applications	3 cr.
ACCT 221	Financial Accounting	3 cr.

ACCT 222	Management Accounting	3 cr.
AG E 236	Agribusiness Management Principles	3 cr.
AG E 250	Technology and Communication for Business Management	3 cr. (2+2P)
AG E 305	Marketing and Pricing Agricultural Products	3 cr.
AG E 315V	World Agriculture and Food Problems	3 cr.
AG E 425	Agribusiness Financial Management	3 cr.
AG E 450	Advanced Microcomputer Applications in Agriculture	3 cr. (2+2P)
AGRO 303V	Genetics and Society	3 cr.
AGRO 311	Introduction to Weed Science	4 cr.
AGRO 483	Sustainable Production of Agronomic Crops	4 cr. (3+2P)
ANSC 423	Animal Breeding	3 cr. (2+2P)
ART 150	Drawing I	3 cr. (2+4P)
	or	
ART 151	Drawing II	3 cr. (2+4P)
AXED 331	Agricultural Structures	3 cr. (2+3P)
BCHE 396	Biochemistry II	3 cr.
BCHE 397	Experimental Biochemistry Laboratory	3 cr.
BCHE 494	Biochemical Genetics Laboratory	3 cr. (1.25+6P)
BIOL 301	Principles of Ecology	3 cr.
BIOL 313	Structure and Function of Plants	3 cr. (2+3P)
BIOL 467	Evolution	3 cr.
BIOL 478	Molecular Biology of Microorganisms	3 cr.
BLAW 316	Legal Environment of Business	3 cr.
BLAW 385V	Consumers and the Law	3 cr.
BUSA 111	Business in a Global Society	3 cr.
ECON 251G	Principles of Macroeconomics	3 cr.
ECON 252G	Principles of Microeconomics	3 cr.
EPWS 301	Agricultural Biotechnology	3 cr. (2+2P)
EPWS 373	Fungal Biology	3 cr. (2+2P)
EPWS 455	Advanced Integrated Pest Management	3 cr.
EPWS 456	Biological Control	3 cr.
EPWS 481	Plant Nematology	3 cr. (2+2P)
E T 106	Drafting Concepts/Computer Drafting Fundamentals I	4 cr. (2+4P)
FSTE 320	Food Microbiology	3 cr. (2+3P)
FSTE 421	Food Chemistry	3 cr.
GENE 305 L	Genetic Techniques	1 cr. (3P)
HORT 449	Special Problems	1-3 cr.
HORT 462	Plant Breeding	3 cr.
MGT 309	Human Behavior in Organizations	3 cr.
MGT 315V	Human Relations in Organizations	3 cr.
MGT 332	Human Resources Management	3 cr.
MKTG 303	Principles of Marketing	3 cr.
MKTG 305	Marketing Agricultural Products	3 cr.
MKTG 313	Retail Management	3 cr.
SOIL 312	Soil Management and Fertility	3 cr.
SOIL 350	Soils and Land Use	3 cr. (2+2P)
SOIL 456	Irrigation and Drainage	3 cr.
SOIL 476	Soil Microbiology	3 cr.
SPAN 111	Elementary Spanish I	4 cr.
SPAN 211	Intermediate Spanish I	3 cr.

**OPTION: Horticulture Business****Eight courses from the following:**

For this option to satisfy the minor in Business Administration, nine credits must be upper division and nine credits must have one of the following prefixes: ACCT, BUSA, ECON, FIN, MGT, MKTG.

A ST 311	Statistical Applications	3 cr.
ACCT 221	Financial Accounting	3 cr.
ACCT 222	Management Accounting	3 cr.
AG E 236	Agribusiness Management Principles	3 cr.
AG E 250	Technology and Communication for Business Management	3 cr. (2+2P)
AG E 425	Agribusiness Financial Management	3 cr.
AG E 450	Advanced Microcomputer Applications in Agriculture	3 cr. (2+2P)
BLAW 316	Legal Environment of Business	3 cr.
BUSA 111	Business in a Global Society	3 cr.
ECON 251G	Principles of Macroeconomics	3 cr.
ECON 252G	Principles of Microeconomics	3 cr.
MGT 309	Human Behavior in Organizations	3 cr.
	or	
MGT 315V	Human Relations in Organizations	3 cr.
MGT 332	Human Resources Management	3 cr.
MKTG 303	Principles of Marketing	3 cr.
MKTG 305	Marketing Agricultural Products	3 cr.
MKTG 313	Retail Management	3 cr.

**OPTION: Landscape Design****Required courses:**

HORT 210	Ornamental Plants I	4 cr. (3+2P)
HORT 211	Ornamental Plants II	4 cr. (3+2P)
HORT 307	Landscape Design	3 cr. (1+4P)
HORT 465	Landscape Construction and Maintenance	4 cr. (3+2P)

**Eight courses from the following:**

AG E 236	Agribusiness Management Principles	3 cr.
AG E 250	Technology and Communication for Business Management	3 cr. (2+2P)
	or	
C S 110	Computer Literacy	3 cr.
ART 150	Drawing I	3 cr. (2+4P)
	or	
ART 151	Drawing II	3 cr. (2+4P)
AXED 331	Agricultural Structures	3 cr. (2+3P)
BLAW 316	Legal Environment of Business	3 cr.
BLAW 385V	Consumers and the Law	3 cr.
E T 106	Drafting Concepts/Computer Drafting Fundamentals I	4 cr. (2+4P)
MGT 315V	Human Relations in Organizations	3 cr.
MKTG 303	Principles of Marketing	3 cr.
SOIL 350	Soils and Land Use	3 cr. (2+2P)
SOIL 456	Irrigation and Drainage	3 cr.
SPAN 111	Elementary Spanish I	4 cr.

**OPTION: Ornamental Horticulture**

Select four courses from the following list:

HORT 210	Ornamental Plants I	4 cr. (3+2P)
	or	
HORT 211	Ornamental Plants II	4 cr. (3+2P)
HORT 250	Plant Propagation	3 cr. (2+2P)
HORT 365	Principles of Crop Production	4 cr. (3+3P)
HORT 488	Greenhouse Management	4 cr. (3+3P)

**Eight courses from the following:**

(or similar alternative courses with same prefix and level after consultation with advisor):

AG E 236	Agribusiness Management Principles	3 cr.
AG E 250	Technology and Communication for Business Management	3 cr. (2+2P)
AG E 305	Marketing and Pricing Agricultural Products	3 cr.
AG E 425	Agribusiness Financial Management	3 cr.
AGRO 311	Introduction to Weed Science	4 cr.
BIOL 301	Principles of Ecology	3 cr.
BIOL 313	Structure and Function of Plants	3 cr. (2+3P)
BLAW 316	Legal Environment of Business	3 cr.
C S 110	Computer Literacy	3 cr.
EPWS 456	Biological Control	3 cr.
MGT 315V	Human Relations in Organizations	3 cr.
MKTG 303	Principles of Marketing	3 cr.
MKTG 313	Retail Management	3 cr.
SOIL 312	Soil Management and Fertility	3 cr.

**MAJOR: SOIL SCIENCE**

Soil scientists are concerned with the physical, chemical and biological characteristics and behaviors of soils, their description and classification, and their management for both agricultural and non-agricultural uses. Career opportunities include: industry jobs; environmental consulting firms; and federal, state and local government careers working on various environmental, agricultural and ecological projects.

**REQUIREMENTS**

In addition to the courses listed for each major, you must take 35 credits in the College of Agricultural, Consumer and Environmental Sciences. You must also meet university general education requirements. At least 24 credits of soil science related courses with a grade of C- or above including:

**Required Courses:**

SOIL 252	Soils	3 cr.
SOIL 252 L	Soils Laboratory	1 cr.
SOIL 312	Soil Management and Fertility	3 cr.
SOIL 312 L	Soil Management and Fertility Lab	1 cr.
SOIL 447	Seminar	1 cr.

**Four courses from the following:**

SOIL 424	Soil Chemistry	3 cr.
SOIL 456	Irrigation and Drainage	3 cr.
SOIL 472	Soil Morphology and Classification	4 cr. (2+2P)

SOIL 476	Soil Microbiology	3 cr.
SOIL 477	Environmental Soil Physics	3 cr.

**Other required courses include:**

Two Biology courses (6 credits) from the following

BIOL 111G	Natural History of Life	3 cr.
BIOL 211G	Cellular and Organismal Biology	3 cr.
BIOL 311	General Microbiology	3 cr.
CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
	One additional CHEM course above CHEM 200, except CHEM 310V	3-4 cr.
GEOL 111G	Survey of Geology	4 cr. (3+3P)
MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)
	or	
MATH 191G	Calculus and Analytic Geometry I	4 cr.
PHYS 211G	General Physics I	3 cr.

**Soil Science Options**

Three options are available in soil science. In each case, your academic advisor has a list of appropriate courses.

**OPTION: Environment and Resource Management**

Soil science is integrated into the management of the environment and natural resources. Students interested in careers of conservation, environmental management, urban planning, waste disposal and related fields in government and industry may choose from a variety of course offerings. The economic and social implications as well as the technological aspects of resource management are included in the option courses. You must select one course from each of the four following subject matter areas and a total of at least ten courses (30 credits): soil, water, wildlife, or range conservation and economics; ecology, plant biology, or crop production; earth, mineral, or climatic resources; math, statistical, or computer sciences.

**OPTION: Soils**

Crop production and plant growth are emphasized in the general soils option. Soil management, soil conservation, and soil reclamation are related to plant growth for those students interested in both private industry and government employment opportunities as well as farm management. You must select one course from each of the four following subject matter areas and a total of at least ten courses (30 credits): soil, water or range management; crop production or protection; farm and ranch management and economics; math, statistical or computer sciences.

**OPTION: Soil and Water Science**

The soil and water science option is for students interested in careers in water management and water quality. Employment opportunities exist with irrigation districts, consulting firms, and government agencies dealing with water management and quality. The optimum use of water in semi-arid areas is emphasized through selection of courses in the technical and social sciences. You must select one course from each of the four following subject matter areas and a total of at least ten courses (30 credits): soil and water engineering; ecology; crop production and protection; math, statistical, or computer sciences.

**MAJOR: TURFGRASS SCIENCE AND MANAGEMENT**

Turfgrass managers help build, maintain, and manage golf courses, athletic fields, parks, and other recreational areas. The curriculum of each option allows you to focus on a specific segment of the turfgrass industry. All majors are required to pursue two internships with a golf course, parks department, athletic field, lawn care operator or other acceptable turfgrass segment. A grade of C- or above in all Core & Option credits is required.

**REQUIREMENTS****Core Requirements I**

CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
EPWS 311	Introduction to Weed Science	4 cr. (3+2P)
EPWS 314	Plant Physiology	3 cr.
HORT 377	Introduction to Turfgrass Management	4 cr. (3+3P)
HORT 378	Turfgrass Science	4 cr. (3+3P)
HORT 391	Internship	1-6 cr.
HORT 447	Seminar	1 cr.
HORT 479	Advanced Turfgrass Science	3 cr.
MATH 121G	College Algebra	3 cr.
SOIL 252	Soils	3 cr.

*HORT 391: two internships*

**One course from the following:**

BIOL 211G	Cellular and Organismal Biology	3 cr.
-----------	---------------------------------	-------

**Core Requirements II**

(27 credits from the following related courses with a grade of C- or above)

CHEM 211	Organic Chemistry	4 cr. (3+3P)
EPWS 303	Economic Entomology	4 cr. (3+2P)
EPWS 310	Plant Pathology	4 cr. (3+2P)
HORT 100G	Introductory Plant Science	4 cr. (3+2P)
HORT 110	Athletic Field and Golf Course Management	1 cr. (2P)
HORT 210	Ornamental Plants I	4 cr. (3+2P)
HORT 211	Ornamental Plants II	4 cr. (3+2P)
HORT 250	Plant Propagation	3 cr. (2+2P)
HORT 300	Special Topics	1-4 cr.
HORT 305	Principles of Genetics	3 cr.
HORT 307	Landscape Design	3 cr. (1+4P)
HORT 365	Principles of Crop Production	4 cr. (3+3P)
HORT 450	Special Topics	1-4 cr.
HORT 462	Plant Breeding	3 cr.
HORT 471	Plant Mineral Nutrition	3 cr.
HORT 492	Diagnosing Plant Disorders	3 cr. (2+3P)
P E 250	Intermediate Golf	1 cr.
SOIL 312	Soil Management and Fertility	3 cr.
SOIL 350	Soils and Land Use	3 cr. (2+2P)
SOIL 424	Soil Chemistry	3 cr.
SOIL 456	Irrigation and Drainage	3 cr.
SOIL 476	Soil Microbiology	3 cr.
SOIL 477	Environmental Soil Physics	3 cr.
SPAN 212	Intermediate Spanish II	3 cr.

**OPTION: Athletic Field Management Athletics****Required Courses:**

Seven credits from the following

BLAW 313V	Sports and the Law	3 cr.
P E 117	Beginning Soccer	1 cr.

P E 250	Intermediate Golf	1 cr.
PE P 218	Outdoor Activities	1 cr. (2P)
PE P 296	Theory of Coaching I	3 cr.
PE P 302	Coaching Baseball	2 cr. (1+2P)
PE P 306	Coaching Softball	2 cr. (1+2P)
PE P 321	Team Sports I	2 cr.
PE P 322	Team Sports II	2 cr.
PE P 323	Racquet Sports	2 cr.
PE P 394	Designing Student Centered Afterschool Physical Activity Clubs	2 cr.

**Business**

Six credits from the following

AG E 236	Agribusiness Management Principles	3 cr.
ECON 337V	Natural Resource Economics	3 cr.
ECON 384V	Water Resource Economics	3 cr.
ECON 406	The Economics of Sports	3 cr.
FIN 206	Introduction to Finance	3 cr.
	or	
FIN 341	Financial Analysis and Markets	3 cr.
MGT 315V	Human Relations in Organizations	3 cr.
	or	
MGT 309	Human Behavior in Organizations	3 cr.
MGT 332	Human Resources Management	3 cr.
SPAN 212	Intermediate Spanish II	3 cr.

**Technical**

Three credits from the following

AXED 303	Small Engine Technology	3 cr. (2+2P)
HORT 300	Special Topics	1-4 cr.

**OPTION: Golf Course Management****Business**

Six credits from the following:

AG E 236	Agribusiness Management Principles	3 cr.
BLAW 313V	Sports and the Law	3 cr.
ECON 337V	Natural Resource Economics	3 cr.
ECON 384V	Water Resource Economics	3 cr.
ECON 406	The Economics of Sports	3 cr.
FIN 206	Introduction to Finance	3 cr.
	or	
FIN 341	Financial Analysis and Markets	3 cr.
MGT 315V	Human Relations in Organizations	3 cr.
	or	
MGT 309	Human Behavior in Organizations	3 cr.
MGT 332	Human Resources Management	3 cr.
MKTG 354	Sports Marketing	3 cr.

**Science**

Six credits from the following:

BIOL 221	Introductory Microbiology	3 cr. (3P)
BIOL 311	General Microbiology	3 cr.
BIOL 312	Plant Taxonomy	3 cr. (2+3P)
BIOL 313	Structure and Function of Plants	3 cr. (2+3P)
CHEM 211	Organic Chemistry	4 cr.

		(3+3P)
EPWS 303	Economic Entomology	4 cr. (3+2P)
EPWS 310	Plant Pathology	4 cr. (3+2P)
EPWS 455	Advanced Integrated Pest Management	3 cr.
EPWS 456	Biological Control	3 cr.

**Technical**

Three credits from the following:

AXED 303	Small Engine Technology	3 cr. (2+2P)
HORT 300	Special Topics	1-4 cr.

**OPTION: Turfgrass Business****Personnel Management**

Six credits from the following:

MGT 315V	Human Relations in Organizations	3 cr.
	or	
MGT 309	Human Behavior in Organizations	3 cr.
MGT 332	Human Resources Management	3 cr.
MGT 333	Training and Development	3 cr.
MGT 359	The Management of Diversity	3 cr.
SPAN 212	Intermediate Spanish II	3 cr.

**Economics and Finance**

Three credits from the following:

ACCT 200	A Survey of Accounting	3 cr.
AG E 236	Agribusiness Management Principles	3 cr.
BLAW 313V	Sports and the Law	3 cr.
ECON 337V	Natural Resource Economics	3 cr.
ECON 384V	Water Resource Economics	3 cr.
ECON 406	The Economics of Sports	3 cr.
FIN 206	Introduction to Finance	3 cr.
	or	
FIN 341	Financial Analysis and Markets	3 cr.
MGT 351	Supply Chain Management	3 cr.
MKTG 203	Introduction to Marketing	3 cr.
	or	
MKTG 303	Principles of Marketing	3 cr.

**Science and Technical**

Six credits from the following:

AG E 236	Agribusiness Management Principles	3 cr.
AXED 303	Small Engine Technology	3 cr. (2+2P)
CHEM 211	Organic Chemistry	4 cr. (3+3P)
EPWS 303	Economic Entomology	4 cr. (3+2P)
EPWS 310	Plant Pathology	4 cr. (3+2P)
EPWS 455	Advanced Integrated Pest Management	3 cr.
EPWS 456	Biological Control	3 cr.
HORT 300	Special Topics	1-4 cr.

**OPTION: Turfgrass Science****Science I**

Six credits from the following:

A ST 311	Statistical Applications	3 cr.
A ST 456	Statistical Methods and Data Analysis	3 cr. (2+2P)
BCHE 341	Survey of Biochemistry	4 cr. (3+3P)

BCHE 395	Biochemistry I	3 cr.
BIOL 221	Introductory Microbiology	3 cr. (3P)
BIOL 311	General Microbiology	3 cr.
BIOL 313	Structure and Function of Plants	3 cr. (2+3P)
CHEM 211	Organic Chemistry	4 cr. (3+3P)

**Science II**

Six credits from the following:

EPWS 303	Economic Entomology	4 cr. (3+2P)
EPWS 310	Plant Pathology	4 cr. (3+2P)
EPWS 455	Advanced Integrated Pest Management	3 cr.
EPWS 456	Biological Control	3 cr.
ECON 384V	Water Resource Economics	3 cr.

**Business and Technical**

Six credits from the following:

AXED 303	Small Engine Technology	3 cr. (2+2P)
BLAW 313V	Sports and the Law	3 cr.
ECON 337V	Natural Resource Economics	3 cr.
ECON 406	The Economics of Sports	3 cr.
FIN 206	Introduction to Finance	3 cr.
FIN 341	Financial Analysis and Markets	3 cr.
HORT 300	Special Topics	1-4 cr.
MGT 309	Human Behavior in Organizations	3 cr.
	or	
MGT 315V	Human Relations in Organizations	3 cr.
MGT 332	Human Resources Management	3 cr.
MGT 351	Supply Chain Management	3 cr.
MKTG 354	Sports Marketing	3 cr.

**DEGREE: BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCE****MAJOR: ENVIRONMENTAL SCIENCE**

The environmental science major is a multidisciplinary program based on a strong general science curriculum and an environmental curriculum that focuses on environmental problems and solutions. Although administered by the Department of Plant and Environmental Sciences, a multidisciplinary advisory committee recommends curriculum and other changes to the program. Graduates are very competitive for careers in industry and government and have excellent preparation for graduate programs in a variety of fields. A grade of C- or better must be earned in the Basic Background and Core Requirements.

**REQUIREMENTS****Basic Science Background**

A ST 311	Statistical Applications	3 cr.
BIOL 111G	Natural History of Life	3 cr.
BIOL 211G	Cellular and Organismal Biology	3 cr.
BIOL 311	General Microbiology	3 cr.
CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
CHEM 211	Organic Chemistry	4 cr. (3+3P)
GEOL 111G	Survey of Geology	4 cr. (3+3P)
MATH 191G	Calculus and Analytic Geometry I	4 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.
PHYS 215G	Engineering Physics I	3 cr.
SOIL 252	Soils	3 cr.
SOIL 252 L	Soils Laboratory	1 cr.



**Environmental Science Core**

E S 110G	Introductory Environmental Science	4 cr. (3+2P)
E S 256	Environmental Engineering and Science	3 cr.
E S 256 L	Environmental Science Laboratory	1 cr.
E S 301	Principles of Ecology	3 cr.
E S 312	Emergency Response to Hazardous Material Incidents	2 cr.
E S 330	Environmental Management Seminar I	1 cr.
E S 361	Basic Toxicology	3 cr.
	or	
E S 423	Environmental Toxicology	3 cr.
E S 370	Environmental Soil Science	3 cr.
E S 391	Internship	3 cr.
E S 422	Environmental Chemistry	3 cr.
E S 430	Environmental Management Seminar II	1 cr.
E S 452	Geohydrology	4 cr. (3+2P)
E S 460	Introduction to Air Pollution	3 cr.
E S 462	Sampling and Analysis of Environmental Contaminants	3 cr. (1+6P)
E S 470	Environmental Impacts of Land Use and Contaminant Remediation	3 cr.
FWCE 434	Aquatic Contaminants and Toxicology	4 cr. (3+3P)
	or	
FWCE 459	Aquatic Ecology	4 cr.

**DEGREE: BACHELOR OF SCIENCE IN GENETICS****MAJOR: GENETICS AND BIOTECHNOLOGY****Codirectors of the Program:****Professor**, Richard Pratt, Plant and Environmental Sciences**Associate Professor**, Ralph Preszler, Biology

**Professors:** Bernstein, Bosland, Cramer, Houde, Milligan, Nishiguchi, O'Connell, Ray, Sengupta-Gopalan, St. Hilaire; **Associate Professors:** Bailey, Curtiss, Dawe, B. Shuster, St. Zhang; **Assistant Professors:** M. Shuster

Have you ever wondered why your hair or eye color, facial features, or the build of your body resembles that of your parents, grandparents, or other close relatives? What factors are responsible for generating all the variety of colors and shapes of flowers, trees and different types of animals? If these questions have crossed your mind, then you have been thinking about Genetics; the science of heredity. Genetics is studied at the DNA/gene/genome level (molecular genetics, biotechnology, genomics and bioinformatics), the level of organisms (classical or Mendelian genetics), and within/among populations of individuals (population and quantitative genetics). One of the most significant scientific accomplishments in history has been the use of genomic technologies to recently identify most human genes, as well as, most genes for a number of other animals, plants, fungi, and bacteria. Geneticists now have tremendous opportunities to use molecular, biochemical, mathematical, and computer science-based (bioinformatics) approaches to investigate how these genes determine observable traits. This information can be used to significantly advance human health and well being, and to meet the food and fiber needs of the world.

A degree in Genetics can provide excellent preparation for careers in academic research and technical support, teaching, agriculture, the biotechnology industry, medicine and health sciences, forensic science, technical writing, sales or marketing. It is also an excellent background for students wishing to enter a graduate program, medical school, or veterinary school.

Undergraduates in the Genetics program must earn a grade of C- or better to receive credit for required Basic Science Background and Genetics Core courses. Within the Genetics Core curriculum, Tier I courses must be taken by all majors, for a total of 28 credit hours. To accommodate differing interests among students, a series of Tier II courses comprising 11 to 13 credits are provided. Ethical considerations of genetic based technologies will be infused throughout

the curriculum, with a focused course on "Science and Ethics" in the Tier III portion of the core curriculum.

**REQUIREMENTS****General Education Requirements (43 credits)****Area I: Communications****English Composition-Level 1**

ENGL 111G	Rhetoric and Composition	4 cr.
ENGL 111GH	Rhetoric and Composition Honors	4 cr.
	or	
SPCD 111G	Advanced ESL Composition	4 cr.
	or	
ENGL 111 M	Rhetoric and Composition for International and Multilingual Students	4 cr.

**English Composition-Level 2**

ENGL 218G	Technical and Scientific Communication	3 cr.
	or	
ENGL 318G	Advanced Technical and Professional Communication	3 cr.

**Oral Communication**

AXED 201G	Effective Leadership and Communication in Agricultural Organizations	3 cr. (2+2P)
COMM 253G	Public Speaking	3 cr.
COMM 265G	Principles of Human Communication	3 cr.
	or	
HON 265G	Principles of Human Communication Honors	3 cr.

**Area II: Mathematics/Algebra**

MATH 191G	Calculus and Analytic Geometry I	4 cr.
-----------	----------------------------------	-------

**Area III: Laboratory Science**

CHEM 111G	General Chemistry I	4 cr. (3+3P)
	and	
CHEM 112G	General Chemistry II	4 cr. (3+3P)

**Area IV: Social/Behavioral Sciences (6-9)**

Total of 15 credits combined between Areas IV and V, with 6 credits in one area and 9 credits in the other area. See catalog for listing of available courses.

**Area V: Humanities and Fine Arts (6-9)**

Total of 15 credits combined between Areas IV and V, with 6 credits in one area and 9 credits in the other area. See catalog for listing of available courses.

**NMSU Viewing a Wider World (6)**

See catalog for listing of courses ("General Education Courses (p. 18)" section).

**Basic Science Background Requirements (42 credits)**

A ST 311	Statistical Applications	3 cr.
BCHE 395	Biochemistry I	3 cr.
BCHE 396	Biochemistry II	3 cr.
BIOL 111G	Natural History of Life	3 cr.
CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
CHEM 313	Organic Chemistry I	3 cr.
CHEM 314	Organic Chemistry II	3 cr.
CHEM 315	Organic Chemistry Laboratory	2 cr. (6P)
MATH 191G	Calculus and Analytic Geometry I	4 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.
PHYS 211G	General Physics I	3 cr.
PHYS 212G	General Physics II	3 cr.
	or	
PHYS 221G	General Physics for Life Sciences I	3 cr.
PHYS 222G	General Physics for Life Sciences II	3 cr.

**Core Requirements (42-44 credits from Tier I, II, and III courses)****Tier I courses (all are required)**

BIOL 211G	Cellular and Organismal Biology	3 cr.
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr. (3P)
BIOL 311	General Microbiology	3 cr.
BIOL 311 L	General Microbiology Laboratory	2 cr. (4P)
BIOL 377	Cell Biology	3 cr.
GENE 110	Experimental Systems in Genetics	1 cr.
GENE 305 L	Genetic Techniques	1 cr. (3P)
GENE 315	Molecular Genetics	3 cr.
GENE 320	Hereditary and Population Genetics	3 cr.
GENE 440	Genetics Seminar	1 cr.
GENE 452	Applied Bioinformatics	3 cr.
	or	
BIOL 446	Bioinformatics and NCBI Database	3 cr.
BCHE 494	Biochemical Genetics Laboratory	3 cr. (1.25+6P)
	or	
BIOL 302	Molecular Biology Techniques Laboratory	3 cr. (6P)

**Tier II courses (choose one course from each of the following four areas)****Selection response**

AGRO 462	Plant Breeding	3 cr.
ANSC 423	Animal Breeding	3 cr. (2+2P)
BIOL 467	Evolution	3 cr.

**Physiology**

ANSC 421	Physiology of Reproduction	4 cr. (3+2P)
BIOL 354	Physiology of Humans	3 cr.
BIOL 381	Animal Physiology	3 cr.
BIOL 385	An Introduction to Cancer	3 cr.
BIOL 451	Physiology of Microorganisms	3 cr.
BIOL 474	Immunology	3 cr.
EPWS 314	Plant Physiology	3 cr.
HORT 471	Plant Mineral Nutrition	3 cr.

**Organism structure**

ANSC 370	Anatomy and Physiology of Farm Animals	4 cr. (3+2P)
BIOL 313	Structure and Function of Plants	3 cr. (2+3P)
BIOL 322	Zoology	3 cr. (2+3P)
BIOL 330	Comparative Anatomy and Embryology	4 cr. (3+3P)
BIOL 470	Developmental Biology	3 cr.
BIOL 465	Invertebrate Zoology	4 cr. (3+3P)
EPWS 303	Economic Entomology	4 cr. (3+2P)

**Molecular Genetics**

BIOL 475	Virology	3 cr.
BIOL 478	Molecular Biology of Microorganisms	3 cr.
GENE 486	Genes and Genomes	3 cr.
GENE 488	Gene Regulation	3 cr.

**Tier III courses (Choose one science and ethics course from the following)**

AGRO 303V	Genetics and Society	3 cr.
HON 306V	Science, Ethics and Society	3 cr.
PHIL 321	Biomedical Ethics	3 cr.

**Additional courses**

Electives to bring total to 128 credits including 48 upper division credits.

**Recommended Electives (Honors College)****Nine credits from the following:**

HON 205G	Life, Energy, and Evolution	4 cr.
----------	-----------------------------	-------

		(3+3P)
HON 214	Successful Fellowship Writing	1 cr.
HON 225G	History of Ethics	3 cr.

**Six credits from the following:**

HON 306V	Science, Ethics and Society	3 cr.
HON 314	Successful Fellowship Writing	1 cr.
HON 322V	Science and Public Policy	3 cr.
HON 410	Honors Internship	3-6 cr.
HON 420	Independent Studies	1-3 cr.
HON 421	Special Topics	1-3 cr.

**Three credits the following:**

HON 400	Honors Thesis	3 cr.
---------	---------------	-------

**Bioinformatics**

Students may pursue a minor in Bioinformatics after consulting with an advisor in the Computer Science Department. There are 19 credits of coursework required for this minor which involve:

C S 171G	Introduction to Computer Science	4 cr. (3+2P)
C S 272	Introduction to Data Structures	4 cr. (3+2P)
C S 370	Compilers and Automata Theory	4 cr. (3+2P)
	or	
C S 371	Software Development	4 cr. (3+2P)
C S 486	Bioinformatics	3 cr.

**MINOR: AGRONOMY**

Students majoring in subjects other than Agronomy, Horticulture, Soil Science or Turfgrass Management may pursue a minor in Agronomy. Courses in chemistry (CHEM 111G/112G) and Biology (BIOL 211G) are prerequisites for several of the courses.

**REQUIREMENTS****Required Courses**

AGRO 100G	Introductory Plant Science	4 cr. (3+2P)
AGRO 365	Principles of Crop Production	4 cr. (3+3P)
SOIL 252	Soils	3 cr.
SOIL 252 L	Soils Laboratory	1 cr.
SOIL 312	Soil Management and Fertility	3 cr.
SOIL 312 L	Soil Management and Fertility Lab	1 cr.

**One course from the following:**

Select one from the following list to bring the total AGRO and SOIL credits to a minimum of 28 credits.

AGRO 250	Plant Propagation	3 cr. (2+2P)
AGRO 305	Principles of Genetics	3 cr.
AGRO 311	Introduction to Weed Science	4 cr.
AGRO 315	Crop Physiology	3 cr.
AGRO 462	Plant Breeding	3 cr.
AGRO 471	Plant Mineral Nutrition	3 cr.
AGRO 483	Sustainable Production of Agronomic Crops	4 cr. (3+2P)
SOIL 456	Irrigation and Drainage	3 cr.

**MINOR: HORTICULTURE**

Students majoring in subjects other than Agronomy, Environmental Sciences, Soil Science and Turfgrass Management may pursue a minor in Horticulture. Courses in chemistry (CHEM 111G/112G) and biology (BIOL 211G) are prerequisites for several of the courses.

**REQUIREMENTS****Required Courses:**

HORT 100G	Introductory Plant Science	4 cr. (3+2P)
HORT 250	Plant Propagation	3 cr. (2+2P)
SOIL 252	Soils	3 cr.

**Nine credits from the following:**

Select nine credits from the following listed courses or other upper division HORT courses deemed appropriate by student advisor

HORT 305	Principles of Genetics	3 cr.
HORT 307	Landscape Design	3 cr. (1+4P)
HORT 310	Medicinal Herbs	3 cr.
HORT 365	Principles of Crop Production	4 cr. (3+3P)
HORT 377	Introduction to Turfgrass Management	4 cr. (3+3P)
HORT 378	Turfgrass Science	4 cr. (3+3P)
HORT 391	Internship	1-6 cr.
HORT 462	Plant Breeding	3 cr.
HORT 465	Landscape Construction and Maintenance	4 cr. (3+2P)
HORT 471	Plant Mineral Nutrition	3 cr.
HORT 485	Vegetable Crop Management	4 cr. (3+2P)
HORT 488	Greenhouse Management	4 cr. (3+3P)
HORT 492	Diagnosing Plant Disorders	3 cr. (2+3P)

**MINOR: SOIL SCIENCE**

College of Agriculture and Home Economics constants are not required for those students majoring in other colleges. However, CHEM 111G and concurrent enrollment in CHEM 112G are prerequisites for most SOIL courses.

**REQUIREMENTS****Required Courses (12 credits):**

SOIL 252	Soils	3 cr.
SOIL 252 L	Soils Laboratory	1 cr.
SOIL 312	Soil Management and Fertility	3 cr.
SOIL 312 L	Soil Management and Fertility Lab	1 cr.
SOIL 472	Soil Morphology and Classification	4 cr. (2+2P)
	Any SOIL course to bring the total SOIL credit hours to 18	

**MINOR: TURFGRASS SCIENCE AND MANAGEMENT**

NMSU Requirements: 18 credits; 9 must be upper division. Grades of C- or better are required in all courses applied to the minor.

**REQUIREMENTS****Required Courses:**

HORT 100G	Introductory Plant Science	4 cr. (3+2P)
HORT 110	Athletic Field and Golf Course Management	1 cr. (2P)
HORT 378	Turfgrass Science	4 cr. (3+3P)
HORT 479	Advanced Turfgrass Science	3 cr.

**Six or more credits from the following:**

EPWS 310	Plant Pathology	4 cr. (3+2P)
EPWS 311	Introduction to Weed Science	4 cr.

		(3+2P)
EPWS 314	Plant Physiology	3 cr.
HORT 377	Introduction to Turfgrass Management	4 cr. (3+3P)
HORT 391	Internship	1-6 cr.
HORT 471	Plant Mineral Nutrition	3 cr.
HORT 492	Diagnosing Plant Disorders	3 cr. (2+3P)
SOIL 252	Soils	3 cr.
SOIL 252 L	Soils Laboratory	1 cr.
SOIL 312	Soil Management and Fertility	3 cr.
SOIL 312 L	Soil Management and Fertility Lab	1 cr.
SOIL 424	Soil Chemistry	3 cr.

## SCHOOL OF HOTEL, RESTAURANT AND TOURISM MANAGEMENT

**Professor, Jean Hertzman, Director**

**Professors** P. Bloomquist; Hertzman; Mandabach **Associate Professors** Blanch, Stringam; **College Assistant Professors** D. Bloomquist, Correa, Hartley; Mitchell **Instructor** Linderman

**phone:** (575) 646-5995

**website:** <http://aces.nmsu.edu/academics/shrtm/>

The mission of the School of Hotel, Restaurant and Tourism Management is to serve the needs of our constituents through innovative teaching, research, professional applications and partnerships in a multicultural and international environment.

**DEGREE: BACHELOR OF SCIENCE IN HOTEL, RESTAURANT AND TOURISM MANAGEMENT****MAJOR: HOTEL, RESTAURANT TOURISM MANAGEMENT**

This bachelor degree program prepares students for supervisory and management positions in all areas of the diverse and growing hospitality and tourism industry. The program also provides a foundation for continuing development to advance to more senior management or to pursue entrepreneurial opportunities. In this professional program, faculty, students and industry partners bring together theory and practice to forge hospitality management excellence. The curriculum is designed to educate students as individuals and professionals in a changing society. Students will take a core curriculum until senior year, when they may specialize in one of the two concentration areas listed, or develop an individual plan with a faculty advisor for selecting professional elective courses. A grade of C- or better must be earned in each upper-division HRTM class to satisfy the requirement of the major.

Students are required to participate in an internship program that is offered only after completion of 400 hours of hospitality work experience (practicum). The HRTM 307, HRTM 408, and HRTM 409 internship sequence, which includes another 400 hours in the field, must be completed prior to enrolling in other 400-level professional electives. Thus, at the end of both the work experience practicum and the internship, students will have completed a minimum of 800 hours professional work experience in the field.

**CORE COURSES****General Education Requirements (36 credits)**

A list of specific general education requirements is available in the department. Please check with your advisor.

**Departmental Requirements (42 credits)**

HRTM 201	Introduction to Tourism	3 cr.
HRTM 221	Introduction to Hospitality Management	3 cr.
HRTM 263	Food Production and Service Fundamentals	3 cr. (1+4P)
HRTM 301	Hotel, Restaurant, and Tourism Marketing	3 cr.
HRTM 302	Hospitality Management Accounting	3 cr.

HRTM 304	Hospitality and Travel Law	3 cr.
HRTM 307	Professional Development	1 cr.
HRTM 311	Hospitality Leadership Management	3 cr.
HRTM 331	Hotel Operations I	3 cr.
HRTM 363	Quantity Food Production and Service	6 cr. (1+10P)
HRTM 408	Hospitality Internship	1 cr.
HRTM 409	HRTM Internship Seminar	1 cr.
HRTM 410	Hospitality Cost Control	3 cr.
HRTM 430	Hospitality Facilities Management	3 cr.
HRTM 434	Senior Capstone Experience	3 cr.

*HRTM 434: complete during final semester*

#### **Nondepartmental Requirements (25-28 credits)**

A ST 251G	Statistics for Business and the Behavioral Sciences	3 cr.
	or	
STAT 251G	Statistics for Business and the Behavioral Sciences	3 cr.
ACCT 221	Financial Accounting	3 cr.
ECON 201G	Introduction to Economics	3 cr.
	or	
ECON 251G	Principles of Macroeconomics	3 cr.
	and	
ECON 252G	Principles of Microeconomics	3 cr.
FIN 341	Financial Analysis and Markets	3 cr.
MGT 309	Human Behavior in Organizations	3 cr.
MGT 332	Human Resources Management	3 cr.
SPAN 111	Elementary Spanish I	4 cr.
	Any MKTG #300 and above	3 cr.

#### **Interest Area Groups**

You must choose 9 credits from the interest area groups listed below, or in consultation with your advisor, you may combine them in any way that accommodates your special interest.

#### **Hotel Management\***

The hotel/resort operations area addresses specific concepts, practices, and issues in hotel, resort, bed and breakfast, conference and contract lodging facilities management and ownership.

HRTM 404	Gaming Operations and Organization	3 cr.
HRTM 412	Beverage Management	3 cr.
HRTM 413	Restaurant Operations Management	4 cr. (1+6P)
HRTM 420	Club Management and Marketing	3 cr.
HRTM 431	Hotel Operations II	3 cr.
HRTM 432	Hotel Revenue and Sales Management	3 cr.
HRTM 433	Training for Hospitality Operations	3 cr.
HRTM 443	Meetings, Conventions and Special Events	3 cr.

#### **Restaurant and Food Service Management\***

The restaurant and food service management areas address specific concepts, practices, and issues in restaurant, banquet, catering, and contract food service management and ownership.

HRTM 404	Gaming Operations and Organization	3 cr.
HRTM 412	Beverage Management	3 cr.
HRTM 413	Restaurant Operations Management	4 cr. (1+6P)
HRTM 414	International Food and Wine	3 cr.
HRTM 420	Club Management and Marketing	3 cr.
HRTM 433	Training for Hospitality Operations	3 cr.
HRTM 443	Meetings, Conventions and Special Events	3 cr.

#### **Other HRTM Electives**

HRTM 310	Colloquium II	1 cr.
----------	---------------	-------

*HRTM 310: repeat up to 2 times*

#### **Open Electives**

Fifteen hours of free electives are available to meet your goals.

\*Plus a sufficient number of electives to ensure a minimum of 120 semester credits, some of which must be in courses at the 300 level or above to meet the university requirement of 48 credits at this level. These elective courses are designed to provide you with an opportunity to learn about or possibly minor in another field of study. This selection may depend on your professional career choices and interest in the specific hospitality area itself. Course requirements for minors in other areas differ; therefore, it is necessary for you to consult with your advisor.

#### **MINOR: CULINARY SCIENCE**

A minor in Culinary Science is available. The minor requires a minimum of 18 credits of which a minimum of 9 hours must be at the 300 or higher level. Specific coursework requirements apply. A student may earn a bachelor's degree in Hotel, Restaurant and Tourism Management or Human Nutrition and Food Science and a minor in Culinary Science. See an advisor for course requirements and scheduling.

#### **MINOR: HOTEL, RESTAURANT AND TOURISM MANAGEMENT**

A minor in Hotel, Restaurant and Tourism management is available. The minor requires a minimum of 18 credits of which at least 9 hours must be at the 300 or higher level. Specific coursework requirements apply. See advisor for course requirements and scheduling.

# COLLEGE OF ARTS AND SCIENCES

**Interim Dean • Enrico Pontelli**

**Associate Dean (Research) • Jeffrey P. Brown**

**Associate Dean (Academics) • Beth Pollack**

**Interim Associate Dean (Strategic Initiatives and Assessment) • Anne Hubbell**

**Associate Director, Research Center • Olga Ostos**

**Director of Academic Advising • Jennifer Hodges**

## Accreditation

In the College of Arts and Sciences, the Department of Chemistry and Biochemistry is accredited by the American Chemical Society. Music curricula in the Department of Music are accredited by the National Association of Schools of Music. The Master of Public Administration program in the Department of Government is accredited by the National Association of Schools of Public Affairs and Administration.

## Bachelor of Applied Studies

**Bachelor of Arts**— Majors in Anthropology; Art; Biology; Chemistry; Communication Studies; Computer Science; Economics; English; Foreign Languages; Government; History; Journalism and Mass Communications; Philosophy; Physics; Psychology; Sociology; Theatre Arts; Women's Studies

## Bachelor of Individualized Studies

**Bachelor of Science**— Majors in Biochemistry; Biology; Chemistry; Computer Science; Geography; Geology; Mathematics; Microbiology; Physics

**Designated Bachelor's Degree**— in Conservation Ecology; Bachelor of Creative Media; Criminal Justice; Bachelor of Fine Arts; Genetics; Music; Music Education

Programs offered in the College of Arts and Sciences prepare students for a variety of career opportunities and for graduate study. The broad curriculum offered provides both the motivation and the tools for lifelong learning experiences.

While the ultimate responsibility for planning an academic program in compliance with university, college and departmental requirements rests with the student, the college recognizes the importance of helping students work out appropriate academic programs. Some freshman students and unclassified/undecided arts and sciences students may be advised on academic matters in the college advising center, which is located in Breland Hall, room 152. In addition, all students are encouraged to contact departments for specific subject area information and career planning.

Students with 36 or more credits who have declared a major are advised in their appropriate major department(s).

Students should consult the "Regulations" (p. 24) section of the catalog regarding general limitations for total credit hours, independent study and registration under S/U option. Students in the College of Arts and Sciences on Academic Probation 1 are limited to 13 credit hours, and students on Probation 2 are limited to 7 credit hours. The Regulations section of the catalog discusses registration, drop/add and withdrawal deadlines. Students may not do additional course work or repeat course exercises after the semester has ended in order to raise a grade in any course. Exceptions will be made for students completing an official Incomplete grade.

## College Degree Requirements

1. In accordance with NMSU policy, students in all majors in the College of Arts and Sciences must meet the Basic Academic Skills requirements in English and Mathematics. See "Basic Academic Skills" (p. 26) in the General Information, Regulations section.

### Basic Academic Skills rules:

- Students must complete, with a C- grade or better, in MATH 111 and MATH 112G, or any mathematics course numbered 120 or above which includes A ST 251G, STAT 251G and STAT 271G. Please see department requirements for each major for specific mathematics requirements.

- Students must complete, with a C- grade or better, ENGL 111G, ENGL 111H, or SPCD 111G/ ENGL 111 M prior to enrolling in upper division courses numbered 300 or higher.

*NOTE: Transfer students must complete an English course listed above and begin their Math sequence no later than their second semester at NMSU in order to continue enrolling in upper division courses numbered 300 level or higher.*

- Students whose ACT or other test scores require them to take developmental Mathematics or English courses must complete those courses prior to enrolling in the English and Mathematics basic skills courses listed above.
- University graduation requirements. See "Graduation Requirements" (p. 17) in the "General Information" section in this catalog. In order to graduate, students must have met all degree requirements for their major, earned a minimum of 120 university level credits, or more if required for the degree, of which at least 48 must be upper division and must have a cumulative GPA of 2.0 in all courses taken at NMSU. Each student must complete at least 30 of the necessary credits for their Bachelor Degree at NMSU. A minimum of "C-" in all courses counting toward the major, supplemental major and minor is required of all students.
  - Some departments in the college require a second language and some do not. For those students whose major requires a second language, the following parameters apply unless otherwise specified in their departmental requirements. A student must meet one of the following requirements.
    - Complete the normal second language course sequence: 111, 112, 211 and 212. Students should enter the sequence at their proficiency level. Heritage speakers should complete the Spanish 113-213-214 sequence. Students who successfully complete either SPAN 113 or SPAN 213 or SPAN 214 (or all) may not take SPAN 111, SPAN 112, SPAN 211 or SPAN 212 for credit.
    - Challenge the 212 level of Arabic, Chinese, French, German, Japanese, or Spanish, or the 214 level of Spanish for Heritage Learners, or Portuguese.
    - Obtain college certification of completion of a second language at the high school level by fulfilling one of the following:
 

Option A: For those departments requiring one year of a second language a student must pass two years of a high school language with a C- or better in the last year level.

Option B: For those departments requiring two years of a second language a student must pass three years of a high school language with a C- or better in the last year level.
    - Obtain, from the head of the Department of Languages and Linguistics, certification of a working knowledge of a second language if such language is not taught at New Mexico State University.
    - Obtain certification of a working knowledge of a Native American language from the American Indian program director, or as attested by a Native American Elder.
    - Successfully complete a regular university course taught in a language other than English. A student can receive credit only once for the same course taught in two languages.
    - Pass a three-credit upper-division course (numbered 300 or above) taught in a second language by the Department of Languages and Linguistics.
    - Pass C D 476, America Sign Language III with a grade of C- or better.
    - In the case of an international student who is required to take the TOEFL exam for admission, the dean will automatically waive the second language requirement.

Students should satisfy the second language requirement as soon as possible and take the necessary courses in consecutive semesters.

Please note: SPCD or English language may not be used to fulfill the second language requirements.

### S/U Grading Option

Instructors may establish individual standards for an S grade, but the minimum standard for an S grade in the College of Arts and Sciences courses is a C-.

### Developmental and Applied Credit Limitations

The College of Arts and Sciences will accept all applied coursework, which include Occupational Education courses, BOT, CMT, UNIV (not including UNIV 150 and UNIV 350), ART (applied), DANC (applied), MUS (applied and participation), THTR (applied), NURS, A EN, AXED, AG E, AGHE, COLL, CCDL, CCDS, all lower-division RDG. These courses count towards overall credit hours to bring the students total to the minimum credit hours required. Students must still complete all university requirements: GEN ED; VWW; a minimum of 48 upper division credits as well as all requirements for their declared major degree.

Credits earned in developmental courses (N suffix) are not counted toward any arts and sciences degree. Students should contact the Student Records Center regarding the acceptability of specific courses.

### Independent Study/Directed Reading Courses

Students are limited to six credits in any independent study course. Independent study courses include directed reading and special topic courses, which do not carry a subtitle.

### Distance Education Courses

The College of Arts and Sciences offers a variety of distance education/online courses each semester. Specific courses can be found under departmental course listings online. Students who successfully complete NMSU distance education courses receive the same credit as students who take an equivalent course on the Las Cruces campus. Distance education courses appear on a student's transcript in the same way a course taken on the Las Cruces campus does. Students will be charged a Course Delivery Fee for taking online courses.

### Majors, Minors and Supplementary Majors

Students who wish to obtain a bachelor's degree must select a major field or fields. For a listing of major fields, the student should see the first page of this chapter. Course requirements for majors are listed under individual departments. Students should consult the department for current admissions requirements. Until a major is selected, the student is designated as unclassified.

Each major consists of not less than 20 credits of upper-division courses (300 and above) in a specific field. Students must earn a grade of C- or better for all course requirements for a major, minor, or supplementary major, including any courses required from outside the department. Students may not count an S grade towards completion of any major, minor or supplementary major requirement unless a course is automatically S/U for all enrolled students. A student may not earn a minor that bears the same name as a bachelor's degree that the student is earning. (For example, a student earning a B.S. in Biology cannot also earn a minor in Biology.) Some departments also require specific courses outside the major field. Please refer to the departmental section of the catalog for specific nondepartmental requirements. These nondepartmental requirements must be passed with a grade of C- or better. It is imperative that students consult the departmental sections of this catalog and the department(s) for advice in planning to fulfill requirements for their declared majors.

The requirements for academic minors in the College of Arts and Sciences are found under each offering department or program's section of this catalog. Requirements for supplementary majors are found as follows: the Supplementary Majors in Chicano Studies, Latin American Studies, and Linguistics are listed under Languages and Linguistics; the Supplementary Major in Law and Society is listed under Government; and the Supplementary Major in Applied Mathematics is listed under Mathematical Sciences.

Most students have considerable latitude in choosing elective courses. These are the courses beyond university and major requirements that a student must take to bring her or his total credits to the minimum overall credits required for the degree 120 or 128. This latitude provides students with opportunities to major in more than one field or to devise interdisciplinary programs tailored to individual interests or future career needs.

Regardless of the option elected, students should consult regularly with an advisor and track their progress towards degree completion and graduation

using the online degree audit system STAR (Student Academic Requirements), at: <http://www.my.nmsu.edu>.

### Supplementary Majors

Applied Mathematics in the Department of Mathematical Sciences  
Chicano Studies in the Department of Languages & Linguistics  
Latin American Studies in the Department of Languages & Linguistics  
Law and Society in the Department of Government  
Linguistics in the Department of Language & Linguistics  
Sustainable Development in the Department of Anthropology

### Preprofessional Studies

Prehealth Studies in the Department of Biology  
Prelaw Studies in the Department of Government

## AEROSPACE STUDIES

Lieutenant Colonel Jeremy Klomp, Department Head

phone: (575) 646-2136

website: <http://airforcerotc.nmsu.edu>

Air Force Reserve Officer Training Corps (AFROTC) is a nationwide program that allows students to pursue commissions (become officers) in the United States Air Force (USAF) while simultaneously attending college. AFROTC classes are held on college campuses throughout the United States and Puerto Rico; students can register through normal course registration processes. AFROTC consists of four years of Aerospace Studies classes (Foundations of the USAF, Evolution of USAF and Space Power, Air Force Leadership Studies, and National Security Affairs/Preparation for Active Duty), and a corresponding Leadership Laboratory for each year (where students apply leadership, demonstrate command and effective communication, develop physical fitness, and practice military customs and courtesies). College students enrolled in the AFROTC program (known as "cadets") who successfully complete both AFROTC training and college degree requirements will graduate and simultaneously commission as Second Lieutenants in the Active Duty Air Force. The AFROTC program is currently offered at New Mexico State University (NMSU), but they have a crosstown agreement that allows our students to enroll in AFROTC and become full-fledged cadet participants.

### Freshman and Sophomore Years (General Military Course or GMC)

This group (AERO 121/122, AERO 221/222) provides a general background knowledge of the military establishment with emphasis on the Air Force. GMC courses may be taken out of sequence.

### Junior and Senior Years (Professional Officer Course or POC)

This group (AERO 301, AERO 302, AERO 401, AERO 402) constitutes an in-depth study of topics that provides a broad preparation for a career as an Air Force officer. Students must have certain qualifications for entry and have a desire to be commissioned in the Air Force. These qualifications include, achieving a passing score on the Air Force Officer's Qualifying Test, passing a physical fitness test, and successfully completing a medical exam. They must also complete a four- or five-week summer orientation course.

Students may, with departmental approval, take POC courses out of normal sequence. However, compressed or dual enrollment in upper-division POC courses is normally prohibited. Through this department, you can also earn a minor in Aerospace Studies.

### MINOR: AEROSPACE STUDIES

#### REQUIREMENT

##### Required Courses

AERO 301	Air Force Leadership and Management I	4 cr. (3+2P)
----------	---------------------------------------	-----------------

AERO 302	Air Force Leadership and Management II	4 cr. (3+2P)
AERO 401	Preparation for Active Duty I	4 cr. (3+2P)
AERO 402	Preparation for Active Duty II	4 cr. (3+2P)

**Six credits from the following:**

HIST 312V	Modern Latin America	3 cr.
HIST 341	American Agricultural History	3 cr.
GOVT 360	International Relations	3 cr.
GOVT 371	Latin American Politics	3 cr.
GOVT 474	European Politics	3 cr.
MGT 315V	Human Relations in Organizations	3 cr.
MGT 333	Training and Development	3 cr.
MGT 347	Management Functions and Processes	3 cr.
MGT 388V	Leadership and Society	3 cr.
MGT 453	Leadership and Motivation	3 cr.
M SC 310	Leading Small Organizations I	3 cr.
M SC 320	Leading Small Organizations II	3 cr.
M SC 401	Leadership Challenges and Goal Setting	3 cr.

**Leadership Laboratory**

This is an integral and mandatory portion of the Aerospace Studies curriculum. Within the framework of the cadet wing, it provides a progression of experiences designed to develop each student's leadership potential and serves as an orientation to military life.

## ANTHROPOLOGY

---

**Professor, Rani T. Alexander, Department Head**

**Professors** Alexander, Benefit, Chaiken, Rushforth, Walker; **Associate Professors** McCrossin, Stanford; **Assistant Professors** Arakawa, Jenks, Scott; **College Professors** Connelly, Pepion; **Emeritus Professors** Eber, O'Leary, Staski, Trevathan **Affiliated Faculty** Berryman, DeBoer, LeBeau, Loendorf, Marinas-Feliner; Robles; Steele, Stinson; Strankman, Torezani  
**phone: (575) 646-2725**  
**website: <http://anthropology.nmsu.edu>**

**DEGREE: BACHELOR OF ARTS**  
**MAJOR: ANTHROPOLOGY**

The major in anthropology provides a broadly based education in the social and biological sciences. The undergraduate program prepares students for careers in many areas, such as cultural resource management (or contract archaeology), archaeological research, forensic sciences, health services, cross-cultural field work, community development programs and museum work. Anthropology students can continue for advanced degrees in teaching, museology, other social sciences and anthropology.

**REQUIREMENTS****Departmental Requirements**

ANTH 301	Cultural Anthropology	3 cr.
ANTH 315	Introduction to Archaeology	3 cr.
ANTH 320	Anthropological Linguistics	3 cr.
ANTH 350	Anthropological Theory	3 cr.
ANTH 355	Physical Anthropology	3 cr.
ANTH 399	Professionalism & Practice in Anthropology	3 cr.

**Nondepartmental Requirements**

(A grade of C- or better must be earned.)

ENGL 218G	Technical and Scientific Communication	3 cr.
	or	
ENGL 318G	Advanced Technical and Professional Communication	3 cr.
	MATH 210 or above	3 cr.

**Electives**

Sufficient to bring total credits to 120, including 48 upper-division.

Additional electives in anthropology to bring total credits in major to 36, including 27 upper-division.

**Second Language**

Students seeking the B.A. in Anthropology must meet the second language requirement. The requirement is considered satisfied when a student provides evidence that at least the 212 or 214 level of language proficiency has been attained.

**SUPPLEMENTAL MAJOR: SUSTAINABLE DEVELOPMENT**

This program consists of 24 credits drawn from the lists below of which 18 credits must be numbered 300 or above. The student must take 6 credit hours (2 classes) from the core curriculum, 15 credit hours (5 classes) of electives, and 3 credit hours (1 class) of sustainable development field study. Advisor: Lois Stanford, Anthropology.

**REQUIREMENTS****Core Requirements: (6 credits)**

AG E 315V	World Agriculture and Food Problems	3 cr.
ANTH 362	Environmental Anthropology	3 cr.
BIOL 301	Principles of Ecology	3 cr.
GEOG 295	Introduction to Climate Science	4 cr. (3+3P)
SOC 465V	Environmental Sociology	3 cr.

**Elective Courses: (15 credits)**

Courses are limited in each department in order to encourage students to take classes in different disciplines and broaden their perspective.

AG E 337V	Natural Resource Economics	3 cr.
AGRO 483	Sustainable Production of Agronomic Crops	4 cr. (3+2P)
ANTH 360V	Food and Culture Around the World	3 cr.
ANTH 361V	Social Issues in the Rural Americas	3 cr.
BIOL 462	Conservation Biology	3 cr.
EPWS 380V	Ecosystem Earth: The Impact of Human Activities	3 cr.
FWCE 255	Principles of Fish and Wildlife Management	3 cr.
HON 305V	Global Environment	3 cr.
HON 320V	Food and Humanity: World in Crisis	3 cr.
HON 321V	Agriculture in an Interconnected World	3 cr.
SOC 361V	Social Issues in the Rural Americas	3 cr.
SOC 478	Sociology of Development and the World System	3 cr.

**Additional Courses:**

With the permission of the program advisor, students may substitute 1 class that presents a topical focus on sustainable development. Certain courses, such as GOVT 486, Political Economy, SOC 489, Globalization or special topics courses may have a sustainable development focus, depending on the instructor or subheading. In these cases the student can request permission to substitute this specific course for an elective class listed above.

**Field Requirements: (3 credits)**

In addition, students are expected to take one class that applies the principles and concepts of sustainable development in a local, regional or international setting. Students may opt to enroll in one of the classes listed below, or they may choose to work on an independent study or internship in sustainable development. In these cases, students should seek the approval of the sustainable development committee before embarking on the field experience or internship.

ANTH 485	Special Research Project	1-3 cr.
FWCE 450	Special Topics	1-4 cr.
SOC 496	Internship	1-6 cr.

**MINOR: ANTHROPOLOGY**

Students who earn a minor in Anthropology must earn 18 credits, distributed as follows:

**REQUIRED COURSES****One course from the following**

ANTH 301	Cultural Anthropology	3 cr.
ANTH 315	Introduction to Archaeology	3 cr.
ANTH 320	Anthropological Linguistics	3 cr.
ANTH 350	Anthropological Theory	3 cr.
ANTH 355	Physical Anthropology	3 cr.

Plus an additional 9 credits of upper division Anthropology courses, numbered 300 or above.

Plus an additional 6 credits of Anthropology courses (any level).

Students who earn a B.A. in Anthropology may not also earn a minor in Anthropology. Students earning the minor must pass 18 credits with grades of C- or higher. Nine of the credits must be upper-division. Students may count S only in courses in which all grades are S/U.

**MINOR: NATIVE AMERICAN STUDIES**

Students must pass a total of 18 credits of which at least 9 of which must be upper division. ANTH 115 Native Peoples of North America is strongly recommended as the first course for the minor. A grade of C- or better must be obtained for each course. Students may count S grades only in courses in which all grades are S/U, and no more than 6 hours of S credit can be accepted. Students can count no more than 3 credits in independent studies, readings or special topics courses. Such courses, marked below with an asterisk (\*), must focus upon Native Americans and must be approved in advance by the director of the minor program, specifying the semester during which a student takes such a course. Students may count no more than 9 credits in Anthropology (except that ANTH 330V/HIST 330V/SOC 330V, Introduction to Religious Studies, may be included above this limit) and no more than 6 credits in History. Please contact the Department of Anthropology regarding the minor.

**REQUIREMENTS****Eighteen credits from the following**

ANTH 110	North American Prehistory	3 cr.
ANTH 115	Native Peoples of North America	3 cr.
ANTH 116	Native Peoples of the American Southwest	3 cr.
ANTH 304	Contemporary SW Native Americans	3 cr.
ANTH 305V	Contemporary Native Americans	3 cr.
ANTH 316	Archaeology of the American Southwest	3 cr.
ANTH 330V	Magic, Witchcraft and Religion	3 cr.
ANTH 405	Native Cultures of North America	3 cr.
ANTH 449 H	Directed Reading Honors	1-3 cr.
ANTH 455	Federal Indian Policy	3 cr.
ANTH 467	Archaeology of the American Southwest	3 cr.
GOVT 406	Independent Study	1-3 cr.
GOVT 354	American Indian Politics	3 cr.
HIST 309	American Indian History I	3 cr.
HIST 310	American Indian History II	3 cr.
HIST 449	Readings	1-3 cr.
HIST 489	Projects in History	3 cr.
PHLS 460	American Indian Health	3 cr.
	or	
	by approval of Minor Advisor	

*Preferred: ANTH 449H, ANTH 497, GOVT 406, HIST 449, HIST 489, and W S 250*

**MINOR: RELIGIOUS STUDIES**

Students must pass 18 credits of which at least 9 are upper division. Students must earn C- or higher grades and cannot count S/U courses unless all grades in the course must be S/U. No more than 9 credits (upper or lower division) can be earned in any one department. Students may not earn more than 3 credits total in independent studies or special readings courses and must receive approval from the minor advisor to count these credits. Courses that may be eligible as special

topics courses when offered with specific subtitles are asterisked. Please contact the Department of Anthropology regarding the minor.

**REQUIREMENTS****Required Course**

ANTH 330V	Magic, Witchcraft and Religion	3 cr.
-----------	--------------------------------	-------

**Fifteen credits from the following**

ANTH 115	Native Peoples of North America	3 cr.
ANTH 304	Contemporary SW Native Americans	3 cr.
ANTH 334	Anthropology of Art	3 cr.
ANTH 405	Native Cultures of North America	3 cr.
ANTH 414	The Archaeology of Religion	3 cr.
ANTH 432	Anthropology of Religion & Spirituality	3 cr.
ANTH 455	Federal Indian Policy	3 cr.
ART 305	Medieval Art	3 cr.
ART 306	Medieval Manuscript Illumination	3 cr.
ART 310	Native American Art	3 cr.
ART 311	Art of China	3-4 cr.
ART 320	Art and Architecture in Pre-Columbian Meso-America	3 cr.
ART 321	Pre-Columbian Art and Architecture of the Andes	3 cr.
ART 323	Italian Renaissance Art	3 cr.
ART 325	Northern Renaissance Art	3 cr.
ART 478	Seminar: Selected Topics in Art History	3 cr.
DANC 451V	World Dance	3 cr.
ENGL 243	The Bible as Literature	3 cr.
ENGL 341V	American Indian Literature	3 cr.
ENGL 392V	Mythology	3 cr.
ENGL 407	Milton	3 cr.
ENGL 421	Advanced Study in a Literary Period or Movement	3 cr.
ENGL 423	Advanced Study in a Major Author	3 cr.
ENGL 425	Advanced Study in Comparative Literature	3 cr.
	varying 400-level numbers for ENGL, Dying for Love: Sex and the Spirit in Early English Poetry and ENGL, Women Reading the Bible, from Late Antiquity to Puritan America;	
GOVT 387	Religion and Politics	3 cr.
HIST 101G	Roots of Modern Europe	3 cr.
HIST 211G	East Asia to 1600	3 cr.
HIST 221G	Islamic Civilizations to 1800	3 cr.
HIST 222G	Islamic Civilizations since 1800	3 cr.
HIST 309	American Indian History I	3 cr.
HIST 353	Colonial Mexico	3 cr.
HIST 400	Special Topics	1-9 cr.
HIST 433	United States Labor History Since 1877	3 cr.
HIST 471	China through the Ming Dynasty	3 cr.
HIST 473	History of Japan	3 cr.
HON 229G	The New Testament as Literature	3 cr.
HON 234G	The Worlds of Arthur	3 cr.
HON 237G	Archaeology: Search for the Past	3 cr.
HON 239G	Medieval Understandings: Literature and Culture in the Middle Ages	3 cr.
HON 326V	Art and Mythology	3 cr.
HON 348V	Comparative Mythology: Myth, Ritual, and the Life Cycle	3 cr.
HON 355V	Sexuality in Christianity and Islam	3 cr.
HON 366V	The Gothic Imagination	3 cr.
PHIL 136G	The Quest for God	3 cr.
PHIL 331	Philosophy of Religion	3 cr.
SOC 460	Sociology of Religion	3 cr.
	or	
	by approval of Minor Advisor	

*Preferred: ENGL 403, ENGL 421, ENGL 423, ENGL 425, and HIST 400  
HIST 101G: when section approved by minor advisor*



**MINOR: SUSTAINABLE DEVELOPMENT**

A minor in Sustainable Development is available for students who want to include Sustainable Development in their academic training. The minor includes a minimum of 18 credit hours of which 6 credit hours must be from the core curriculum of the supplemental major, 12 credit hours from the elective courses for the supplemental major, and 3 credit hours of field study.

**ART****Professor, Julia Barello, Department Head**

**Professors** Barello, Stevens; **Associate Professor** Cully, Goehring, Zarur; **Assistant Professors** Edgar, Furuhashi, Kline, Reka, Taylor; **College Instructors** Cole-Dorn, Fitzsimmons; **Emeritus Professors** Fidler, Jaffe, Ocepek, Rose, St. Aubyn; **Gallery Director** Sage; **Conservator** Marinas  
**phone: (575) 646-1705**  
**website: <http://artdepartment.nmsu.edu/>**

The Department of Art provides a rigorous program for the enrichment, application, development and appreciation of the visual arts. Students in studio develop an individual aesthetic by experimenting with and expressing visual concepts in an articulate manner. Art history students acquire a comprehensive understanding of the aesthetic and cultural issues addressed within the history of art, conducting and presenting independent research. The study of art provides an appropriate background for the pursuit of careers in studio art and art history in such areas as: the visual arts; graphic design; conservation; library work; museum work; advertising; architecture and interior design; photography; crafts; cinematography, education and art therapy; publishing; theatre; set design; television; industry and business; communication, religion; management and research in the creative and academic areas. A major in art also provides students with a broad humanistic background appropriate to preparation for advanced degrees in other fields.

Students enrolled in this department's major(s) or minor(s) may count credits in required applied courses toward their degrees beyond the normal maximum of 9 credits allowed in the College of Arts and Sciences. Note that 9 credits need to be taken outside Art at the upper level division. However, if students change the major(s) or minor(s) or do not complete the requirements for the minor at the time of graduation, they may only count a maximum of 9 credits to the applied/occupational credits toward graduation.

**DEGREE: BACHELOR OF ARTS****MAJOR: ART****EMPHASIS: Art History**

The art history program is designed to give the student a broad familiarity with the visual arts through the factual and theoretical study of aesthetics, cultural contexts, iconography, pictorial traditions, stylistic development and technical practices. Students are encouraged to take related courses in anthropology, history, languages and literature, music history, philosophy, religion, theatre and costume history.

Students must demonstrate a reading knowledge of a second language either by completing the 212 or 214 course or by taking a 300-level literature course (FREN, GER, SPAN, PORT, JPNS or CHIN). Art History majors may not use C D 476 to fulfill the language requirement.

**Departmental Requirements (credits 48)****Freshman Year (12 credits)**

ART 150	Drawing I	3 cr. (2+4P)
ART 295G	Introduction to Art History I	3 cr.
ART 298	Writing in Art	3 cr.
	Introductory Studio Art 200-level courses	3 cr.

**Sophomore Year (12 credits)**

ART 296G	Introduction to Art History II	3 cr.
	Art History Courses (300 level)	6 cr.
	Studio Art Courses 200-400 level or Art History	3 cr.

	Courses 300-400 level	
--	-----------------------	--

**Junior Year (12 credits)**

	Art History Courses (300-400 level)	9 cr.
	Studio Art Courses 200-400 level or Art History Courses 300-400 level	3 cr.

**Senior Year (12 credits)**

ART 479	Art Theory, Criticism, and Historiography	3 cr.
	Art History Courses (300-400) level	6 cr.
	Studio Art Courses 200-400 level or Art History Courses 300-400 level	3 cr.

**Electives:**

Sufficient to bring total credits to 120 for graduation, including 48 upper-division

**EMPHASIS: Studio Art**

The Bachelor of Arts is designed to give the student a broad interdisciplinary understanding of the areas of painting/drawing, graphic design, printmaking, sculpture, photography, ceramics, conservation, jewelry and metalsmithing, through a series of introductory and special topics courses and the history and appreciation of art in the context of a liberal education. Students are required to take 30 credits of upper-level studio art classes and 18 credits of Art History.

**Departmental Requirements (Total credits 66)****Freshman Year (18 credits)**

ART 295G	Introduction to Art History I	3 cr.
ART 298	Writing in Art	3 cr.
	Introductory Studio Art Courses 200-level	12 cr.

**Sophomore Year (18 credits)**

ART 296G	Introduction to Art History II	3 cr.
	Introductory Studio Art 200-level courses	3 cr.
	Special Topic Art Courses (300 level)	6 cr.
	Art History (300 level)	3 cr.

**Junior Year (15 credits)**

	Special Topic Art Courses (300 level)	12 cr.
	Art History (300/400 level)	3 cr.

**Senior Year (15 credits)**

	Special Topic Art Courses 400-level	12 cr.
	Art History (300/400 level)	3 cr.

**DEGREE: BACHELOR OF FINE ARTS****MAJOR: ART****EMPHASIS: Museum Conservation (79 credits)**

Art Conservation is the study of the preservation and restoration of art as well as of other cultural and natural objects. The B.F.A. degree with an emphasis in Museum Conservation provides an academic structure within which students master specific sets of practical skills while developing broad professional and theoretical perspectives toward the issue of conserving objects in a museum or collection setting. By combining theory with practice, the program offers students the interpretive, quantitative and administrative skills needed for careers as conservators, curators, registrars, collections managers, exhibit designers and museum administrators, all of whom must have specialized training in the care and handling of works of art to be successful.

**Science (16 credits)****Option A**

Recommended for students planning to attend graduate school in art conservation.

CHEM 111G	General Chemistry I	4 cr. (3+3P)
	and	
CHEM 112G	General Chemistry II	4 cr. (3+3P)
	or	
CHEM 115	Principles of Chemistry I	4 cr. (3+3P)
	and	

CHEM 116	Principles of Chemistry II	4 cr. (3+3P)
CHEM 313	Organic Chemistry I	3 cr.
CHEM 314	Organic Chemistry II	3 cr.
CHEM 315	Organic Chemistry Laboratory	2 cr. (6P)

**Option B**

Recommended for students who do NOT plan to attend graduate school in art conservation.

BIOL 211G	Cellular and Organismal Biology	3 cr.
	and	
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr. (3P)
	or	
EPWS 303	Economic Entomology	4 cr. (3+2P)
	and	
CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
CHEM 211	Organic Chemistry	4 cr. (3+3P)

**Art History (18 credits)**

ART 295G	Introduction to Art History I	3 cr.
ART 296G	Introduction to Art History II	3 cr.
ART 298	Writing in Art	3 cr.
	Plus three ART history electives 300 level or higher	9 cr.

**History/Anthropology (15 credits)**

One required courses (3 credits)

ANTH 315	Introduction to Archaeology	3 cr.
----------	-----------------------------	-------

**Three credits from the following:**

HIST 330V	Introduction to Religious Studies	3 cr.
HIST 334	Art and Life in Renaissance Italy	3 cr.
HIST 371	Ancient Greece	3 cr.
HIST 397	Introduction to Public History	3 cr.
HIST 424	History of Art, Thought and Literature	3 cr.
HIST 438	Antiquity and Modernity	3 cr.
HIST 481	Time Traveling Through New Mexico's Past	3 cr.
HIST 483	Historic Preservation	3 cr.
HIST 484	Historical Editing, Theory and Practice	3 cr.
HIST 486	Interpreting Historic Places for the Public	3 cr.
HIST 486	Interpreting Historic Places for the Public	3 cr.

**Nine credits from the following:**

ANTH 313	Ancient Mexico	3 cr.
ANTH 316	Archaeology of the American Southwest	3 cr.
ANTH 318	Historical Archaeology in Latin America	3 cr.
ANTH 334	Anthropology of Art	3 cr.
ANTH 378	Introduction to Lab Methods in Archaeology	3 cr.
ANTH 414	The Archaeology of Religion	3 cr.
ANTH 467	Archaeology of the American Southwest	3 cr.
ANTH 485	Special Research Project	1-3 cr.
ANTH 497	Special Topics	1-6 cr.

ANTH 378: offered intermittently

**Museum Studies (6 credits)**

ANTH 345	Introduction to Museology	3 cr.
ART 490	Museum Conservation Internship	1-6 cr.

**Studio Art (15 credits)**

Two required courses and three electives (15 credits)

ART 250	Introduction to Drawing	3 cr. (2+4P)
---------	-------------------------	-----------------

ART 260	Introduction to Painting	3 cr. (2+4P)
	Studio Art Courses (200-400 level)	9 cr.

**Art Conservation (9 credits)**

The following courses are open by permission of the instructor only

ART 401	Museum Conservation Techniques I	3 cr. (2+3P)
ART 402	Museum Conservation Techniques II	3 cr. (2+3P)
ART 403	Preventative Conservation/Collections Care	3 cr.

ART 499 is recommended

**EMPHASIS: Studio Art**

The studio art curriculum is designed to give the student a broad, transdisciplinary understanding of the field of visual arts, including appreciation and criticism, art history, ceramics, drawing, graphic design and media arts, jewelry/metalsmithing, painting, photography, printmaking, sculpture and museum conservation. This program is recommended for those students who wish to embark on a professional career in art. The maximum number of credits counted toward graduation is 84. The maximum credits for variable courses shall be 6 credits per semester except by permission. The Bachelor of Fine Arts degree is a professional baccalaureate degree, which requires a senior thesis exhibition and capstone class in the final semester of study. Students seeking a BFA must apply in the spring of their sophomore year for acceptance into the BFA program - this is done via a portfolio review.

**Departmental Requirements (84 credits)****Freshman Year (18 credits)**

ART 295G	Introduction to Art History I	3 cr.
ART 298	Writing in Art	3 cr.
	Introductory Studio Art courses	12 cr.

**Sophomore Year (18 credits)**

Submit application to BFA Program (students may reapply as many times as necessary).

ART 296G	Introduction to Art History II	3 cr.
	Introductory Studio Art 200-level courses	3 cr.
	Special Topic Art Courses (300 level)	6 cr.
	Art History (300 level)	3 cr.

**Junior Year (24 credits)**

	Special Topic Art Courses (300 level)	12 cr.
	Special Topic Art Courses (400-level)	6 cr.
	Art History Courses (300-400) level	6 cr.

**Senior Year (24 credits)**

	Special Topic Art Courses (400-level)	15 cr.
	Art History (300/400 level)	3 cr.
ART 495	Undergraduate Studio Thesis	3-6 cr.

**Thesis Exhibition/Capstone Course (6 credits)**

BFA students must have a thesis exhibition at the culmination of their degree.

ART 495	Undergraduate Studio Thesis	3-6 cr.
---------	-----------------------------	---------

**MINOR: ART**

The Art minor requires 27 credits. Students cannot earn both a bachelor's degree in the Department of Art and a Art minor unless they pass at least 6 credits in the minor beyond the requirements of the major.

**REQUIREMENTS****Required Courses:**

	Nine credits of studio art or art history at the 300-400 level	9 cr.
--	--	-------

**18 credits from the following:**

ART 250	Introduction to Drawing	3 cr. (2+4P)
ART 255	Introduction to Graphic Design	3 cr. (2+4P)
ART 260	Introduction to Painting	3 cr.

		(2+4P)
ART 265	Introduction to Sculpture	3 cr. (2+4P)
ART 270	Introduction to Photography	3 cr. (2+4P)
ART 275	Introduction to Ceramics	3 cr. (2+4P)
ART 280	Introduction to Printmaking	3 cr. (2+4P)
ART 285	Introduction to Metals and Jewelry	3 cr. (2+4P)
ART 295G	Introduction to Art History I	3 cr.
ART 296G	Introduction to Art History II	3 cr.
ART 298	Writing in Art	3 cr.

**MINOR: ART HISTORY**

The Art History minor requires 27 credits. Students cannot earn both a bachelor's degree in the Department of Art and an Art History minor unless they pass at least 6 credits in the minor beyond the requirements of the major. Students cannot earn both the Bachelor of Art with an Art History emphasis and a minor in Art History.

**REQUIREMENTS****Required Courses:**

ART 295G	Introduction to Art History I	3 cr.
ART 296G	Introduction to Art History II	3 cr.
ART 298	Writing in Art	3 cr.
	Five art history courses at the 300-499 level	15 cr.
	One course in humanities or studio art, subject to approval by the minor advisor	3 cr.

**MINOR: MUSEUM CONSERVATION**

The Museum Conservation minor requires 18 credits. Students cannot earn both a bachelor's degree in the Department of Art and the Museum Conservation minor unless they pass at least 6 credits in the minor beyond the requirements of the major. An undergraduate minor in Museum conservation requires the completion of 9 credits of the three 400 level museum conservation listed below, and 9 credits of the courses selected from one of the three tracks listed below.

**REQUIREMENTS****Required Courses (9 credits):**

ART 401	Museum Conservation Techniques I	3 cr. (2+3P)
ART 402	Museum Conservation Techniques II	3 cr. (2+3P)
ART 403	Preventative Conservation/Collections Care	3 cr.

ART 401: Spring; ART 402: Fall; ART 403: Directed Readings

**Track 1: Anthropology****Nine credits from the following:**

ANTH 313	Ancient Mexico	3 cr.
ANTH 315	Introduction to Archaeology	3 cr.
ANTH 316	Archaeology of the American Southwest	3 cr.
ANTH 318	Historical Archaeology in Latin America	3 cr.
ANTH 334	Anthropology of Art	3 cr.
ANTH 378	Introduction to Lab Methods in Archaeology	3 cr.
ANTH 414	The Archaeology of Religion	3 cr.
ANTH 485	Special Research Project	1-3 cr.

ANTH 313: offered every fall; ANTH 378: offered intermittently

**Track 2: Art****Nine credits from the following:**

ART 150	Drawing I	3 cr. (2+4P)
ART 250	Introduction to Drawing	3 cr. (2+4P)
ART 260	Introduction to Painting	3 cr.

		(2+4P)
ART 265	Introduction to Sculpture	3 cr. (2+4P)
ART 270	Introduction to Photography	3 cr. (2+4P)
ART 275	Introduction to Ceramics	3 cr. (2+4P)
ART 280	Introduction to Printmaking	3 cr. (2+4P)
ART 285	Introduction to Metals and Jewelry	3 cr. (2+4P)
ART 295G	Introduction to Art History I	3 cr.
ART 296G	Introduction to Art History II	3 cr.
ART 298	Writing in Art	3 cr.

**Track 3: History****Nine credits from the following:**

HIST 330V	Introduction to Religious Studies	3 cr.
HIST 334	Art and Life in Renaissance Italy	3 cr.
HIST 371	Ancient Greece	3 cr.
HIST 397	Introduction to Public History	3 cr.
HIST 424	History of Art, Thought and Literature	3 cr.
HIST 438	Antiquity and Modernity	3 cr.
HIST 481	Time Traveling Through New Mexico's Past	3 cr.
HIST 483	Historic Preservation	3 cr.
HIST 484	Historical Editing, Theory and Practice	3 cr.
HIST 486	Interpreting Historic Places for the Public	3 cr.

**ASTRONOMY****Professor, Jon Holtzman, Department Head**

**Professors** Klypin, Walterbos; **Associate Professors** Chanover, Churchill, Jackiewicz, Murphy; **Assistant Professor** McAteer; **College Professors** Beebe, Webber; **Observatory Specialist** Harrison  
**phone: (575) 646-4438**  
**website: <http://astronomy.nmsu.edu/>**

The department offers an undergraduate astronomy minor degree, which requires 18-20 credits. The department does not offer a BS degree but encourages interested students to enroll in the physics program as a first step toward a career in astronomy. Our 100- and 300-level courses meet various university general education requirements. All students are invited to share with us this exciting area of study, through our basic and advanced undergraduate courses. The Department of Astronomy offers a graduate program leading to MS and Ph.D. degrees. Interested students should consult the Graduate School Catalog, which is available from the Graduate School or online.

**ASTRONOMY PROGRAM****REGULAR UNDERGRADUATE COURSE OFFERINGS****Course List**

ASTR 105G	The Planets	4 cr. (3+2P)
ASTR 110G	Introduction to Astronomy	4 cr. (3+2P)
ASTR 301V	Revolutionary Ideas in Astronomy	3 cr.
ASTR 305V	The Search for Life in the Universe	3 cr.
ASTR 308V	Into the Final Frontier	3 cr.
ASTR 330V	Planetary Exploration	3 cr.
ASTR 400	Undergraduate Research	1-3 cr.
ASTR 401	Topics in Modern Astrophysics	3 cr.
ASTR 402	Introduction to Astronomical Observations and Techniques	3 cr.
ASTR 406	Stellar Dynamics and Hydrodynamics	3 cr.

ASTR 435	Observational Techniques I	3 cr.
----------	----------------------------	-------

Other courses at the 300 and 400-levels are offered on an occasional basis. Consult the "Course Descriptions (p. 178)" section in this catalog. ASTR 405, ASTR 406 and ASTR 435 are cross-listed with graduate classes and require special permission.

### MINOR: ASTRONOMY

The department offers a minor created for majors in a variety of scientific fields, and two minor emphases specifically designed to address the needs and interests of students from the Colleges of Education and Engineering. Any undergraduate, however, may pursue any of the three minor tracks.

### REQUIREMENTS (19 CREDITS)

The requirements for the regular minor requires 19 credits, from the following:

#### Four credits from the following:

ASTR 105G	The Planets	4 cr. (3+2P)
ASTR 110G	Introduction to Astronomy	4 cr. (3+2P)

#### Six credits from the following:

ASTR 301V	Revolutionary Ideas in Astronomy	3 cr.
ASTR 305V	The Search for Life in the Universe	3 cr.
ASTR 308V	Into the Final Frontier	3 cr.
ASTR 330V	Planetary Exploration	3 cr.

*Note: Three credits of ASTR 400 (Undergraduate Research) may replace one of these courses.*

#### Six or nine credits from the following:

ASTR 401	Topics in Modern Astrophysics	3 cr.
ASTR 402	Introduction to Astronomical Observations and Techniques	3 cr.
ASTR 406	Stellar Dynamics and Hydrodynamics	3 cr.
ASTR 435	Observational Techniques I	3 cr.

*Note: ASTR 401 and ASTR 402 are the preferred classes but are generally offered only in alternate years. Three credits of ASTR 400 (Undergraduate Research) may replace one of these courses, but not the same three if used above. ASTR 406 and ASTR 435 are cross-listed with graduate classes and require special permission.*

#### Three or nine credits (total of 9 between this and previous category) from the following:

A E 424	Aerospace Systems Engineering	3 cr.
BIOL 451	Physiology of Microorganisms	3 cr.
BIOL 467	Evolution	3 cr.
BIOL 473	Ecology of Microorganisms	3 cr. (2+3P)
C S 475	Artificial Intelligence I	3 cr.
C S 482	Database Management Systems I	3 cr.
C S 483	Introduction to Robotics	3 cr.
C S 491	Parallel Programming	3 cr.
CHEM 360	General Geochemistry	3 cr.
CHEM 431	Physical Chemistry	3 cr.
CHEM 433	Physical Chemistry I	3 cr.
E E 454	Antennas and Radiation	3 cr.
E E 460	Space System Mission Design and Analysis	3 cr.
E E 473	Introduction to Optics	3 cr.
E E 478	Fundamentals of Photonics	4 cr. (3+3P)
GEOL 465	Isotope Geochemistry	3 cr.
MATH 471	Complex Variables	3 cr.
MATH 472	Fourier Series and Boundary Value Problems	3 cr.
PHYS 451	Intermediate Mechanics I	3 cr.
PHYS 461	Intermediate Electricity and Magnetism I	3 cr.
PHYS 480	Thermodynamics	3 cr.
STAT 371	Statistics for Engineers and Scientists I	3 cr.
STAT 470	Probability: Theory and Applications	3 cr.
STAT 480	Statistics: Theory and Applications	3 cr.

*Note: Alternative 400-level courses in the physical sciences, engineering, or related fields, including one-time seminars, may be proposed on a case-by-case basis to fulfill this requirement, drawn from the fields of astronomy, biochemistry, biology, chemistry, computer science, geology, geophysics, mathematics, physics, statistics or from engineering. Proposals should include a clear justification that connects the course materials to a particular topic in astronomy or astrophysics.*

### EMPHASIS: Education (18-20 credits)

The requirements for the education track minor requires 18-20 credits from the following:

#### Eight credits from the following:

ASTR 105G	The Planets	4 cr. (3+2P)
ASTR 110G	Introduction to Astronomy	4 cr. (3+2P)

#### Six credits from the following:

ASTR 301V	Revolutionary Ideas in Astronomy	3 cr.
ASTR 305V	The Search for Life in the Universe	3 cr.
ASTR 308V	Into the Final Frontier	3 cr.
ASTR 330V	Planetary Exploration	3 cr.

#### Four-six credits from the following:

ASTR 400	Undergraduate Research	1-3 cr.
ASTR 401	Topics in Modern Astrophysics	3 cr.
ASTR 402	Introduction to Astronomical Observations and Techniques	3 cr.
EDUC 451	Methods of Teaching Elementary School Science	3 cr. (2+2P)
EDUC 463	Teaching Science at the Middle and High School Level	3 cr. (2+2P)

*Note: This requirement will generally be fulfilled by two 3-credit courses. Students may request the 4 credit option instead, if an appropriate topic and instructor for 1 credit of ASTR 400 are available. ASTR 401 and ASTR 402 are generally offered only in alternate years, and have prerequisites.*

### EMPHASIS:Engineering (18-19 credits)

The requirements for the engineering track minor requires 18-19 credits, from the following:

#### Three or four credits from the following:

ASTR 105G	The Planets	4 cr. (3+2P)
ASTR 110G	Introduction to Astronomy	4 cr. (3+2P)
PHYS 215G	Engineering Physics I	3 cr.
PHYS 216G	Engineering Physics II	3 cr.

#### Three credits from the following:

ASTR 301V	Revolutionary Ideas in Astronomy	3 cr.
ASTR 305V	The Search for Life in the Universe	3 cr.
ASTR 308V	Into the Final Frontier	3 cr.
ASTR 330V	Planetary Exploration	3 cr.

#### Six or nine credits from the following:

A E 428	Aerospace Capstone Design	3 cr. (3+2P)
ASTR 400	Undergraduate Research	1-3 cr.
ASTR 401	Topics in Modern Astrophysics	3 cr.
ASTR 402	Introduction to Astronomical Observations and Techniques	3 cr.
ASTR 406	Stellar Dynamics and Hydrodynamics	3 cr.
ASTR 435	Observational Techniques I	3 cr.
E E 400	Undergraduate Research	1-3 cr.
E E 418	Capstone Design I	3 cr. (1+6P)
E E 419	Capstone Design II	3 cr. (1+6P)
M E 400	Undergraduate Research	1-3 cr.

*Note: ASTR 401 and ASTR 402 are generally offered in alternate years. ASTR 406 and ASTR 435 are cross-listed with graduate classes and require special permission. Taking any of the non-astronomy classes for this requirement requires prior approval from the head of astronomy on a case-by-case basis, with a clear connection being established between the proposed research or design project and a particular topic in astronomy or astrophysics (astronomy instrumentation or observational projects are particularly encouraged); no more than 3 non-ASTR credits can be counted toward the minor.*

**Three or six credits (total of 12 between this and previous category) from the following:**

A E 424	Aerospace Systems Engineering	3 cr.
BIOL 451	Physiology of Microorganisms	3 cr.
BIOL 467	Evolution	3 cr.
BIOL 473	Ecology of Microorganisms	3 cr. (2+3P)
C S 475	Artificial Intelligence I	3 cr.
C S 482	Database Management Systems I	3 cr.
C S 483	Introduction to Robotics	3 cr.
C S 491	Parallel Programming	3 cr.
CHEM 360	General Geochemistry	3 cr.
CHEM 431	Physical Chemistry	3 cr.
CHEM 433	Physical Chemistry I	3 cr.
E E 454	Antennas and Radiation	3 cr.
E E 460	Space System Mission Design and Analysis	3 cr.
E E 473	Introduction to Optics	3 cr.
E E 478	Fundamentals of Photonics	4 cr. (3+3P)
GEOL 465	Isotope Geochemistry	3 cr.
MATH 471	Complex Variables	3 cr.
MATH 472	Fourier Series and Boundary Value Problems	3 cr.
PHYS 451	Intermediate Mechanics I	3 cr.
PHYS 461	Intermediate Electricity and Magnetism I	3 cr.
PHYS 480	Thermodynamics	3 cr.
STAT 371	Statistics for Engineers and Scientists I	3 cr.
STAT 470	Probability: Theory and Applications	3 cr.
STAT 480	Statistics: Theory and Applications	3 cr.

*Note: Alternative 400-level courses in the physical sciences, engineering, or related fields, including one-time seminars, may be proposed on a case-by-case basis to fulfill this requirement, drawn from the fields of astronomy, biochemistry, biology, chemistry, computer science, geology, geophysics, mathematics, physics, statistics, or from engineering. Proposals should include a clear justification that connects the course materials to a particular topic in astronomy or astrophysics.*

## BIOLOGY

**Associate Professor, Ralph Preszler, Department Head**

**Associate Professor, Angus Dawe, Associate Department Head**

**Professors** Boecklen, Houde, Milligan, Nishiguchi, Serrano, Smith, Unquez;

**Associate Professors** Bailey, Curtiss, Dawe, Hanley, Hansen, Mabry, Preszler, C. Shuster, M. Shuster, Wright, Xu; **Assistant Professors** Castillo, Indriolo, James, Lodato, Lopez

**phone: (575) 646-3611**

**website: <http://bio.nmsu.edu/>**

A student may earn the Bachelor of Arts in biology or the Bachelor of Science in biology, genetics, microbiology or conservation ecology through major studies in the Department of Biology. The Bachelor of Science in biology or microbiology is recommended for premedical and predoctoral students, for those preparing to teach biology and other sciences at the secondary and college levels, for those interested in the numerous fields of biological research and applied biology, and for those planning on obtaining an advanced degree in biology.

Freshmen should begin taking required biology and chemistry courses in their first year. Students are required to speak with an advisor in the Biology Success

Center (<http://bio.nmsu.edu/success>) of the Department of Biology as soon as they declare a major within the department. The department welcomes students considering a biology major who wish preliminary advising. More information on the Department of Biology is available on our web site, <http://bio.nmsu.edu>.

A student must earn a grade of C- or better to receive credit for any nondepartmental or departmental requirement for any major or minor offered by the Department of Biology.

It is strongly recommended that students include a minor or supplementary course work in a specific discipline to enhance their academic experience. See the "General Information (p. 4)" section of this catalog for specific requirements for minors and departments which offer them. Selection of a minor or a supplementary coursework area should be done in consultation with the Biology Success Center.

The department offers a minors in biology, microbiology, human biology and conservation ecology. A student may not earn a major and a minor in the same discipline.

A student must fulfill a second language requirement to receive a Bachelor of Arts or Bachelor of Science degree in the Biology and Microbiology majors. This requirement does not apply to the Conservation Ecology major, offered jointly with the Department of Fisheries, Wildlife and Conservation Ecology, or the Genetics major, offered jointly with the Department of Plant and Environmental Science. To meet the second language requirement, the student must do one of the following:

- Complete two semesters of second language courses numbered 111 and 112 with a grade of C- or better. Spanish speakers should enter and complete 113 with a C- or better to fulfill the requirement.
- Challenge the 112 level of French, German, Japanese, Latin, Portuguese, Russian or Spanish, or the 113 level for the Spanish-speaking student.
- Obtain college certification of completion of two years of a second language at the high school level with a grade of C- or higher in the second-year level. (i.e. equivalent to French 112, German 112, Spanish 112, etc.)
- Complete two semesters of American Sign Language, courses C D 374 and C D 375, with a grade of C- or better.
- Additional mechanisms for fulfilling the language requirement are listed under the College of Arts and Science language requirement.

### DEGREE: BACHELOR OF ARTS

#### MAJOR: BIOLOGY

The Bachelor of Arts curriculum is intended for students who desire a broad education with emphasis in biology in a program chosen by the student in consultation with an advisor in the Biology Success Center. The Bachelor of Arts is recommended for those who plan to teach at the primary levels or to use a background in life science in business or other endeavors.

### REQUIREMENTS

#### Nondepartmental Requirements

CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)
	or	
MATH 191G	Calculus and Analytic Geometry I	4 cr.
	One course from one of the following departments: astronomy, computer science, geology or physics.	3-4 cr.

#### One of the following organic chemistry options:

CHEM 211	Organic Chemistry	4 cr. (3+3P)
	or	
CHEM 313	Organic Chemistry I	3 cr.
	and	

CHEM 314	Organic Chemistry II	3 cr.
	and	
CHEM 315	Organic Chemistry Laboratory	2 cr. (6P)

**Departmental Requirements**

BIOL 111G	Natural History of Life	3 cr.
BIOL 111GL	Natural History of Life Laboratory	1 cr. (3P)
BIOL 211G	Cellular and Organismal Biology	3 cr.
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr. (3P)
BIOL 301	Principles of Ecology	3 cr.
BIOL 305	Principles of Genetics	3 cr.
BIOL 377	Cell Biology	3 cr.
BIOL 467	Evolution	3 cr.

Sufficient upper-division biology electives to bring total upper-division credits to 24. Choice of electives should be done in consultation with an advisor.

**Other electives**

Sufficient to bring total to 120, including 48 upper-division credits.

**DEGREE: BACHELOR IN CONSERVATION ECOLOGY**  
**MAJOR: CONSERVATION ECOLOGY**
**Co-directors of the Program:**

**Associate Professor, Ralph Preszler**, Department Head, Biology  
**Professor, Kathryn Stoner**, Department Head, Fish, Wildlife and Conservation Ecology

**Professors** Boeing, Boecklen, Caldwell, Cowley, Desmond, Houde, Milligan, Nishiguchi, Roemer, G. Smith; **Associate Professors** Bailey, Cain, Hanley, Mabry, Preszler, Wright; **Assistant Professors** Carlton, James

New Mexico State University offers an interdisciplinary, undergraduate program in Conservation Ecology. The goal of this program is to train biologists for the current and future challenges that we face in the conservation and wise use of our Earth's natural resources. An overriding principle of the program is to provide a solid foundation in basic science coupled with a practical approach towards sustainability and stewardship. The curriculum encompasses several disciplines and includes a wide variety of courses from Biology; Fish, Wildlife and Conservation Ecology; Geography; and Range Science.

The educational experience will provide students with an overview of global biodiversity and an understanding of the ecological and evolutionary processes that have created and sustained it. Courses in population and community ecology coupled with population viability analysis and risk assessment will give students the necessary background to understand the theory and development of these fields as well as the tools to tackle real-world problems. Courses in basic genetics, evolution, and conservation genetics will expose students to the importance of conserving genetic variation in order to maintain adaptive potential within populations, thereby sustaining the evolutionary process. Students will also receive background on wildlife law and environmental policy, information vital for assisting governing bodies in making decisions regarding the protection and wise use of our natural resources. Skills obtained in the application of geographic information systems, molecular genetics, and professional communication can also be acquired through various electives. In sum, we seek to provide undergraduate students with an education that will allow them the opportunity to contribute to the conservation of all life on Earth.

The requirements are listed below. In addition, each required course must be passed with a grade of C- or better.

**REQUIREMENTS****Core Curriculum (Includes University and College Requirements 67-68 credits)**

A ST 311	Statistical Applications	3 cr.
CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
CHEM 211	Organic Chemistry	4 cr.

		(3+3P)
ENGL 111G	Rhetoric and Composition	4 cr.
ENGL 218G	Technical and Scientific Communication	3 cr.
	or	
ENGL 318G	Advanced Technical and Professional Communication	3 cr.
AXED 201G	Effective Leadership and Communication in Agricultural Organizations	3 cr. (2+2P)
	or	
COMM 253G	Public Speaking	3 cr.
	or	
COMM 265G	Principles of Human Communication	3 cr.
	or	
HON 265G	Principles of Human Communication Honors	3 cr.
ECON 201G	Introduction to Economics	3 cr.
	or	
ECON 251G	Principles of Macroeconomics	3 cr.
	or	
ECON 252G	Principles of Microeconomics	3 cr.
MATH 121G	College Algebra	3 cr.
	and	
MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)
	or	
MATH 190G	Trigonometry and Precalculus	4 cr. (3+2P)
	and	
MATH 191G	Calculus and Analytic Geometry I	4 cr.
	and	
MATH 192G	Calculus and Analytic Geometry II	4 cr.
PHYS 211G	General Physics I	3 cr.
	or	
PHYS 221G	General Physics for Life Sciences I	3 cr.
PHYS 211GL	General Physics I Laboratory	1 cr.
	or	
PHYS 221GL	Laboratory to General Physics for Life Science I	1 cr.
PHYS 212G	General Physics II	3 cr.
	or	
PHYS 222G	General Physics for Life Sciences II	3 cr.
PHYS 212GL	General Physics II Laboratory	1 cr.
	or	
PHYS 222GL	Laboratory to General Physics for Life Sciences II	1 cr.

**Viewing a Wider World**

One VWW course will be satisfied using the 9-hour rule: students with Biology as home department use FWCE courses and students with Fish, Wildlife and Conservation Ecology as home department use BIOL courses.

**Major Requirements (43-45 credits)**

BIOL 111G	Natural History of Life	3 cr.
BIOL 111GL	Natural History of Life Laboratory	1 cr. (3P)
BIOL 211G	Cellular and Organismal Biology	3 cr.
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr. (3P)
BIOL 301	Principles of Ecology	3 cr.
	or	

FWCE 301	Wildlife Ecology	3 cr.
BIOL 305	Principles of Genetics	3 cr.
	or	
AGRO 305	Principles of Genetics	3 cr.
BIOL 312	Plant Taxonomy	3 cr. (2+3P)
	or	
RGSC 316	Rangeland Plants	3 cr. (2+3P)
BIOL 313	Structure and Function of Plants	3 cr. (2+3P)
BIOL 322	Zoology	3 cr. (2+3P)
BIOL 462	Conservation Biology	3 cr.
BIOL 467	Evolution	3 cr.
BIOL 488	Principles of Conservation Genetics	3 cr.
FWCE 110	Introduction to Natural Resources Management	3 cr.
FWCE 255	Principles of Fish and Wildlife Management	3 cr.
FWCE 330	Natural History of the Vertebrates	4 cr. (3+3P)
FWCE 402	Seminar in Natural Resource Management	1 cr.
FWCE 409	Introduction to Population Ecology	3 cr.
FWCE 447	Wildlife Law and Policy	3 cr.
FWCE 464	Management of Aquatic and Terrestrial Ecosystems	4 cr. (3+2P)

**Physiology—Any physiology course among the following: (3-4)**

ANSC 370	Anatomy and Physiology of Farm Animals	4 cr. (3+2P)
BIOL 314	Plant Physiology	3 cr.
BIOL 381	Animal Physiology	3 cr.
BIOL 354	Physiology of Humans	3 cr.
	and	
BIOL 354 L	Laboratory of Human Physiology	1 cr. (3P)
FWCE 432	Environmental Biology of Fishes	4 cr. (3+3P)
FWCE 438	Vertebrate Physiological Ecology	3 cr.

**Requirements in Diversity of Life: Any two courses (6-8 credits)**

BIOL 408	Ecology of Plants	3 cr.
BIOL 447	Ornithology	4 cr. (3+3P)
	or	
FWCE 430	Avian Field Ecology	4 cr. (3+3P)
BIOL 465	Invertebrate Zoology	4 cr. (3+3P)
BIOL 480	Animal Behavior	3 cr.
EPWS 303	Economic Entomology	4 cr. (3+2P)
EPWS 462	Parasitology	3 cr.
FWCE 431	Mammalogy	4 cr. (3+2P)
FWCE 467	Herpetology	4 cr.
FWCE 482	Ichthyology	4 cr. (3+2P)

**Additional courses**

Electives to bring total to 120 credits including 48 upper division credits

**Other Related Courses**

BCHE 341	Survey of Biochemistry	4 cr.
----------	------------------------	-------

		(3+3P)
BIOL 436	Disease Vector Biology	3 cr.
BIOL 442	Genomics Technology	3 cr.
BIOL 446	Bioinformatics and NCBI Database	3 cr.
BIOL 469	Biology of Emerging Infectious Diseases	3 cr.
BIOL 489	Genetic Aspects of Population Biology	3 cr.
GEOG 381	Cartography and Geographic Information Systems	4 cr. (3+3P)
GEOG 481	Fundamentals of Geographic Information Science and Technology (GIS & T)	4 cr. (3+3P)
GEOL 111G	Survey of Geology	4 cr. (3+3P)
GEOL 295	Environmental Geology	3 cr.
GEOL 424	Soil Chemistry	3 cr.
GOVT 378	U.S.-Mexico Border Politics	3 cr.
HIST 401	Environmental History	3 cr.
RGSC 318	Watershed Management	3 cr. (2+2P)
RGSC 325	Rangeland Restoration Ecology	3 cr.
RGSC 452	Vegetation Measurements for Rangeland Assessment	4 cr. (2+4P)
TOX 423	Environmental Toxicology	3 cr.

**DEGREE: BACHELOR OF SCIENCE****MAJOR: BIOLOGY**

The major in biology provides a solid academic base for those planning to enter any of the various fields of the biological sciences. The program allows considerable latitude. Suggested course sequences for specific areas of interest within biology can be obtained from the Biology Success Center.

**REQUIREMENTS****Nondepartmental Requirements**

CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
CHEM 211	Organic Chemistry	4 cr. (3+3P)
	or	
CHEM 313	Organic Chemistry I	3 cr.
	and	
CHEM 314	Organic Chemistry II	3 cr.
	and	
CHEM 315	Organic Chemistry Laboratory	2 cr. (6P)
BCHE 341	Survey of Biochemistry	4 cr. (3+3P)
	or	
BCHE 395	Biochemistry I	3 cr.
A ST 311	Statistical Applications	3 cr.
MATH 191G	Calculus and Analytic Geometry I	4 cr.
PHYS 211G	General Physics I	3 cr.
	or	
PHYS 221G	General Physics for Life Sciences I	3 cr.
PHYS 212G	General Physics II	3 cr.
	or	
PHYS 222G	General Physics for Life Sciences II	3 cr.
PHYS 211GL	General Physics I Laboratory	1 cr.
	or	

PHYS 221GL	Laboratory to General Physics for Life Science I	1 cr.
PHYS 212GL	General Physics II Laboratory	1 cr.
	or	
PHYS 222GL	Laboratory to General Physics for Life Sciences II	1 cr.

#### Departmental Requirements

BIOL 111G	Natural History of Life	3 cr.
BIOL 111GL	Natural History of Life Laboratory	1 cr. (3P)
BIOL 211G	Cellular and Organismal Biology	3 cr.
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr. (3P)
BIOL 301	Principles of Ecology	3 cr.
BIOL 305	Principles of Genetics	3 cr.
BIOL 377	Cell Biology	3 cr.
BIOL 467	Evolution	3 cr.

Sufficient credits numbered 300 or above to bring total upper-division credits in Biology to 28. At least one upper-division course must include laboratory and/or field experience. The laboratory/field requirement can be satisfied by any BIOL course above the 300 level that includes a laboratory or a field trip—including BIOL 350 or BIOL 450

#### Electives

Sufficient to bring the total credits to 120, including 48 upper-division credits.

### MAJOR: MICROBIOLOGY

The major in microbiology provides a solid academic base for those planning to enter any of the various fields of microbiology.

#### REQUIREMENTS

##### Nondepartmental Requirements

CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
CHEM 313	Organic Chemistry I	3 cr.
CHEM 314	Organic Chemistry II	3 cr.
CHEM 315	Organic Chemistry Laboratory	2 cr. (6P)
BCHE 395	Biochemistry I	3 cr.
MATH 191G	Calculus and Analytic Geometry I	4 cr.
A ST 311	Statistical Applications	3 cr.
PHYS 211G	General Physics I	3 cr.
	or	
PHYS 221G	General Physics for Life Sciences I	3 cr.
PHYS 212G	General Physics II	3 cr.
	or	
PHYS 222G	General Physics for Life Sciences II	3 cr.
PHYS 211GL	General Physics I Laboratory	1 cr.
	or	
PHYS 221GL	Laboratory to General Physics for Life Science I	1 cr.
PHYS 212GL	General Physics II Laboratory	1 cr.
	or	
PHYS 222GL	Laboratory to General Physics for Life Sciences II	1 cr.

#### Departmental Requirements

BIOL 111G	Natural History of Life	3 cr.
BIOL 111GL	Natural History of Life Laboratory	1 cr. (3P)
BIOL 211G	Cellular and Organismal Biology	3 cr.
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr.

		(3P)
BIOL 305	Principles of Genetics	3 cr.
BIOL 311	General Microbiology	3 cr.
BIOL 311 L	General Microbiology Laboratory	2 cr. (4P)
BIOL 451	Physiology of Microorganisms	3 cr.
	or	
BIOL 475	Virology	3 cr.
BIOL 474	Immunology	3 cr.
BIOL 478	Molecular Biology of Microorganisms	3 cr.
BIOL 479	Medical Microbiology	3 cr.
BIOL 479 L	Medical Microbiology Laboratory	1 cr.

Six additional credits related to microbiology numbered 300 or above to bring total upper-division credits in microbiology to 24. Acceptable microbiology courses include BIOL 412, BIOL 427, BIOL 451, BIOL 469, BIOL 471, BIOL 473, BIOL 475, BIOL 476, BIOL 477.

#### Electives

Sufficient to bring total credits to 120 including 48 upper-division credits.

### DEGREE: BACHELOR OF SCIENCE IN GENETICS

#### MAJOR: GENETICS AND BIOTECHNOLOGY

##### Codirectors of the Program:

**Professor**, Ralph Preszler, Department Head, Biology

**Associate Professor**, Rolston St. Hilaire, Interim Department Head, Plant and Environmental Sciences

**Professors** Bosland, Cramer, Houde, Milligan, Nishiguchi, O'Connell, Ray, Sengupta-Gopalan, St. Hilaire; **Associate Professors** Bailey, Curtiss, Dawe, C. Shuster, M. Shuster, Zhang

Have you ever wondered why your hair or eye color, facial features, or the build of your body resembles that of your parents, grandparents, or other close relatives? What factors are responsible for generating all the variety of colors and shapes of flowers, trees, and different types of animals? If these questions have crossed your mind, then you have been thinking about Genetics; the science of heredity. Genetics is studied at the DNA/gene/genome level (molecular genetics, biotechnology, genomics and bioinformatics), the level of organisms (classical or Mendelian genetics), and within/among populations of individuals (population and quantitative genetics). One of the most significant scientific accomplishments in history has been the use of genomic technologies to recently identify most human genes, as well as, most genes for a number of other animals, plants, fungi, and bacteria. Geneticists now have tremendous opportunities to use molecular, biochemical, mathematical, and computer science-based (bioinformatics) approaches to investigate how these genes determine observable traits. This information can be used to significantly advance human health and well being, and to meet the food and fiber needs of the world.

A degree in Genetics can provide excellent preparation for careers in academic research and technical support, teaching, agriculture, the biotechnology industry, medicine and health sciences, forensic science, technical writing, and sales or marketing. It is also an excellent background for students wishing to enter a graduate program, medical school, and veterinary school.

Undergraduates in the Genetics program must earn a grade of C- or better to receive credit for required Basic Science Background and Genetics Core courses. Within the Genetics Core curriculum, Tier I courses must be taken by all majors, for a total of 28 credit hours. To accommodate differing interests among students, a series of Tier II courses comprising 11 to 13 credits are provided. Ethical considerations of genetic based technologies will be infused throughout the curriculum, with a focused course on Science and Ethics in the Tier III portion of the core curriculum.

#### REQUIREMENTS

##### General Education Requirements (43 credits)

##### Area I: Communications

##### English Composition-Level 1

ENGL 111G	Rhetoric and Composition	4 cr.
ENGL 111GH	Rhetoric and Composition Honors	4 cr.



	or	
SPCD 111G	Advanced ESL Composition	4 cr.
	or	
ENGL 111 M	Rhetoric and Composition for International and Multilingual Students	4 cr.

**English Composition-Level 2**

ENGL 218G	Technical and Scientific Communication	3 cr.
	or	
ENGL 318G	Advanced Technical and Professional Communication	3 cr.

**Oral Communication**

AXED 201G	Effective Leadership and Communication in Agricultural Organizations	3 cr. (2+2P)
COMM 253G	Public Speaking	3 cr.
COMM 265G	Principles of Human Communication	3 cr.
	or	
HON 265G	Principles of Human Communication Honors	3 cr.

**Area II: Mathematics/Algebra**

MATH 191G	Calculus and Analytic Geometry I	4 cr.
-----------	----------------------------------	-------

**Area III: Laboratory Science**

CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)

**Area IV: Social/Behavioral Sciences (6-9)**

Total of 15 credits combined between Areas IV and V, with 6 credits in one area and 9 credits in the other area. See catalog for listing of available courses.

**Area V: Humanities and Fine Arts (6-9)**

Total of 15 credits combined between Areas IV and V, with 6 credits in one area and 9 credits in the other area. See catalog for listing of available courses.

**NMSU Viewing a Wider World (see catalog for listing of courses) (6)**

One VWW area will be satisfied using the nine-hour rule. Students with Biology as their home department will use GENE courses and students with Plant and Environmental Science as their home department use BIOL courses.

**Basic Science Background Requirements (42 credits)**

A ST 311	Statistical Applications	3 cr.
BCHE 395	Biochemistry I	3 cr.
BCHE 396	Biochemistry II	3 cr.
BIOL 111G	Natural History of Life	3 cr.
CHEM 111G	General Chemistry I	4 cr. (3+3P)
	or	
CHEM 115	Principles of Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
	or	
CHEM 116	Principles of Chemistry II	4 cr. (3+3P)
CHEM 313	Organic Chemistry I	3 cr.
CHEM 314	Organic Chemistry II	3 cr.
CHEM 315	Organic Chemistry Laboratory	2 cr. (6P)
MATH 191G	Calculus and Analytic Geometry I	4 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.
PHYS 211G	General Physics I	3 cr.
	or	
PHYS 221G	General Physics for Life Sciences I	3 cr.

PHYS 212G	General Physics II	3 cr.
	or	
PHYS 222G	General Physics for Life Sciences II	3 cr.

**Core Requirements (42-44 credits from Tier I, II, and III courses)****Tier I courses (all are required)**

GENE 110	Experimental Systems in Genetics	1 cr.
BIOL 211G	Cellular and Organismal Biology	3 cr.
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr. (3P)
BIOL 311	General Microbiology	3 cr.
BIOL 311 L	General Microbiology Laboratory	2 cr. (4P)
GENE 305 L	Genetic Techniques	1 cr. (3P)
GENE 315	Molecular Genetics	3 cr.
GENE 320	Hereditary and Population Genetics	3 cr.
BIOL 377	Cell Biology	3 cr.
GENE 440	Genetics Seminar	1 cr.
GENE 452	Applied Bioinformatics	3 cr.
	or	
BIOL 446	Bioinformatics and NCBI Database	3 cr.
BCHE 494	Biochemical Genetics Laboratory	3 cr. (1.25+6P)
	or	
BIOL 302	Molecular Biology Techniques Laboratory	3 cr. (6P)

**Tier II courses (choose one course from each of the following four areas)****Selection response**

AGRO 462	Plant Breeding	3 cr.
ANSC 423	Animal Breeding	3 cr. (2+2P)
BIOL 467	Evolution	3 cr.

**Physiology**

ANSC 421	Physiology of Reproduction	4 cr. (3+2P)
BIOL 354	Physiology of Humans	3 cr.
BIOL 381	Animal Physiology	3 cr.
BIOL 385	An Introduction to Cancer	3 cr.
BIOL 451	Physiology of Microorganisms	3 cr.
BIOL 474	Immunology	3 cr.
EPWS 314	Plant Physiology	3 cr.
HORT 471	Plant Mineral Nutrition	3 cr.

**Organism structure**

ANSC 370	Anatomy and Physiology of Farm Animals	4 cr. (3+2P)
BIOL 313	Structure and Function of Plants	3 cr. (2+3P)
BIOL 322	Zoology	3 cr. (2+3P)
BIOL 330	Comparative Anatomy and Embryology	4 cr. (3+3P)
BIOL 382	Plant Signalling and Development	3 cr.
BIOL 470	Developmental Biology	3 cr.
BIOL 465	Invertebrate Zoology	4 cr. (3+3P)
EPWS 303	Economic Entomology	4 cr. (3+2P)

**Molecular Genetics**

BIOL 475	Virology	3 cr.
BIOL 478	Molecular Biology of Microorganisms	3 cr.
GENE 486	Genes and Genomes	3 cr.
GENE 488	Gene Regulation	3 cr.

**Tier III courses (Choose one science and ethics course from the following)**

AGRO 303V	Genetics and Society	3 cr.
HON 306V	Science, Ethics and Society	3 cr.
PHIL 321	Biomedical Ethics	3 cr.

**Additional courses**

Electives to bring total to 120 credits including 48 upper division credits.

**Recommended Electives (Honors College)****Nine credits from the following:**

HON 205G	Life, Energy, and Evolution	4 cr. (3+3P)
HON 214	Successful Fellowship Writing	1 cr.
HON 225G	History of Ethics	3 cr.

**Six credits from the following:**

HON 306V	Science, Ethics and Society	3 cr.
HON 314	Successful Fellowship Writing	1 cr.
HON 322V	Science and Public Policy	3 cr.
HON 410	Honors Internship	3-6 cr.

**Three credits:**

HON 400	Honors Thesis	3 cr.
---------	---------------	-------

**Bioinformatics**

Students may pursue a minor in Bioinformatics after consulting with an advisor in the Computer Science Department. There are 19 credits of coursework required for this minor which include:

C S 171G	Introduction to Computer Science	4 cr. (3+2P)
C S 272	Introduction to Data Structures	4 cr. (3+2P)
C S 370	Compilers and Automata Theory	4 cr. (3+2P)
	or	
C S 371	Software Development	4 cr. (3+2P)
C S 486	Bioinformatics	3 cr.

**MINOR: BIOLOGY**

The courses of the Biology minor represent core biological content, critical for a general view of biology. A student cannot earn a bachelor's degree in Biology and also earn a minor in Biology.

**REQUIREMENTS**

A minor in Biology must include 20 credits in Biology, of which at least 9 credits must be numbered 300 and above.

**Required**

BIOL 111G	Natural History of Life	3 cr.
BIOL 111GL	Natural History of Life Laboratory	1 cr. (3P)
BIOL 211G	Cellular and Organismal Biology	3 cr.
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr. (3P)
BIOL 301	Principles of Ecology	3 cr.
	or	
BIOL 377	Cell Biology	3 cr.
BIOL 305	Principles of Genetics	3 cr.
BIOL 467	Evolution	3 cr.

No more than 3 credits of special topics or individual study courses may be applied to the minor. A grade of C- or better must be earned in all courses.

**MINOR: CONSERVATION ECOLOGY**

A minor in Conservation Ecology is available for students who choose to major in other areas, but wish to include Conservation Ecology in their academic training. A minor in Conservation Ecology must include a minimum of 20 credits in the discipline with 9 of these coming from upper-division courses.

**REQUIREMENTS****Core Curriculum (14 credits)**

BIOL 111G	Natural History of Life	3 cr.
BIOL 111GL	Natural History of Life Laboratory	1 cr. (3P)
BIOL 301	Principles of Ecology	3 cr.
	or	
FWCE 301	Wildlife Ecology	3 cr.
BIOL 462	Conservation Biology	3 cr.
FWCE 255	Principles of Fish and Wildlife Management	3 cr.
FWCE 402	Seminar in Natural Resource Management	1 cr.

**Two of the following (6 credits):**

BIOL 312	Plant Taxonomy	3 cr. (2+3P)
	or	
RGSC 316	Rangeland Plants	3 cr. (2+3P)
BIOL 313	Structure and Function of Plants	3 cr. (2+3P)
BIOL 322	Zoology	3 cr. (2+3P)
BIOL 408	Ecology of Plants	3 cr.
BIOL 465	Invertebrate Zoology	4 cr. (3+3P)
BIOL 467	Evolution	3 cr.
BIOL 480	Animal Behavior	3 cr.
BIOL 488	Principles of Conservation Genetics	3 cr.
ECON 384V	Water Resource Economics	3 cr.
ECON 337V	Natural Resource Economics	3 cr.
EPWS 303	Economic Entomology	4 cr. (3+2P)
EPWS 462	Parasitology	3 cr.
FWCE 330	Natural History of the Vertebrates	4 cr. (3+3P)
FWCE 409	Introduction to Population Ecology	3 cr.
FWCE 447	Wildlife Law and Policy	3 cr.
FWCE 464	Management of Aquatic and Terrestrial Ecosystems	4 cr. (3+2P)

**MINOR: GENETICS AND BIOTECHNOLOGY****REQUIREMENTS****Required Courses (18 credits)**

GENE 110	Experimental Systems in Genetics	1 cr.
BIOL 111G	Natural History of Life	3 cr.
BIOL 211G	Cellular and Organismal Biology	3 cr.
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr. (3P)
GENE 305 L	Genetic Techniques	1 cr. (3P)
GENE 452	Applied Bioinformatics	3 cr.

**Two of the following (6 credits):**

GENE 305	Principles of Genetics	3 cr.
GENE 315	Molecular Genetics	3 cr.
GENE 320	Hereditary and Population Genetics	3 cr.

**MINOR: HUMAN BIOLOGY**

The Human Biology minor is intended to provide academic recognition for students who wish to focus a significant amount of attention on courses that deal with human beings from a wide variety of biological standpoints. Thus, course work may encompass topics representing a range of viewpoints such as biological function, human ecology, human origins, and psychology. Successful completion of this minor will provide students with a valuable interdisciplinary

perspective on the human condition. This program consists of a minimum of 18 hours, that includes a minimum of 12 from within the Biology Department and a minimum of 3 outside the department. Successful completion of the minor will be certified by the Biology Department. A grade of C- or better is required of all minor courses.

## REQUIREMENTS

### Required Departmental Courses

BIOL 211G	Cellular and Organismal Biology	3 cr.
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr. (3P)
BIOL 254	Human Physiology	3 cr.
	or	
BIOL 353	Pre-Professional Human Anatomy	4 cr.
	or	
BIOL 354	Physiology of Humans	3 cr.

Any of BIOL 254, BIOL 353, or BIOL 354 not taken as a departmental requirement can be taken as one of the departmental elective courses.

### Additional courses to total 18 credits from

#### Within Department (minimum 5 credits)

BIOL 101G	Human Biology	3 cr.
BIOL 305	Principles of Genetics	3 cr.
BIOL 330	Comparative Anatomy and Embryology	4 cr. (3+3P)
BIOL 353 L	Pre-Professional Human Anatomy Laboratory	1 cr. (3P)
BIOL 354 L	Laboratory of Human Physiology	1 cr. (3P)
BIOL 385	An Introduction to Cancer	3 cr.
BIOL 424	Human Osteology	3 cr.
BIOL 424 L	Human Osteology Lab	1 cr. (1P)
BIOL 434	Human Evolution	3 cr.
BIOL 434 L	Human Evolution Laboratory	1 cr. (1P)
BIOL 469	Biology of Emerging Infectious Diseases	3 cr.
BIOL 470	Developmental Biology	3 cr.
BIOL 474	Immunology	3 cr.
BIOL 490	Neurobiology	3 cr.

#### Outside Department (minimum 3 credits; maximum 6 credits)

ANTH 130G	Human's Place in Nature: Introduction to Biological Anthropology	3 cr.
ANTH 130GL	Human's Place in Nature Laboratory	1 cr. (2P)
ANTH 355	Physical Anthropology	3 cr.
ANTH 357V	Medical Anthropology	3 cr.
HON 232G	The Human Mind	3 cr.
HON 306V	Science, Ethics and Society	3 cr.
PHLS 301V	Human Sexuality	3 cr.
PSY 374	Psychopharmacology and Toxicology	3 cr.
PSY 375	Psychology and the Brain	3 cr.

## MINOR: MICROBIOLOGY

A student cannot earn a bachelor's degree in Microbiology and also earn a minor in Microbiology.

## REQUIREMENTS

### Required Courses

BIOL 311	General Microbiology	3 cr.
BIOL 311 L	General Microbiology Laboratory	2 cr. (4P)
BCHE 341	Survey of Biochemistry	4 cr. (3+3P)

	or	
BCHE 395	Biochemistry I	3 cr.

### At least 11 credits from the following:

BIOL 412	Seminar in Microbiology	1 cr.
BIOL 451	Physiology of Microorganisms	3 cr.
BIOL 473	Ecology of Microorganisms	3 cr. (2+3P)
BIOL 474	Immunology	3 cr.
BIOL 475	Virology	3 cr.
BIOL 477	Applied and Environmental Microbiology	4 cr.
BIOL 478	Molecular Biology of Microorganisms	3 cr.
BIOL 479	Medical Microbiology	3 cr.
BIOL 479 L	Medical Microbiology Laboratory	1 cr.

## CHEMISTRY AND BIOCHEMISTRY

### Professor William Quintana, Department Head

**Professors** Arterburn, Eiceman, Gopalan, Herndon, Johnson, Quintana, Rayson, Smirnov, Zoski; **Associate Professors** Lara, Lusetti, Lyons, D. Smith; **Assistant Professors** Houston, Li, Maio, Yukl; **Adjunct Professors** Wollnik; **College Professors** Chinnasamy, Dunlavy, Potenza; **Emeritus Professor** Kuehn  
**phone: (575) 646-2505**  
**website: <http://www.chemistry.nmsu.edu/>**

A degree in chemistry or biochemistry enables a student to pursue a wide variety of careers in: research, production, sales, management and teaching. These degrees are also an excellent preparation for professional studies in medicine, dentistry, forensics, veterinary science, optometry, pharmacology, pharmacy and law.

Chemistry majors who have completed the requirements for the Bachelor of Science degree may receive American Chemical Society certification if they take one additional one-semester course which includes 1 credit of laboratory.

Students who complete a Bachelor of Science in Biochemistry and wish to complete the Bachelor of Arts in Chemistry must complete 3 additional upper division chemistry credits that are not counted in the Bachelor of Science in Biochemistry.

All departmental and nondepartmental requirements may not be taken S/U and must earn a C- or better final grade.

This department does not have a foreign language requirement for any of its degrees.

## DEGREE: BACHELOR OF ARTS

### MAJOR: CHEMISTRY

The Bachelor of Arts curriculum is designed to provide flexibility with less depth in chemistry, physics, and mathematics. The program may be used by students planning extensive study in other areas and requires emphasis in a second field of study. Emphasis area credits cannot be used for Bachelor of Arts degree.

## REQUIREMENTS

### Nondepartmental Requirements

MATH 191G	Calculus and Analytic Geometry I	4 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.
PHYS 211G	General Physics I	3 cr.
	and	
PHYS 212G	General Physics II	3 cr.
	or	
PHYS 221G	General Physics for Life Sciences I	3 cr.
	and	
PHYS 222G	General Physics for Life Sciences II	3 cr.
PHYS 211GL	General Physics I Laboratory	1 cr.
PHYS 212GL	General Physics II Laboratory	1 cr.

	Emphasis area	18 cr.
--	---------------	--------

(Nine credits must be upper-division. See advisor for approval.)

#### Departmental Requirements

CHEM 115	Principles of Chemistry I	4 cr. (3+3P)
	and	
CHEM 116	Principles of Chemistry II	4 cr. (3+3P)
	or	
CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
	and	
CHEM 217	General Chemistry III	3 cr. (2+3P)
CHEM 313	Organic Chemistry I	3 cr.
CHEM 314	Organic Chemistry II	3 cr.
CHEM 315	Organic Chemistry Laboratory	2 cr. (6P)
CHEM 356	Descriptive Inorganic Chemistry	3 cr.
CHEM 357	Synthetic Inorganic Laboratory	2 cr. (6P)
CHEM 371	Analytical Chemistry	4 cr. (2+6P)
CHEM 431	Physical Chemistry	3 cr.
CHEM 443	Senior Seminar	1 cr.
	Three additional chemistry credits	3 cr.

BCHE 341 or BCHE 395 can be used for electives but CHEM 310V will not count

#### Electives

sufficient to bring total credits to 120, including 48 upper-division.

### DEGREE: BACHELOR OF SCIENCE

#### MAJOR: BIOCHEMISTRY

#### REQUIREMENTS

##### Nondepartmental Requirements

A ST 311	Statistical Applications	3 cr.
BIOL 211G	Cellular and Organismal Biology	3 cr.
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr. (3P)
BIOL 311	General Microbiology	3 cr.
BIOL 311 L	General Microbiology Laboratory	2 cr. (4P)
BIOL 305	Principles of Genetics	3 cr.
	or	
GENE 320	Hereditary and Population Genetics	3 cr.
BIOL 377	Cell Biology	3 cr.
MATH 191G	Calculus and Analytic Geometry I	4 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.

##### Choose one of the following pairs:

PHYS 213	Mechanics	3 cr.
	and	
PHYS 214	Electricity and Magnetism	3 cr.
	or	
PHYS 211G	General Physics I	3 cr.
	and	
PHYS 212G	General Physics II	3 cr.
	or	
PHYS 215G	Engineering Physics I	3 cr.

	and	
PHYS 216G	Engineering Physics II	3 cr.
	or	
PHYS 221G	General Physics for Life Sciences I	3 cr.
	and	
PHYS 222G	General Physics for Life Sciences II	3 cr.

##### One of the following pairs:

PHYS 213 L	Experimental Mechanics	1 cr. (3P)
	and	
PHYS 214 L	Electricity and Magnetism Laboratory	1 cr. (3P)
	or	
PHYS 211GL	General Physics I Laboratory	1 cr.
	and	
PHYS 212GL	General Physics II Laboratory	1 cr.

##### Departmental Requirements

CHEM 115	Principles of Chemistry I	4 cr. (3+3P)
CHEM 116	Principles of Chemistry II	4 cr. (3+3P)
	or	
CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
	and	
CHEM 217	General Chemistry III	3 cr. (2+3P)
CHEM 313	Organic Chemistry I	3 cr.
CHEM 314	Organic Chemistry II	3 cr.
CHEM 315	Organic Chemistry Laboratory	2 cr. (6P)
CHEM 371	Analytical Chemistry	4 cr. (2+6P)
BCHE 140	Introduction to Biochemistry	1 cr.
BCHE 395	Biochemistry I	3 cr.
BCHE 396	Biochemistry II	3 cr.
BCHE 397	Experimental Biochemistry Laboratory	3 cr.
BCHE 440	Biochemistry Seminar	1 cr.
BCHE 494	Biochemical Genetics Laboratory	3 cr. (1.25+6P)

##### Choose one of the following pairs:

CHEM 433	Physical Chemistry I	3 cr.
	and	
CHEM 434	Physical Chemistry II	3 cr.
	or	
CHEM 431	Physical Chemistry	3 cr.
	and	
CHEM 456	Inorganic Structure and Bonding	3 cr.
	or	
CHEM 431	Physical Chemistry	3 cr.
	and	
CHEM 356	Descriptive Inorganic Chemistry	3 cr.
	or	
CHEM 431	Physical Chemistry	3 cr.
	and	
BCHE 432	Physical Biochemistry	3 cr.

##### Choose one of the following additional classes not used to fulfill another departmental requirement:

BCHE 432	Physical Biochemistry	3 cr.
----------	-----------------------	-------

BCHE 446	Biochemistry III	3 cr.
BCHE 451	Special Topics	1-3 cr.

BCHE 451: by petition only

#### Electives

Sufficient other courses to bring total credits to 120, including 48 upper division. CHEM 310G will not count.

### MAJOR: CHEMISTRY

#### REQUIREMENTS

##### Nondepartmental Requirements

MATH 191G	Calculus and Analytic Geometry I	4 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.
MATH 291G	Calculus and Analytic Geometry III	3 cr.
PHYS 213	Mechanics	3 cr.
PHYS 213 L	Experimental Mechanics	1 cr. (3P)
PHYS 214	Electricity and Magnetism	3 cr.
PHYS 214 L	Electricity and Magnetism Laboratory	1 cr. (3P)
PHYS 315	Modern Physics	3 cr.

##### One of the following:

MATH 391	Vector Analysis	3 cr.
MATH 392	Introduction to Ordinary Differential Equations	3 cr.
C S 172	Computer Science I	4 cr. (3+2P)
STAT 371	Statistics for Engineers and Scientists I	3 cr.

##### Departmental Requirements

BCHE 395	Biochemistry I	3 cr.
	or	
BCHE 341	Survey of Biochemistry	4 cr. (3+3P)
CHEM 115	Principles of Chemistry I	4 cr. (3+3P)
CHEM 116	Principles of Chemistry II	4 cr. (3+3P)
	or	
CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
CHEM 217	General Chemistry III	3 cr. (2+3P)
CHEM 242	Explorations in Chemistry	1 cr.
CHEM 313	Organic Chemistry I	3 cr.
CHEM 314	Organic Chemistry II	3 cr.
CHEM 315	Organic Chemistry Laboratory	2 cr. (6P)
CHEM 356	Descriptive Inorganic Chemistry	3 cr.
CHEM 357	Synthetic Inorganic Laboratory	2 cr. (6P)
CHEM 371	Analytical Chemistry	4 cr. (2+6P)
CHEM 433	Physical Chemistry I	3 cr.
CHEM 434	Physical Chemistry II	3 cr.
CHEM 435	Physical Chemistry Laboratory	2 cr. (6P)
CHEM 443	Senior Seminar	1 cr.
CHEM 456	Inorganic Structure and Bonding	3 cr.
CHEM 471	Instrumental Methods of Analysis	4 cr. (3+3P)

#### Electives

Sufficient to bring total credits to 120, including 48 upper-division.

Note: Students should work closely with their advisors and review carefully the prerequisites for and the sequential nature of courses required for the Bachelor of Science. There is no foreign language requirement for any baccalaureate degree from this department.

### MINOR: BIOCHEMISTRY

#### REQUIREMENTS

##### Required Courses

BCHE 395	Biochemistry I	3 cr.
CHEM 111G	General Chemistry I	4 cr. (3+3P)
	or	
CHEM 115	Principles of Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
	or	
CHEM 116	Principles of Chemistry II	4 cr. (3+3P)
CHEM 313	Organic Chemistry I	3 cr.
CHEM 314	Organic Chemistry II	3 cr.
	One additional Biochemistry (BCHE) course	1-3 cr.

##### The following (BCHE) courses do not count towards minor: B

Toxicology and Supplemental Instruction (SI) courses are not accepted.

BCHE 341	Survey of Biochemistry	4 cr. (3+3P)
BCHE 440	Biochemistry Seminar	1 cr.

##### Course provisionally allowed:

Toxicology and Supplemental Instruction (SI) courses are not accepted.

BCHE 441	Advanced Research in Biochemistry	1-3 cr.
BCHE 451	Special Topics	1-3 cr.

BCHE 441:3 credits maximum; BCHE 451: by petition only

### MINOR: CHEMISTRY

#### REQUIREMENTS

##### Required Courses

CHEM 111G	General Chemistry I	4 cr. (3+3P)
	or	
CHEM 115	Principles of Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
	or	
CHEM 116	Principles of Chemistry II	4 cr. (3+3P)
CHEM 211	Organic Chemistry	4 cr. (3+3P)
	or	
CHEM 313	Organic Chemistry I	3 cr.
CHEM 314	Organic Chemistry II	3 cr.

Sufficient additional upper division CHEM/BCHE credits to bring total upper division CHEM/BCHE credits to at least 9. Recommendations are below (2-6)

##### Recommended courses for Physical/Analytical Chemistry emphases

CHEM 356	Descriptive Inorganic Chemistry	3 cr.
CHEM 371	Analytical Chemistry	4 cr. (2+6P)

CHEM 431	Physical Chemistry	3 cr.
----------	--------------------	-------

**Recommended courses for Biochemical emphasis**

CHEM 313	Organic Chemistry I	3 cr.
CHEM 314	Organic Chemistry II	3 cr.
BCHE 341	Survey of Biochemistry	4 cr. (3+3P)

**The following courses do not count towards a minor in Chemistry**

CHEM 100	Basic Chemistry	3 cr.
CHEM 110G	Principles and Applications of Chemistry	4 cr. (3+3P)
CHEM 217	General Chemistry III	3 cr. (2+3P)
CHEM 241	Introduction to Research	1-3 cr. (3+9P)
CHEM 310V	Chemistry and Society	3 cr.
CHEM 351	Special Topics	1-3 cr.
CHEM 443	Senior Seminar	1 cr.

No BCHE courses except BCHE 341, Survey of Biochemistry.; Toxicology and supplemental instruction (SI) courses are not accepted.

**Course provisionally allowed:**

CHEM 441	Advanced Research	1-3 cr. (3+9P)
CHEM 451	Special Topics	1-3 cr.

CHEM 441: 3 credits maximum; CHEM 451: by petition only

**MINOR: ENVIRONMENTAL CHEMISTRY**

Students must pass the courses listed below. Check the undergraduate catalog for prerequisites.

**REQUIREMENTS****Required Courses:**

BIOL 477	Applied and Environmental Microbiology	4 cr.
C E 256	Environmental Engineering and Science	3 cr.
C E 355V	Technology and the Global Environment	3 cr.
C E 356	Fundamentals of Environmental Engineering	3 cr.
CHEM 111G	General Chemistry I	4 cr. (3+3P)
	or	
CHEM 115	Principles of Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
	or	
CHEM 116	Principles of Chemistry II	4 cr. (3+3P)
CHEM 211	Organic Chemistry	4 cr. (3+3P)
	or	
CHEM 313	Organic Chemistry I	3 cr.
CHEM 314	Organic Chemistry II	3 cr.
CHEM 315	Organic Chemistry Laboratory	2 cr. (6P)
CHEM 371	Analytical Chemistry	4 cr. (2+6P)
	or	
CHEM 471	Instrumental Methods of Analysis	4 cr. (3+3P)
CHEM 422	Environmental Chemistry	3 cr.
CHEM 424	Soil Chemistry	3 cr.

CHEM 451	Special Topics	1-3 cr.
I E 411	Occupational Safety	3 cr.
TOX 361	Basic Toxicology	3 cr.

B.A. or B.S. majors in Chemistry or Biochemistry must pass an additional 9 credits from these courses; CHEM 451: as appropriate

**The following courses do not count toward a minor in Environmental Chemistry:**

CHEM 100	Basic Chemistry	3 cr.
CHEM 110G	Principles and Applications of Chemistry	4 cr. (3+3P)
CHEM 310V	Chemistry and Society	3 cr.

Supplemental instruction (SI) courses are not accepted.

## COMMUNICATION STUDIES

**Associate Professor, Kenneth L. Hacker, Department Head**

**Professor** Hacker; **Associate Professors** Hubbell, Flora, Morgan; **Assistant Professors** Armfield  
**phone: (575) 646-2801**  
**website: <http://web.nmsu.edu/~nmsucomm/>**

The communication studies program is designed to enhance students' interpersonal skills, presentation skills and critical thinking skills. Thus the successful graduate should be able to work effectively with people, assimilate, organize and analyze information, solve problems, make effective presentations and show potential for leadership. The program prepares students for careers in several professions, such as training and development, public relations, law, advertising and sales, government service, mediation, customer relations, human resources, international service, fundraising and the ministry.

**DEGREE: BACHELOR OF ARTS****MAJOR: COMMUNICATION STUDIES**

In addition to completing the general education requirements of the university and the college, students majoring in communication studies are required to complete 21 credits of core COMM courses and 15 credits of COMM electives for a total of 36 credits. Any exception to these policies requires department head approval.

All COMM courses must be completed with a grade of C- or better.

**REQUIREMENTS****Communication Studies Core Courses (21 credits)**

COMM 265G	Principles of Human Communication	3 cr.
COMM 285	Survey of Communication Theory	3 cr.
COMM 305	Communication Research Methods	3 cr.
COMM 351	Persuasion Theory and Practice	3 cr.
COMM 370	Organizational Communication	3 cr.
COMM 376	Communication and Culture	3 cr.
COMM 384	Interpersonal Communication	3 cr.

**Communication Studies Elective Courses (15 credits)**

To reach a total of 36 credits, students must complete successfully an additional 15 COMM credits of their choosing.

Students seeking the BA in Communication Studies must meet the second language requirement. Take two years of a second language or complete the second language through the 212 or 214 level as indicated in Section III of the College Degree Requirement section.

**MINOR: COMMUNICATION AND NATIONAL SECURITY****REQUIREMENTS**

A minor in Communication and National Security consists of 18 credits, 12 credits of required course and 6 credits of electives. All courses must be completed with grades of "C-" or better.

**Required Courses (12 credits)**

COMM 455	Fundamentals of Communication and National	3 cr.
----------	--	-------

	Security	
COMM 456	Communication and the Intelligence Cycle	3 cr.
COMM 457	Strategic Communication and Public Diplomacy	3 cr.
COMM 458	Intercultural Communication and National Security	3 cr.

**Two additional courses (6 credit hours) from the following courses**

C J 412	Introduction to Security Technology and Loss Prevention	3 cr.
GEOG 281	Map Use: Reading, Analysis and Interpretation	3 cr. (2+3P)
GEOG 363V	Cultural Geography	3 cr.
GOVT 364	National Security Policy	3 cr.
SOC 362	Urban Society in a Global World: Problems, Prospects, and Promises	3 cr.
SOC 478	Sociology of Development and the World System	3 cr.
SOC 489	Globalization	3 cr.

Note: If any of the above courses are not available the department will consider course substitutions.

**MINOR: COMMUNICATION STUDIES****REQUIREMENTS**

A minor in Communication Studies consists of 18 credits; at least 9 of those credits must be in courses numbered 300 or above. All courses must be completed with grades of C- or better.

**Required Course**

COMM 265G	Principles of Human Communication	3 cr.
-----------	-----------------------------------	-------

**Two courses from the following:**

COMM 370	Organizational Communication	3 cr.
COMM 376	Communication and Culture	3 cr.
COMM 384	Interpersonal Communication	3 cr.

**Three courses of the following:**

COMM 253G	Public Speaking	3 cr.
COMM 285	Survey of Communication Theory	3 cr.
COMM 305	Communication Research Methods	3 cr.
COMM 351	Persuasion Theory and Practice	3 cr.
COMM 353	Advanced Public Speaking	3 cr.
COMM 377	Conflict Management	3 cr.
COMM 425	Small Group Communication	3 cr.
COMM 440	Political Communication	3 cr.
COMM 450	Technologies of Human Communication	3 cr.
COMM 465	Nonverbal Communication	3 cr.
COMM 470	Leadership Communication	3 cr.
COMM 475	International Communication	3 cr.
COMM 480	Health Communication	3 cr.
COMM 490	Independent Study	1-3 cr.
COMM 491	Selected Topics	1-6 cr.

**COMPUTER SCIENCE****Professor Jonathan Cook, Interim Department Head**

**Professors** Cook, Leung, Pontelli, Tran; **Associate Professors** Misra, Pivkina, Song; **Assistant Professors** Cao, Jin, Toups, Xu, Yeoh, Zheng; **College**

**Professors** Cooper, Steiner

**phone:** (575) 646-3723

**website:** <http://www.cs.nmsu.edu>

The undergraduate computer science programs prepare students for graduate study in computer science and for employment in positions involving the design, construction and application of computer systems. Students should review their programs of study in consultation with their advisors each semester, preferably using the most recent Undergraduate Catalog. The department also offers a

minor degree, with specialized tracks in algorithm theory, bioinformatics, computer systems and software development. For more information on the Department of Computer Science, please visit the web site [www.cs.nmsu.edu](http://www.cs.nmsu.edu).

**DEGREE: BACHELOR OF ARTS  
MAJOR: COMPUTER SCIENCE**

The Bachelor of Arts in Computer Science is an open, flexible degree plan that offers the student both a rigorous undergraduate degree program in Computer Science and an extensive open credit hour allotment to pursue knowledge in other domains. It is an excellent choice to combine into a double major program, and is an option for the student who has an interest in learning both domain knowledge in some areas outside of Computer Science, and in acquiring a Computer Science background sufficient to pursue a strong technology career.

Students planning to undertake graduate work in Computer Science are encouraged to pursue the Bachelor of Science degree rather than the Bachelor of Arts degree. Students interested in graduate work should consult with their advisor regarding the possibility of taking other computer science electives to satisfy their departmental requirements.

**General Requirements Exception**

A grade of a least C- must be earned in each of the courses taken to satisfy the departmental and non-departmental requirements. No course may be counted as satisfying both a departmental and a non-departmental requirement. No course taken to satisfy either a departmental or a non-departmental requirement may be taken S/U.

**REQUIREMENTS****Departmental Requirements (48-49 credits)**

C S 172	Computer Science I	4 cr. (3+2P)
C S 271	Object Oriented Programming	4 cr. (3+2P)
C S 272	Introduction to Data Structures	4 cr. (3+2P)
C S 273	Machine Programming and Organization	4 cr. (3+2P)
C S 278	Discrete Mathematics for Computer Science	4 cr. (3+2P)
	or	
MATH 278	Discrete Mathematics for Computer Science	4 cr. (3+1P)
C S 370	Compilers and Automata Theory	4 cr. (3+2P)
C S 371	Software Development	4 cr. (3+2P)
C S 419	Computing Ethics and Social Implications of Computing	1 cr.
C S 448	Senior Project	4 cr.
	or	
C S 449	Senior Thesis	4 cr.
C S 482	Database Management Systems I	3 cr.

**Two courses from the following (List 1):**

A course can satisfy only one requirement

C S 372	Data Structures and Algorithms	4 cr. (3+2P)
C S 471	Programming Language Structure I	3 cr.
C S 472	Logic and Constraint Logic Programming	3 cr.
C S 473	Architectural Concepts I	3 cr.
C S 474	Operating Systems I	3 cr.
C S 475	Artificial Intelligence I	3 cr.
C S 476	Computer Graphics I	3 cr.
C S 478	Computer Security	3 cr.

C S 479	Special Topics	1-6 cr.
C S 480	Linux System Administration	3 cr.
C S 481	Visual Programming	3 cr.
C S 483	Introduction to Robotics	3 cr.
C S 484	Computer Networks I	3 cr.
C S 485	User Interface Design	3 cr.
C S 486	Bioinformatics	3 cr.
C S 488	Introduction to Data Mining	3 cr.
C S 491	Parallel Programming	3 cr.

Note: C S 479 (Special Topics) must be taken for 3 credits to count as one course.

**Two courses from the following (List 2):**

A course can satisfy only one requirement

C S 472	Logic and Constraint Logic Programming	3 cr.
C S 475	Artificial Intelligence I	3 cr.
C S 476	Computer Graphics I	3 cr.
C S 478	Computer Security	3 cr.
C S 479	Special Topics	1-6 cr.
C S 480	Linux System Administration	3 cr.
C S 481	Visual Programming	3 cr.
C S 483	Introduction to Robotics	3 cr.
C S 484	Computer Networks I	3 cr.
C S 485	User Interface Design	3 cr.
C S 486	Bioinformatics	3 cr.
C S 488	Introduction to Data Mining	3 cr.
C S 491	Parallel Programming	3 cr.

Note: C S 479 (Special Topics) must be taken for 3 credits to count as one course.

**Non-departmental Requirements (18-21 credits)**

	Two upper-division courses in any one department except Computer Science	6-8 cr.
	Upper division electives to bring total upper division to 48: varied	
	Electives as needed to meet minimum credit requirements	

**One course from the following:**

COMM 253G	Public Speaking	3 cr.
COMM 265G	Principles of Human Communication	3 cr.
HON 265G	Principles of Human Communication Honors	3 cr.

**One course from the following:**

ENGL 218G	Technical and Scientific Communication	3 cr.
ENGL 311G	Advanced Composition	3 cr.
ENGL 318G	Advanced Technical and Professional Communication	3 cr.

**One course from the following:**

MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)
MATH 235	Calculus for the Technical Student I	3 cr.
MATH 191G	Calculus and Analytic Geometry I	4 cr.

**One course from the following:**

STAT 251G	Statistics for Business and the Behavioral Sciences	3 cr.
STAT 271G	Statistics for Psychological Sciences	3 cr.
STAT 371	Statistics for Engineers and Scientists I	3 cr.
STAT 470	Probability: Theory and Applications	3 cr.
A ST 251G	Statistics for Business and the Behavioral Sciences	3 cr.
A ST 311	Statistical Applications	3 cr.

A course can satisfy only one requirement.

**A SUGGESTED PLAN OF STUDY FOR STUDENTS**

**Freshman Year (29+ credits)**

C S 111	Computer Science Principles	4 cr. (3+2P)
ENGL 111G	Rhetoric and Composition	4 cr.
MATH 121G	College Algebra	3 cr.

COMM 265G	Principles of Human Communication	3 cr.
C S 172	Computer Science I	4 cr. (3+2P)
MATH 190G	Trigonometry and Precalculus	4 cr. (3+2P)
	AREA III: Laboratory Science	4 cr.
	AREA IV: Social/ Behavioral Sciences	3 cr.
	Electives as needed to meet minimum credit requirements	

**Sophomore Year (28+ credits)**

C S 271	Object Oriented Programming	4 cr. (3+2P)
C S 273	Machine Programming and Organization	4 cr. (3+2P)
C S 272	Introduction to Data Structures	4 cr. (3+2P)
C S 278	Discrete Mathematics for Computer Science	4 cr. (3+2P)
	AREA IV: Social/ Behavioral Sciences	3 cr.
	AREA V: Humanities and Fine Arts	3 cr.
	Electives as needed to meet minimum credit requirements	

**One course from the following:**

MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)
MATH 235	Calculus for the Technical Student I	3 cr.
MATH 191G	Calculus and Analytic Geometry I	4 cr.

**One course from the following:**

ENGL 218G	Technical and Scientific Communication	3 cr.
ENGL 311G	Advanced Composition	3 cr.
ENGL 318G	Advanced Technical and Professional Communication	3 cr.

**Junior Year (30-31 credits)**

C S 370	Compilers and Automata Theory	4 cr. (3+2P)
C S 371	Software Development	4 cr. (3+2P)
	AREA III: Laboratory Science	4 cr.
	C S elective, List 1	3 cr.
	C S elective, List 1	3 cr.
	Upper division from another department	3-4 cr.
	Viewing a Wider World	3 cr.
	Area IV & Area V	3 cr.

**One of the following:**

STAT 251G	Statistics for Business and the Behavioral Sciences	3 cr.
STAT 271G	Statistics for Psychological Sciences	3 cr.
STAT 371	Statistics for Engineers and Scientists I	3 cr.
STAT 470	Probability: Theory and Applications	3 cr.
A ST 251G	Statistics for Business and the Behavioral Sciences	3 cr.
A ST 311	Statistical Applications	3 cr.

**Senior Year (varied credits)**

For electives see lists above

C S 482	Database Management Systems I	3 cr.
	Two C S electives, List 2	6 cr.
	Upper division from another department	3-4 cr.
	Viewing a Wider World	3 cr.
	AREA V: Humanities and Fine Arts	3 cr.
C S 448	Senior Project	4 cr.
C S 419	Computing Ethics and Social Implications of Computing	1 cr.
	Upper division electives to bring total upper division to 48	



	Electives as needed to meet minimum credit requirements	
--	---	--

**DEGREE: BACHELOR OF SCIENCE**  
**MAJOR: COMPUTER SCIENCE**

The Bachelor of Science in Computer Science is the traditional undergraduate degree in Computer Science. It is rigorously focused on educating the student in the fundamental disciplines of Computer Science. It prepares the student for any technological field in industry, and also provides the preparation for graduate studies in Computer Science. It is the main undergraduate degree in the Computer Science department, and should be the choice of a single-major Computer Science student.

**General Requirements Exception**

A grade of at least C- must be earned in each of the courses taken to satisfy the departmental and non-departmental requirements. No course may be counted as satisfying both a departmental and a non-departmental requirement. No course taken to satisfy either a departmental or a non-departmental requirement may be taken S/U.

**REQUIREMENTS**

**Departmental Requirements (52 credits)**

C S 172	Computer Science I	4 cr. (3+2P)
C S 271	Object Oriented Programming	4 cr. (3+2P)
C S 272	Introduction to Data Structures	4 cr. (3+2P)
C S 273	Machine Programming and Organization	4 cr. (3+2P)
C S 278	Discrete Mathematics for Computer Science	4 cr. (3+2P)
	or	
MATH 278	Discrete Mathematics for Computer Science	4 cr. (3+1P)
C S 370	Compilers and Automata Theory	4 cr. (3+2P)
C S 371	Software Development	4 cr. (3+2P)
C S 372	Data Structures and Algorithms	4 cr. (3+2P)
C S 419	Computing Ethics and Social Implications of Computing	1 cr.
C S 448	Senior Project	4 cr.
	or	
C S 449	Senior Thesis	4 cr.
C S 471	Programming Language Structure I	3 cr.
C S 473	Architectural Concepts I	3 cr.
C S 474	Operating Systems I	3 cr.

**Two courses from the following**

C S 472	Logic and Constraint Logic Programming	3 cr.
C S 475	Artificial Intelligence I	3 cr.
C S 476	Computer Graphics I	3 cr.
C S 478	Computer Security	3 cr.
C S 479	Special Topics	1-6 cr.
C S 480	Linux System Administration	3 cr.
C S 481	Visual Programming	3 cr.
C S 482	Database Management Systems I	3 cr.
C S 483	Introduction to Robotics	3 cr.
C S 484	Computer Networks I	3 cr.
C S 485	User Interface Design	3 cr.
C S 486	Bioinformatics	3 cr.

C S 488	Introduction to Data Mining	3 cr.
C S 491	Parallel Programming	3 cr.

A course can satisfy only one requirement. C S 479 (Special Topics) must be taken for 3 credits to count as a course.

**Non-departmental Requirements (35 credits)**

MATH 280	Introduction to Linear Algebra	3 cr.
	or	
MATH 480	Matrix Theory and Applied Linear Algebra	3 cr.
MATH 191G	Calculus and Analytic Geometry I	4 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.

**One course from the following**

COMM 253G	Public Speaking	3 cr.
COMM 265G	Principles of Human Communication	3 cr.
HON 265G	Principles of Human Communication Honors	3 cr.

**One course from the following**

ENGL 218G	Technical and Scientific Communication	3 cr.
ENGL 311G	Advanced Composition	3 cr.
ENGL 318G	Advanced Technical and Professional Communication	3 cr.

**One course from the following**

MATH 331	Introduction to Modern Algebra	3 cr.
MATH 332	Introduction to Analysis	3 cr.
MATH 377	Introduction to Numerical Methods	3 cr.
MATH 392	Introduction to Ordinary Differential Equations	3 cr.
MATH 430	Combinatorial Mathematics	3 cr.
MATH 454	Mathematical Logic	3 cr.
MATH 455	Elementary Number Theory	3 cr.

**One course from the following**

A ST 311	Statistical Applications	3 cr.
STAT 371	Statistics for Engineers and Scientists I	3 cr.
STAT 470	Probability: Theory and Applications	3 cr.

**Two of the following lab science courses (List 1):**

ASTR 110G	Introduction to Astronomy	4 cr. (3+2P)
BIOL 111G	Natural History of Life	3 cr.
	and	
BIOL 111GL	Natural History of Life Laboratory	1 cr. (3P)
BIOL 211G	Cellular and Organismal Biology	3 cr.
	and	
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr. (3P)
CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
CHEM 114	General Chemistry for Engineers	4 cr. (3+3P)
GEOG 111G	Geography of the Natural Environment	4 cr. (3+3P)
GEOL 111G	Survey of Geology	4 cr. (3+3P)
HON 205G	Life, Energy, and Evolution	4 cr. (3+3P)
HON 219G	Earth, Time, and Life	4 cr. (3+3P)
PHYS 211G	General Physics I	3 cr.
	and	
PHYS 211GL	General Physics I Laboratory	1 cr.

PHYS 212G	General Physics II	3 cr.
	and	
PHYS 212GL	General Physics II Laboratory	1 cr.
PHYS 215G	Engineering Physics I	3 cr.
	and	
PHYS 215GL	Engineering Physics I Laboratory	1 cr. (3P)
PHYS 216G	Engineering Physics II	3 cr.
	and	
PHYS 216GL	Engineering Physics II Laboratory	1 cr. (3P)

**One course from the following lab science courses (List 2):**

BIOL 111G	Natural History of Life	3 cr.
	and	
BIOL 111GL	Natural History of Life Laboratory	1 cr. (3P)
BIOL 211G	Cellular and Organismal Biology	3 cr.
	and	
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr. (3P)
CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
CHEM 114	General Chemistry for Engineers	4 cr. (3+3P)
HON 205G	Life, Energy, and Evolution	4 cr. (3+3P)
PHYS 211G	General Physics I	3 cr.
	and	
PHYS 211GL	General Physics I Laboratory	1 cr.
PHYS 212G	General Physics II	3 cr.
	and	
PHYS 212GL	General Physics II Laboratory	1 cr.
PHYS 213	Mechanics	3 cr.
	and	
PHYS 213 L	Experimental Mechanics	1 cr. (3P)
PHYS 214	Electricity and Magnetism	3 cr.
	and	
PHYS 214 L	Electricity and Magnetism Laboratory	1 cr. (3P)
PHYS 215G	Engineering Physics I	3 cr.
	and	
PHYS 215GL	Engineering Physics I Laboratory	1 cr. (3P)
PHYS 216G	Engineering Physics II	3 cr.
	and	
PHYS 216GL	Engineering Physics II Laboratory	1 cr. (3P)

A course can satisfy only one requirement.

**A SUGGESTED PLAN OF STUDY FOR STUDENTS**

The following plan applies to students who qualify to take MATH 191G.

**Freshman Year (30 credits)**

C S 172	Computer Science I	4 cr. (3+2P)
C S 271	Object Oriented Programming	4 cr. (3+2P)
C S 273	Machine Programming and Organization	4 cr. (3+2P)
ENGL 111G	Rhetoric and Composition	4 cr.
MATH 191G	Calculus and Analytic Geometry I	4 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.
	AREA IV: Social/ Behavioral Sciences	3 cr.
	AREA V: Humanities and Fine Arts	3 cr.

AREA IV: Social/ Behavioral Sciences and AREA V: Humanities and Fine Arts:  
New Mexico State Common Core Requirements

**Sophomore Year (34 credits)**

C S 272	Introduction to Data Structures	4 cr. (3+2P)
C S 278	Discrete Mathematics for Computer Science	4 cr. (3+2P)
C S 370	Compilers and Automata Theory	4 cr. (3+2P)
C S 372	Data Structures and Algorithms	4 cr. (3+2P)
COMM 265G	Principles of Human Communication	3 cr.
ENGL 218G	Technical and Scientific Communication	3 cr.
MATH 280	Introduction to Linear Algebra	3 cr.
	or	
MATH 480	Matrix Theory and Applied Linear Algebra	3 cr.
	AREA IV: Social/ Behavioral Sciences	3 cr.
	AREA V: Humanities and Fine Arts	3 cr.

AREA IV: Social/ Behavioral Sciences and AREA V: Humanities and Fine Arts:  
New Mexico State Common Core Requirements

**One course from the following:**

A ST 311	Statistical Applications	3 cr.
STAT 371	Statistics for Engineers and Scientists I	3 cr.
STAT 470	Probability: Theory and Applications	3 cr.

**Junior Year (33 credits)**

For electives see lists above

C S 371	Software Development	4 cr. (3+2P)
C S 471	Programming Language Structure I	3 cr.
C S 473	Architectural Concepts I	3 cr.
	Computer Science 400-level Elective	3
	MATH elective (upper division)	3 cr.
	Lab Science Elective	4 cr.
	Lab Science Elective	4 cr.
	Area IV & Area V	3 cr.
	Viewing a Wider World	3 cr.
	Viewing a Wider World	3

AREA IV & IV and Viewing a Wider World: New Mexico State Common Core Requirements

**Senior Year (33 credits)**

For electives see lists above

C S 448	Senior Project	4 cr.
C S 419	Computing Ethics and Social Implications of Computing	1 cr.
C S 474	Operating Systems I	3 cr.
	Lab Science Elective	4 cr.
	Computer Science 400-level Elective	3
	Upper division electives to bring total upper division to 48	
	Electives as needed to meet minimum credit requirements	

Students planning to undertake graduate work in computer science are encouraged to consult with their advisor regarding the possibility of taking other computer science electives to satisfy their departmental requirements.

## JOINT DEGREE: BACHELOR OF SCIENCE AND MASTER OF SCIENCE

### 5 Year Dual Degree BS+ MS Program

The dual degree program combines some of the requirements of the Bachelor of Science (BS) and the Master of Science (MS) in Computer Science. It is very important for the student to apply to the BS+MS program before they take any 400-level C S courses. Full details of the program can be found at <http://www.cs.nmsu.edu>.

Admission occurs in two steps. First, students will apply to the Computer Science department to receive approval for the BS+MS program. The student submits the pre-application when he/she is within 48 credits of earning a BS in Computer Science; an application form is provided on the department website. Qualification for the BS+MS program will be based on the cumulative (non-grade replaced) grade point average in Computer Science and Math courses taken up to that point (at least 3.5), including at least two of the following: C S 370, C S 371 and C S 372, and recommendations by faculty members listed on the departmental application. Additional factors might be taken into account when available (e.g., GRE scores). Students having a grade point average below 3.5 may be admitted to the combined program on a case-by-case basis, depending on faculty recommendations and evaluations of the individual academic and professional history. Once the Computer Science department has notified the applicant of acceptance in the combined BS+MS program, the applicant must then formally apply to the graduate school ([prospective.nmsu.edu/graduate](http://prospective.nmsu.edu/graduate)) for formal admission to the graduate program. This application to the graduate school is made during the semester of graduation from the BS in Computer Science.

The curriculum for the first three years of the BS+MS program coincides with the requirements of the BS program. In particular, the general requirements include a grade of at least a C- in each course satisfying the departmental and non-departmental requirements. No course may be counted as satisfying both a departmental and non-departmental requirement. No course taken to satisfy either a departmental or non-departmental requirement may be taken S/U. The following are the departmental requirements for the degree (the non-departmental requirements are identical to those of the BS in Computer Science).

## REQUIREMENTS

### Departmental Requirements for Years 1 through 4

C S 172	Computer Science I	4 cr. (3+2P)
C S 271	Object Oriented Programming	4 cr. (3+2P)
C S 272	Introduction to Data Structures	4 cr. (3+2P)
C S 273	Machine Programming and Organization	4 cr. (3+2P)
C S 278	Discrete Mathematics for Computer Science	4 cr. (3+2P)
C S 370	Compilers and Automata Theory	4 cr. (3+2P)
C S 371	Software Development	4 cr. (3+2P)
C S 372	Data Structures and Algorithms	4 cr. (3+2P)
C S 419	Computing Ethics and Social Implications of Computing	1 cr.
C S 449	Senior Thesis	4 cr.
	or	
C S 448	Senior Project	4 cr.
C S 471	Programming Language Structure I	3 cr.
C S 473	Architectural Concepts I	3 cr.
C S 474	Operating Systems I	3 cr.

### One course from the following

C S 501	Functional Programming	3 cr.
---------	------------------------	-------

C S 502	Database Management Systems I	3 cr.
C S 503	Introduction to Robotics	3 cr.
C S 504	Computer Networks I	3 cr.
C S 505	Artificial Intelligence I	3 cr.
C S 506	Computer Graphics I	3 cr.
C S 508	Introduction to Data Mining	3 cr.
C S 511	Logic and Constraint Logic Programming	3 cr.
C S 512	Computer Systems Modeling and Simulation	3 cr.
C S 515	User Interface Design	3 cr.
C S 516	Bioinformatics	3 cr.
C S 521	Parallel Programming	3 cr.

### One course from the following

C S 573	Architectural Concepts II	3 cr.
C S 574	Operating Systems II	3 cr.
C S 584	Computer Networks II	3 cr.

### Departmental Requirements for Years 5:

C S 510	Automata, Languages, Computability	3 cr.
C S 570	Analysis of Algorithms	3 cr.
	One Additional Course Numbered 550 or above	
	One Additional Course Numbered 500 or above	
C S 599	Master's Thesis	1-6 cr.
	or	
C S 598	Master's Project	1-6 cr.

*C S 599 or C S 598: In order to fulfill the degree requirement, the student must complete a total of 6 credits for either course.*

### One course from the following

C S 571	Programming Language Structure II	3 cr.
C S 575	Artificial Intelligence II	3 cr.
C S 580	Compiler Construction	3 cr.
C S 581	Advanced Software Engineering	3 cr.
C S 582	Database Management Systems II	3 cr.

### One course from the following

C S 571	Programming Language Structure II	3 cr.
C S 572	Advanced Algorithms	3 cr.
C S 573	Architectural Concepts II	3 cr.
C S 574	Operating Systems II	3 cr.
C S 575	Artificial Intelligence II	3 cr.
C S 580	Compiler Construction	3 cr.
C S 581	Advanced Software Engineering	3 cr.
C S 582	Database Management Systems II	3 cr.
C S 584	Computer Networks II	3 cr.
C S 586	Algorithms in Systems Biology	3 cr.

## MINOR:

A student cannot earn more than one of these minors unless he/she passes at least 6 credits in the second minor beyond the requirements of the first minor. The maximum number of these minors that a student may earn is two. Most courses for the minors listed below have prerequisites. Please check the undergraduate catalog for individual course prerequisites.

Students interested in pursuing a computer science minor are encouraged to pick up more information at the departmental office.

## MINOR: ALGORITHM THEORY

### REQUIREMENTS (25-27 CREDITS)

#### Required Courses

C S 172	Computer Science I	4 cr. (3+2P)
C S 271	Object Oriented Programming	4 cr. (3+2P)
C S 272	Introduction to Data Structures	4 cr. (3+2P)
C S 372	Data Structures and Algorithms	4 cr. (3+2P)

**One course from the following**

C S 278	Discrete Mathematics for Computer Science	4 cr. (3+2P)
MATH 278	Discrete Mathematics for Computer Science	4 cr. (3+1P)
MATH 279	Introduction to Higher Mathematics	3 cr.

**Two courses from the following**

C S 370	Compilers and Automata Theory	4 cr. (3+2P)
C S 470	Functional Programming	3 cr.
C S 472	Logic and Constraint Logic Programming	3 cr.
C S 475	Artificial Intelligence I	3 cr.
C S 476	Computer Graphics I	3 cr.
MATH 377	Introduction to Numerical Methods	3 cr.
MATH 430	Combinatorial Mathematics	3 cr.
MATH 454	Mathematical Logic	3 cr.

**MINOR: BIOINFORMATICS****REQUIREMENTS (25-26 CREDITS)****Required Courses**

BIOL 211G	Cellular and Organismal Biology	3 cr.
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr. (3P)
C S 172	Computer Science I	4 cr. (3+2P)
C S 272	Introduction to Data Structures	4 cr. (3+2P)
C S 371	Software Development	4 cr. (3+2P)
C S 486	Bioinformatics	3 cr.
C S 489	Bioinformatics Programming	3 cr.

**One course from the following**

C S 472	Logic and Constraint Logic Programming	3 cr.
C S 482	Database Management Systems I	3 cr.
C S 491	Parallel Programming	3 cr.
BIOL 305	Principles of Genetics	3 cr.
CHEM 433	Physical Chemistry I	3 cr.
MATH 331	Introduction to Modern Algebra	3 cr.
PHYS 315	Modern Physics	3 cr.

**MINOR: COMPUTER SYSTEMS****REQUIREMENTS (26 CREDITS)****Required Courses**

C S 172	Computer Science I	4 cr. (3+2P)
C S 271	Object Oriented Programming	4 cr. (3+2P)
C S 272	Introduction to Data Structures	4 cr. (3+2P)
C S 273	Machine Programming and Organization	4 cr. (3+2P)
C S 370	Compilers and Automata Theory	4 cr. (3+2P)
	or	
C S 371	Software Development	4 cr. (3+2P)
C S 473	Architectural Concepts I	3 cr.
	or	
C S 474	Operating Systems I	3 cr.

**One course from the following:**

C S 476	Computer Graphics I	3 cr.
C S 484	Computer Networks I	3 cr.

C S 480	Linux System Administration	3 cr.
C S 491	Parallel Programming	3 cr.

**MINOR: SOFTWARE DEVELOPMENT****REQUIREMENTS (22-23 CREDITS)****Required Courses**

C S 172	Computer Science I	4 cr. (3+2P)
C S 271	Object Oriented Programming	4 cr. (3+2P)
C S 272	Introduction to Data Structures	4 cr. (3+2P)
C S 371	Software Development	4 cr. (3+2P)

**Two courses from the following:**

C S 370	Compilers and Automata Theory	4 cr. (3+2P)
C S 470	Functional Programming	3 cr.
C S 471	Programming Language Structure I	3 cr.
C S 472	Logic and Constraint Logic Programming	3 cr.
C S 474	Operating Systems I	3 cr.
C S 475	Artificial Intelligence I	3 cr.
C S 476	Computer Graphics I	3 cr.
C S 482	Database Management Systems I	3 cr.
C S 484	Computer Networks I	3 cr.
C S 485	User Interface Design	3 cr.
C S 491	Parallel Programming	3 cr.

**CREATIVE MEDIA****Associate Professor, Amy Lanasa, Department Head**

**Associate Professors** Fisher, Lanasa; **Assistant Professors** Fowler, Lapid, Lau; **College Assistant Professors** Bakshi, Chase, Gorell, Marks; **College Instructor** Nirmalakhandan

**phone:** (575) 646-5671

**website:** <http://cmi.nmsu.edu/>

New Mexico State University's Creative Media Institute (CMI) prepares students to become digital storytellers using state of the art, industry-standard tools. The Creative Media Institute is dedicated to developing and nurturing the artistic endeavors of student filmmakers through industry-standard education, research and collaboration in the art, craft and production of the moving image through storytelling, resulting in a Bachelor of Creative Media degree. The program provides learning opportunities for newly admitted NMSU students, and provides some credit transfer opportunities for students with an associate degree from a NMSU community college or other two-year degree granting institution. The Bachelor of Creative Media provides a liberal arts background enabling students to pursue further education, professional training or employment in the digital media-based industry. Study in the CMI program fosters collaborative expression based on a clear understanding of media culture, history, design and practice. CMI also offers students the opportunity for internships in digital video, animation, visualization and simulation, industrial and educational video at varied production facilities on and off campus.

Theory and practice are integrated at every step as students manipulate text, sound and images using industry-standard technology. CMI houses a state of the art digital projection system screening room, post-production lab, animation lab, production space, motion capture laboratory and THX sound mixing theatre.

Due to limited capacity, new students wishing to continue in the CMI program after their freshman year are required to complete an application process. Transfer students from other institutions, including NMSU Community Colleges, must complete the application process. Transfer students should contact an Academic Advisor from the College of Arts and Sciences Advising Office for

information about joining one of the two degree programs offered in CMI. Space is limited and varies each year. The quality of the student's work as demonstrated in the application and prior course work are additional criteria of the admission decision. Exact details and procedures for applying to the CMI program can be found on the CMI website at: [cmi.nmsu.edu](http://cmi.nmsu.edu).

### DEGREE: BACHELOR OF CREATIVE MEDIA

#### MAJOR: ANIMATION AND VISUAL EFFECTS

Students must complete all university requirements and the Animation and Visual Effects curriculum outlined below. All Animation and Visual Effects Curriculum requirements must be completed with a grade of C- or higher.

#### REQUIREMENTS

##### Foundation Courses

48 total credits required (of which a minimum of 12 credits are 300 level and above)

CMI 100	Introduction to the Creative Media Industry	3 cr.
CMI 231	History of Animation	3 cr.
CMI 232	Storyboarding	3 cr.
	or	
ENGL 232	Script Development and Storyboarding	3 cr.
CMI 233	Light, Shade, Render	3 cr.
	or	
CMI 361	After Effects: 2D Compositing and EFX	3 cr. (3+3P)
CMI 235	Narrative: Principles of Story Across the Media	3 cr.
CMI 240	Digital Illustration	3 cr.
CMI 250	Beginning 2-D Animation	3 cr.
CMI 260	Foundations of 3D Animation	3 cr.
CMI 270	Rigging for 3D Animation	3 cr.
	or	
CMI 350	Intermediate 2-D Animation	3 cr.
CMI 280	Modeling	3 cr.
CMI 290	3-D Animation	3 cr.
	or	
CMI 220	Drawing for Animation	3(2+4P)
CMI 348	Acting and Directing for Voiceover	3 cr.
	or	
THTR 105	Acting for Non-Majors	3 cr.
	or	
CMI 314	Acting for Film	3 cr.
CMI 498	Final Year Senior Project I: Production and Post Production	3-6 cr.
CMI 499	Final Year Senior Project II: Production and Post Production	3-6 cr.

Choose 18 total credits from the following (of which 15 must be 300 level and above):

CMI 205	Cinematography I	3 cr.
CMI 216	Editing I	3 cr.
CMI 220	Drawing for Animation	3(2+4P)
CMI 233	Light, Shade, Render	3 cr.
CMI 270	Rigging for 3D Animation	3 cr.
CMI 271	Rigging for 2D Animation	3 cr.
CMI 290	3-D Animation	3 cr.
CMI 301	Sound Design II	3 cr.
CMI 303	Cinema Review and Critique	3 cr.
CMI 308	Writing for Animation	3 cr.
CMI 309	Screenwriting I	3 cr.

CMI 332	3-D Character Animation	3 cr.
CMI 341	Visual Effects I	3 cr.
CMI 348	Acting and Directing for Voiceover	3 cr.
CMI 350	Intermediate 2-D Animation	3 cr.
CMI 360	Previsualization	3 cr.
CMI 361	After Effects: 2D Compositing and EFX	3 cr. (3+3P)
CMI 365	Character Design and Development	3 cr.
CMI 397	Practicum	1-3 cr. (2P)
CMI 398	Special Topics	3 cr.
CMI 400	Directed Studies	1-6 cr.
CMI 401	Motion Capture Techniques	3 cr.
CMI 433	3-D Sets and Environments	3 cr.
CMI 441	Visual Effects II	3 cr.
CMI 450	Advanced 2-D Animation	3 cr.
CMI 470	Short 2-D Animation Production	3 cr.
CMI 495	Internship	1-12 cr.
CMI 496	Media Law/Ethics	3 cr.

#### MAJOR: DIGITAL FILM MAKING

Students must complete all university requirements and the Digital Film Making curriculum outlined below. All Digital Film Making Curriculum requirements must be completed with a grade of C- or higher.

#### REQUIREMENTS

##### Foundation Courses

30 total credits total required

CMI 100	Introduction to the Creative Media Industry	3 cr.
CMI 200	Sound Design 1	3 cr.
	or	
CMT 206	Principles of Sound	3 cr. (2+2P)
CMI 205	Cinematography I	3 cr.
	or	
CMT 205	Cinematography	3 cr. (2+2P)
CMI 216	Editing I	3 cr.
	or	
CMT 195	Digital Video Editing I	3 cr. (2+2P)
CMI 235	Narrative: Principles of Story Across the Media	3 cr.
	or	
ENGL 235	Narrative: Principles of Story Across the Media	3 cr.
CMI 300	History of Cinema	3 cr.
CMI 303	Cinema Review and Critique	3 cr.
	or	
ENGL 303	Theory and Criticism: Film, Media and Culture	3 cr.
	or	
ENGL 326	Cultural Identity and Representation Across the Media	3 cr.
CMI 314	Acting for Film	3 cr.
CMI 328	Producing	3 cr.
CMI 497	Portfolio Design and Development	3 cr.

*CMI 216: Course may be taken at an NMSU community college*

#### Elective Course

Choose 27 total credits from the following (of which 21 credits must be 300 level and above)

CMI 231	History of Animation	3 cr.
CMI 232	Storyboarding	3 cr.
CMI 250	Beginning 2-D Animation	3 cr.
CMI 260	Foundations of 3D Animation	3 cr.
CMI 301	Sound Design II	3 cr.
CMI 305	Business of Filmmaking/Animation	3 cr.
CMI 309	Screenwriting I	3 cr.
CMI 310	Cinematography II	3 cr.
CMI 311	Editing II	3 cr.
CMI 315	Adventures in Genre	3 cr.
CMI 318	Documentary Production	3 cr.
CMI 329	Studies in Drama	3 cr.
CMI 341	Visual Effects I	3 cr.
CMI 395	Directing I	3 cr.
CMI 396	Directing II	3 cr.
CMI 397	Practicum	1-3 cr. (2P)
CMI 398	Special Topics	3 cr.
CMI 400	Directed Studies	1-6 cr.
CMI 420	Short Film Production	3 cr.
CMI 480	Screenwriting II	3 cr.
CMI 490	Advanced Screenwriting	3 cr.
CMI 495	Internship	1-12 cr.
CMI 496	Media Law/Ethics	3 cr.
CMT 126	Film Crew Training I	9 cr.
CMT 156	Film Crew Training II	9 cr.
CMT 190	Digital Video Production I	3 cr. (2+4P)
CMT 210	Digital Video Production II	3 cr. (2+2P)
CMT 215	Digital Video Editing II	3 cr. (2+2P)
CMT 222	Pre-production Management	3 cr. (2+2P)
ENGL 232	Script Development and Storyboarding	3 cr.
ENGL 309	Screenwriting I	3 cr.
ENGL 336	Studies in Film	3 cr. (3+3P)
THTR 306	Screenwriting I	3 cr.

*CMT 126, CMT 156, CMT 190, CMT 210, CMT 215, and CMT 222: see course descriptions in back of this catalog for designated community college campuses*

### MINOR: ANIMATION AND VISUAL EFFECTS- MUST BE ADMITTED TO DFM

Take 18 credits of CMI/ENGL, CMI/THTR courses as listed in the Animation and Visual Effects major. A minimum of 9 credits must be upper division.

### MINOR: DIGITAL FILM MAKING- MUST BE ADMITTED TO ANVE

Take 18 credits from the CMI/ENGL, CMI/THTR courses as listed in the Digital Film Making major. A minimum of 9 credits must be upper division.

## CRIMINAL JUSTICE

**Associate Professor, Carlos E. Posadas, Department Head**

**Associate Professors** Keys, Lara, Posadas; **Assistant Professors** Alatorre, Maratea, Natividad, Tapia, Valadez **Associate College Professors** Corbett, Dimitrijevic, Joseph **Emeritus Faculty** Mays (Regents), Gregware, Crowley  
**phone: (575) 646-3316**  
**website: <http://crimjust.nmsu.edu>**

The Department of Criminal Justice offers courses in the traditional setting as well as online. However, we do not offer a fully online Bachelor of Criminal Justice (BCJ). We offer an online Degree Completion Program. Students

interested in completing the degree online need to complete at least the first two years on campus while working closely with an academic advisor.

The criminal justice degree plan is broadly interdisciplinary in nature embracing the study of the humanities, law, natural, behavioral and social sciences. The curriculum seeks to balance theoretical inquiry with applied knowledge.

Students are prepared for careers in law enforcement, corrections, probation and parole, work with juveniles, victim services, non- and not-for profit organizations connected and the related field of forensics. Graduates have also been successful in law school and graduate programs in the social sciences. The undergraduate major consists of at least 33 credits in the major field, 27 of which must be numbered 300 or above (excluding C J 393, Internship in Criminal Justice).

The department offers an interdisciplinary minor in Forensic Sciences and has partnered with various other departments to offer an interdisciplinary minor in child advocacy studies. Students interested in the minor should consult with the department head.

### DEGREE: BACHELOR OF CRIMINAL JUSTICE MAJOR: CRIMINAL JUSTICE

#### REQUIREMENTS

##### Lower Division (100 and 200-level) Departmental Requirements

C J 101G	Introduction to Criminal Justice	3 cr.
C J 205	Criminal Law I	3 cr.

*NOTE: Prior to enrolling in upper division courses, lower division courses must be completed or final courses must be in progress.*

##### Upper-Division (300 and 400-level) Departmental Requirements (27 credits)

###### One course from the following:

C J 300	Introduction to Criminal Justice Research	3 cr.
GOVT 300	Political Research Skills	3 cr.
PSY 310	Experimental Methods	4 cr.
SOC 352	Social Research: Methods	3 cr.

###### Nine credits from the following:

C J 301	Advanced Research Methods	3 cr.
	or	
	any statistics class	
C J 425	Issues in Ethics, Law, and Criminal Justice	3 cr.

###### One course from the following:

C J 304	Historical Perspectives of Criminal Justice Systems	3 cr.
C J 414	Race, Crime and Justice	3 cr.

**Criminal Justice electives: 4 upper division criminal justice courses** (not to include C J 393, Internship in Criminal Justice, or any criminal justice required course) (12 credits)

Electives must include at least one course from each of the following five content areas:

Policing  
 Courts and Law  
 Corrections  
 Juvenile Justice  
 Justice Studies

*Note: Courses that fall under multiple content areas may only be counted once. Please visit our website for specific courses in each of these content areas. <http://crimjust.nmsu.edu>.*

#### Nondepartmental Requirements

Students seeking the BCJ degree must complete the College of Arts and Sciences second language requirement, through the 212 or 214 level as indicated in Section III, (see second language requirement under "College Degree

Requirement" section of this catalog) or MATH 191G, or American Sign Language through C D 476, and two Viewing a Wider World courses, one each from two different colleges and outside of criminal justice. In addition, Criminal Justice majors will need to complete the following:

One philosophy class, choose from PHIL 100G, PHIL 201G, PHIL 211G, PHIL 223G or an upper division philosophy course (3 credits)

MATH 121G, STAT 251G or higher (excluding MATH 210G) (3 credits)

ENGL 111G, plus two of the following: ENGL 203G, ENGL 211G, ENGL 218G, ENGL 311G, ENGL 318G (9 credits)

A student must earn a C- or better to receive credit for any departmental and nondepartmental requirement for the BC J degrees.

#### General Electives

Sufficient to bring the total credits to 120, including 48 upper-division credits. Please visit our website for additional requirements. <http://crimjust.nmsu.edu>

#### SUPPLEMENTAL MAJOR: LAW AND SOCIETY

The Law and Society Program is administered by the Department of Government and offers an interdisciplinary major for students interested in pursuing law school or careers that incorporate a strong legal element, such as government, law enforcement, business and social work. As a supplementary major, it must be taken in conjunction with a regular major. Some courses may double-count toward a student's regular major or General Education requirements. Students should check with academic advisors in their primary major. To declare this supplemental major please contact the College of Arts & Sciences Student Records Office. For more information please visit: <http://www.nmsu.edu/~govdept/law--society.html>

#### MINOR: CHILD ADVOCACY STUDIES

The interdisciplinary undergraduate minor in Child Advocacy Studies (CAST) provides mandated reporters and responders in social work, public health, nursing, criminal justice, psychology, education, family studies, cooperative extension and other disciplines with evidence-based, culturally relevant knowledge and skills to improve the outcomes for maltreated children in New Mexico or wherever their paths may take them.

The core courses, worth three (3) credits each, will be focused on the needs specific to New Mexico and will adhere to both statewide and national best practice standards on the welfare of children. The remaining nine (9) out of the total of 18 required credits will come from courses that students choose from a list of selected courses already being taught across the campus. To declare this minor please contact the College of Health and Social Services. For more information, please visit: <http://socialwork.nmsu.edu/generalist/cast>.

#### MINOR: FORENSIC SCIENCE

Forensic Science is the application of principles and techniques of scientific analysis in a legal context. Forensic scientists study physical evidence to resolve issues involving criminal investigations, environment analyses and similar areas of research.

A student must pass 18 credits with a grade of C- or higher from the following curriculum to earn the Forensic Science minor. No courses may be taken S/U. Students must take at least 6 credits from departments outside their major(s). At least 9 credits in any minor must be upper division. Students must register in the minor before enrolling in any upper division Criminal Justice courses.

The following curriculum represents minimum requirements for a minor. Students interested in a career in Forensic Science are encouraged to take additional courses from those listed below.

#### REQUIREMENTS

##### Core Courses

Five credits from among the following courses

C J 306	Criminal Procedural Law	3 cr.
C J 321	Criminal Investigation and Intelligence	3 cr.
C J 424	Forensic Law	3 cr.
PHYS 304	Forensic Physics	4 cr. (3+3P)

#### Additional Course

Complete one course from areas I or II above not already completed.

Students must complete 9 credits from ONE of the following tracks; (A) Laboratory Analysis, (B) Human Forensic Analysis, or (C) Forensic Psychology.

#### TRACK A. Laboratory Analysis

##### Nine credits from the following:

BIOL 221	Introductory Microbiology	3 cr. (3P)
BIOL 221 L	Introductory Microbiology Laboratory	1 cr. (3P)
	or	
BIOL 311	General Microbiology	3 cr.
BIOL 311 L	General Microbiology Laboratory	2 cr. (4P)
BIOL 330	Comparative Anatomy and Embryology	4 cr. (3+3P)
BIOL 354	Physiology of Humans	3 cr.
BIOL 354 L	Laboratory of Human Physiology	1 cr. (3P)
BCHE 395	Biochemistry I	3 cr.
BCHE 396	Biochemistry II	3 cr.
CHEM 371	Analytical Chemistry	4 cr. (2+6P)
TOX 361	Basic Toxicology	3 cr.
TOX 423	Environmental Toxicology	3 cr.
PHYS 211G	General Physics I	3 cr.
PHYS 211GL	General Physics I Laboratory	1 cr.

*BIOL 221, BIOL 221L, BIOL 311, BIOL 331L, BIOL 330, BIOL 354, BCHE 395, BCHE 396, CHEM 371, CHEM 421, TOX 361, TOX 423: have prerequisites, and students should check the catalog to ensure that they have taken prerequisites before enrolling in these courses.*

#### TRACK B. Human Forensic Analysis

Honors, Special Topics, or Independent Studies courses if approved by Academic Head, Department of Criminal Justice.

##### Nine credits from the following:

ANTH 130G	Human's Place in Nature: Introduction to Biological Anthropology	3 cr.
ANTH 130GL	Human's Place in Nature Laboratory	1 cr. (2P)
ANTH 315	Introduction to Archaeology	3 cr.
ANTH 355	Physical Anthropology	3 cr.
ANTH 357V	Medical Anthropology	3 cr.
ANTH 388	Intermediate Archaeological Field School	2-6 cr.
ANTH 398	Intermediate Historical Field Archaeology	3-6 cr.
BIOL 330	Comparative Anatomy and Embryology	4 cr. (3+3P)
ANTH 474	Human Osteology	3 cr.
ANTH 477	Zooarchaeology	3 cr.

*ANTH 474 and BIOL 330: have prerequisites, and students should check the catalog to ensure that they have taken prerequisites before enrolling in these courses.*

*Recommended sequence ANTH 130G/130GL, ANTH 355 or ANTH 315, and then ANTH 474.*

#### TRACK C. Forensic Psychology

##### Nine credits from the following:

##### Principles of Behavior

PSY 317	Social Psychology	3 cr.
PSY 321	Psychology of Personality	3 cr.
PSY 324	Sexual Behavior	3 cr.
PSY 330	Psychology and the Law	3 cr.
PSY 376	Evolutionary Psychology	3 cr.

PSY 317, PSY 321, PSY 324, PSY 330, PSY 358, PSY 376: have prerequisites, and students should check the catalog to ensure that they have taken prerequisites before enrolling in these courses.

#### Psychological Treatment

PSY 302	Abnormal Psychology	3 cr.
PSY 303	Community Psychology	3 cr.
PSY 374	Psychopharmacology and Toxicology	3 cr.
PSY 445	Clinical Psychology	3 cr.
C J 346	Psychology and the Justice System	3 cr.

PSY 302, PSY 303, PSY 374, PSY 445: have prerequisites, and students should check the catalog to ensure that they have taken prerequisites before enrolling in these courses.

#### TRACK D. General

##### Nine credits from the following:

ANTH 474	Human Osteology	3 cr.
C J 306	Criminal Procedural Law	3 cr.
C J 307	Law of Evidence	3 cr.
C J 321	Criminal Investigation and Intelligence	3 cr.
C J 346	Psychology and the Justice System	3 cr.
C J 424	Forensic Law	3 cr.
PSY 330	Psychology and the Law	3 cr.
PHYS 304	Forensic Physics	4 cr. (3+3P)

ANTH 474 and PSY 330: have prerequisites, and students should check the catalog to ensure that they have taken prerequisites before enrolling in these courses.

## ECONOMICS, APPLIED STATISTICS, AND INTERNATIONAL BUSINESS

The Department of Economics, Applied Statistics and International Business in the College of Business offers an economics major to Bachelor of Arts candidates in the College of Arts and Sciences. (Additional information may be found under the Economics and International Business section in the College of Business chapter later in this catalog).

phone: (575) 646-2113

website: <http://business.nmsu.edu/academics/economics-ib/>

#### DEGREE: BACHELOR OF ARTS

#### MAJOR: ECONOMICS

The study of economics can lead to career positions in economics and related managerial and technical specialties in businesses, financial institutions, government and education. Qualified students are also prepared for graduate study in economics, business administration including management and law. Students who plan to pursue graduate work in economics or to become professional economic analysts should consider taking supplementary courses in accounting, computer science, mathematics, quantitative economics and/or statistics, in addition to those listed below as required.

#### REQUIREMENTS

A student must earn a grade of C- or better in the nondepartmental requirements, and a cumulative GPA of 2.5 in the 27 hours of departmental requirements.

##### Nondepartmental Requirements

ACCT 221	Financial Accounting	3 cr.
MATH 120	Intermediate Algebra	3 cr.
MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)
MATH 121G	College Algebra	3 cr.
	or	
MATH 230	Matrices and Linear Programming	3 cr.

STAT 251G	Statistics for Business and the Behavioral Sciences	3 cr.
	or	
A ST 311	Statistical Applications	3 cr.

#### Departmental Requirements

ECON 251G	Principles of Macroeconomics	3 cr.
ECON 252G	Principles of Microeconomics	3 cr.
ECON 304	Money and Banking	3 cr.
ECON 371	Intermediate Microeconomic Theory	3 cr.
ECON 372	Intermediate Macroeconomic Theory	3 cr.
ECON 405	Economic Statistics	3 cr.
ECON 457	Mathematical Economics	3 cr.
ECON 489	Senior Economics Seminar	3 cr.

#### Nine additional credits numbered 300 or above, including at least one course from the following to bring total upper-division in major to 27

ECON 332	Public Finance	3 cr.
ECON 336	Labor Problems	3 cr.
ECON 449	Open Economy Macroeconomics	3 cr.
ECON 450	International Economics	3 cr.

#### Electives

Sufficient to bring total credits to 120, including 48 upper-division.

#### MINOR: ECONOMICS

A minor in economics consists of 18 or more credit hours of approved course work in economics of which at least 12 are numbered 300 or higher, all completed with a grade of C- or higher. Please note that the minor in economics is not available to Bachelor of Individualized Studies (BIS) or Bachelor of Applied Studies (BAS) students.

#### REQUIREMENTS

##### Required courses:

ECON 251G	Principles of Macroeconomics	3 cr.
ECON 252G	Principles of Microeconomics	3 cr.
	6 credits from any upper-division economics courses (numbered 300 or higher)	6 cr.

ECON 252G: ECON 201G, Introduction to Economics, may be substituted for one of these with the approval of the department head

##### One course from the following:

ECON 304	Money and Banking	3 cr.
ECON 372	Intermediate Macroeconomic Theory	3 cr.

##### One course from the following:

ECON 401	Managerial Economics	3 cr.
ECON 371	Intermediate Microeconomic Theory	3 cr.

## ENGLISH

#### Professor, Barry Thatcher, Department Head

**Professors** Burnham, Linkin, Thatcher; **Associate Professors** Bradburd, Cull, Garay, Greenfield, Miller-Tomlinson, Rourke, Schirmer, Smith, Voisine, Wojahn; **Assistant Professors** Finley, Hoang, Lavender-Smith, Sharp-Hoskins, Stagliano, Stolte; **College Professors** Murrell; **College Associate Professors** Brown, LaTorra, Treon; **College Assistant Professors** Hastings, Lanier, Wells, Wilcoxon; **College Instructors** Conley, Gray

phone: (575) 646-3931

website: <http://www.nmsu.edu/~english/>

The Department of English offers the Bachelor of Arts (BA) in English as the cornerstone of studies in the humanities. This rich and versatile major provides students with a source of personal enrichment as well as verbal, analytical and cultural skills that are readily adaptable to a variety of careers. The English curriculum includes courses in literature, language, creative writing, technical and professional communication, rhetoric, cultural studies, digital media and film.



Our majors go on to succeed in a wide range of professions, including secondary and post-secondary education, business, government, publishing and law. We offer four different major emphases that students can tailor to their individual needs, in (1) English, (2) Creative Writing, (3) Literature, Language, and Culture, and (4) Rhetoric, Digital Media and Professional Communication. The department provides strong and personalized advising designed to help students reach their full academic potential and future career goals.

The department also offers minors in: English; creative writing; literature; medieval and Early Modern studies; and rhetoric and professional communication. Further information about career opportunities, emphases and minors is available from the Department of English. Students who wish to pursue English as a double major may eliminate one elective from the departmental requirements. Students are required to fulfill a second language requirement of one year. Please refer to the Arts and Sciences degree requirements for specifics.

## DEGREE: BACHELOR OF ARTS

### MAJOR: ENGLISH

#### EMPHASIS: Creative Writing

##### Departmental Requirements

In addition to meeting the English basic skills requirement, the student majoring in Creative Writing must complete 42 credits in English beyond ENGL 111G satisfying the following requirements.

##### Nine credits from the following courses:

ENGL 243	The Bible as Literature	3 cr.
ENGL 251	Survey of American Literature I	3 cr.
ENGL 252	Survey of American Literature II	3 cr.
ENGL 262	Masterpieces of Western European Literature, Post-Renaissance to Modern Times	3 cr.
ENGL 263	History of Argument	3 cr.
ENGL 271	Survey of English Literature I	3 cr.
ENGL 272	Survey of English Literature II	3 cr.

*Students may make 1 or 2 of the following substitutions: HON 229G for ENGL 243; HON 220G, HON 231G, HON 234G, or HON 239G for ENGL 271; HON 220G, HON 234G, or HON 239G for ENGL 261; HON 231G for ENGL 272.*

##### Three credits from the following:

ENGL 310	Critical Writing	3 cr.
----------	------------------	-------

##### Three credits from the following:

ENGL 301	Theory and Criticism: Rhetoric and Culture	3 cr.
ENGL 302	Theory and Criticism: Literature and Culture	3 cr.
ENGL 303	Theory and Criticism: Film, Media and Culture	3 cr.

*NOTE: These 15 credits should be completed before the student enrolls in 400-level courses.*

##### Six credits in Creative Writing workshops (minimum of two different courses)

ENGL 304	Creative Writing: Prose	3 cr.
ENGL 306	Creative Writing: Poetry	3 cr.
ENGL 307	Creative Writing: Creative Nonfiction	3 cr.
ENGL 308	Creative Writing: Playwriting	3 cr.
ENGL 309	Screenwriting I	3 cr.

##### Six credits in advanced Creative Writing Workshops

ENGL 413	Advanced Creative Writing: Prose Workshop	3 cr.
ENGL 414	Advanced Creative Writing: Poetry Workshop	3 cr.
ENGL 415	Advanced Creative Writing: playwriting Workshop	3 cr.
ENGL 480	Screenwriting II	3 cr.

##### Six credits from the following:

ENGL 354	Form and Technique in Fiction	3 cr.
ENGL 356	Form and Technique in Poetry	3 cr.
ENGL 358	Form and Technique in Playwriting	3 cr.

## Students must take nine additional credits from English courses numbered 400-499

### EMPHASIS: English

#### Departmental Requirements

In addition to meeting the English basic skills requirement, the student majoring in English must complete 42 credits in English beyond ENGL 111G satisfying the following requirements.

##### Twelve credits from the following:

ENGL 220G	Introduction to Creative Writing	3 cr.
ENGL 243	The Bible as Literature	3 cr.
ENGL 251	Survey of American Literature I	3 cr.
ENGL 252	Survey of American Literature II	3 cr.
ENGL 262	Masterpieces of Western European Literature, Post-Renaissance to Modern Times	3 cr.
ENGL 263	History of Argument	3 cr.
ENGL 271	Survey of English Literature I	3 cr.
ENGL 272	Survey of English Literature II	3 cr.

*Students may make 1 or 2 of the following substitutions: HON 229G for ENGL 243; HON 220G, HON 231G, HON 234G, or HON 239G for ENGL 271; HON 220G, 234G, or HON 239G for ENGL 261; HON 231G for ENGL 272*

##### Three credits from the following:

ENGL 310	Critical Writing	3 cr.
----------	------------------	-------

##### Three credits from the following:

ENGL 301	Theory and Criticism: Rhetoric and Culture	3 cr.
ENGL 302	Theory and Criticism: Literature and Culture	3 cr.
ENGL 303	Theory and Criticism: Film, Media and Culture	3 cr.

*NOTE: These 15 credits should be completed before the student enrolls in 400-level courses.*

## Six additional credits from English courses numbered 298-399

Students may count 1 or 2 of the following Honors courses towards the requirement of 6 hours of 300-level electives

HON 325V	Contemporary International Literature	3 cr.
HON 348V	Comparative Mythology: Myth, Ritual, and the Life Cycle	3 cr.
HON 365V	African and Caribbean: Literature and Film	3 cr.
HON 366V	The Gothic Imagination	3 cr.
HON 379V	Literature as Film	3 cr.

*Students may not take both ENGL 325V and HON 325V or ENGL 392V and HON 348V.*

##### Three credits from the following:

ENGL 469	Advanced Study in American Literature	3 cr.
ENGL 438	Literature of the American Renaissance	3 cr.
ENGL 442	Modern and Contemporary American Poetry	3 cr.
ENGL 456	Ethnic Studies in US Literature and Culture	3 cr.
ENGL 458	Latino/a Literature and Culture	3 cr.

##### One course from the following:

ENGL 405	Chaucer	3 cr.
ENGL 407	Milton	3 cr.

##### Three credits from the following:

ENGL 408	Shakespeare I	3 cr.
ENGL 409	Shakespeare II	3 cr.

## Students must take nine additional credits from English courses numbered 400-499

### EMPHASIS: Literature, Language, and Culture

#### Departmental Requirements

In addition to meeting the English basic skills requirement, the student pursuing an emphasis in Literature, Language, and Culture must complete 42 credits in English beyond ENGL 111G satisfying the following requirements:

##### Twelve credits from the following courses:

ENGL 220G	Introduction to Creative Writing	3 cr.
ENGL 243	The Bible as Literature	3 cr.

ENGL 251	Survey of American Literature I	3 cr.
ENGL 252	Survey of American Literature II	3 cr.
ENGL 262	Masterpieces of Western European Literature, Post-Renaissance to Modern Times	3 cr.
ENGL 263	History of Argument	3 cr.
ENGL 271	Survey of English Literature I	3 cr.
ENGL 272	Survey of English Literature II	3 cr.

For students in this emphasis, nine of the twelve credits must come from ENG 251, ENG 252, ENG 271 or ENG 272.

Students may make 1 or 2 of the following substitutions: HON 229G for ENGL 243; HON 220G, HON 231G, HON 234G, or HON 239G for ENGL 271; HON 220G, HON 234G, or 239G for ENGL 261; HON 231G for ENGL 272.

**Three credits from the following:**

ENGL 310	Critical Writing	3 cr.
----------	------------------	-------

**Three credits from the following:**

ENGL 301	Theory and Criticism: Rhetoric and Culture	3 cr.
ENGL 302	Theory and Criticism: Literature and Culture	3 cr.
ENGL 303	Theory and Criticism: Film, Media and Culture	3 cr.

*ENGL 302: Recommended; NOTE: These 18 credits should be completed before the student enrolls in 400 level courses.*

**Six additional credits in courses numbered 298-399**

Three of these credits may come from any of the 300-level English department courses.

**Three credits from the following:**

ENGL 321V	Modern European Drama	3 cr.
ENGL 323	American Drama	3 cr.
ENGL 325V	Contemporary International Literature	3 cr.
ENGL 326	Cultural Identity and Representation Across the Media	3 cr.
ENGL 327V	Shakespeare around the Globe	3 cr.
ENGL 328V	Literature of Science Fiction and Fantasy	3 cr.
ENGL 329	Studies in Drama	3 cr.
ENGL 330V	Studies in Poetry	3 cr.
ENGL 335V	Studies in the Novel	3 cr.
ENGL 336	Studies in Film	3 cr. (3+3P)
ENGL 339V	Chicana/o Literature	3 cr.
ENGL 341V	American Indian Literature	3 cr.
ENGL 349	The Short Story	3 cr.
ENGL 363	Literature for Children and Young Adults	3 cr.
ENGL 380V	Women Writers	3 cr.
ENGL 392V	Mythology	3 cr.
ENGL 394V	Southwestern Literature	3 cr.
ENGL 399	Special Topics	3 cr.

*ENGL 399: with advisor approval*

Students may count 1 or 2 of the following honors courses towards the requirement of 6 hours of 300-level electives: HON 325V, HON 348V, HON 365V, HON 366V, HON 376V, HON 379V, and HON 382V. Students may not take both ENGL 325V and HON 325V or ENGL 392V and HON 348V.

**Eighteen credits distributed as follows**

**One course from the following:**

ENGL 469	Advanced Study in American Literature	3 cr.
ENGL 438	Literature of the American Renaissance	3 cr.
ENGL 442	Modern and Contemporary American Poetry	3 cr.
ENGL 456	Ethnic Studies in US Literature and Culture	3 cr.
ENGL 458	Latino/a Literature and Culture	3 cr.

**One course from the following:**

ENGL 405	Chaucer	3 cr.
ENGL 407	Milton	3 cr.

**Three credits from the following:**

ENGL 408	Shakespeare I	3 cr.
ENGL 409	Shakespeare II	3 cr.

**Six additional credits in courses numbered 400-499**

Three of these credits may come from any of the 400-level English department courses.

**Three credits from the following**

ENGL 400	Independent Study: Upper Division	1-3 cr.
ENGL 405	Chaucer	3 cr.
ENGL 407	Milton	3 cr.
ENGL 408	Shakespeare I	3 cr.
ENGL 409	Shakespeare II	3 cr.
ENGL 417	Advanced Study in Critical Theory	3 cr.
ENGL 421	Advanced Study in a Literary Period or Movement	3 cr.
ENGL 422	Advanced Study in a Literary Form or Genre	3 cr.
ENGL 423	Advanced Study in a Major Author	3 cr.
ENGL 424	Advanced Study in a Major Text	3 cr.
ENGL 425	Advanced Study in Comparative Literature	3 cr.
ENGL 429	British Romanticism	3 cr.
ENGL 432	Gothic Literature	3 cr.
ENGL 433	Victorian Literature	3 cr.
ENGL 438	Literature of the American Renaissance	3 cr.
ENGL 442	Modern and Contemporary American Poetry	3 cr.
ENGL 444	Modern British Fiction	3 cr.
ENGL 445	Postmodern Fiction	3 cr.
ENGL 451	Practicum in the Grammar of American English	3 cr.
ENGL 452	History of the English Language	3 cr.
ENGL 453	World Literatures	3 cr.
ENGL 456	Ethnic Studies in US Literature and Culture	3 cr.
ENGL 458	Latino/a Literature and Culture	3 cr.
ENGL 463	Advanced Study in English Literature	3 cr.
ENGL 469	Advanced Study in American Literature	3 cr.
ENGL 481	Women's Literature	3 cr.
ENGL 486	Hollywood Film	3 cr. (3+3P)
ENGL 489	Cultural Studies: Literature and Theory	3 cr.
ENGL 493	Middle English Textual Cultures	3 cr.

*ENGL 400: with advisor approval*

**EMPHASIS: Rhetoric, Digital Media and Professional Communication**

**Departmental Requirements**

In addition to meeting the English basic skills requirement, the student pursuing an emphasis in Rhetoric, Digital Media, and Professional Communication must complete 42 credits in English beyond ENGL 111G satisfying the following requirements:

**Twelve credits from the following:**

ENGL 220G	Introduction to Creative Writing	3 cr.
ENGL 243	The Bible as Literature	3 cr.
ENGL 251	Survey of American Literature I	3 cr.
ENGL 252	Survey of American Literature II	3 cr.
ENGL 262	Masterpieces of Western European Literature, Post-Renaissance to Modern Times	3 cr.
ENGL 263	History of Argument	3 cr.
ENGL 271	Survey of English Literature I	3 cr.
ENGL 272	Survey of English Literature II	3 cr.

Students may make 1 or 2 of the following substitutions: HON 229G for ENGL 243; HON 220G, HON 231G, HON 234G, or HON 239G for ENGL 271; HON 220G, HON 234G, or HON 239G for ENGL 261; HON 231G for ENGL 272.

**Three credits from the following:**

ENGL 310	Critical Writing	3 cr.
----------	------------------	-------

**Three credits from the following:**

ENGL 301	Theory and Criticism: Rhetoric and Culture	3 cr.
ENGL 302	Theory and Criticism: Literature and Culture	3 cr.
ENGL 303	Theory and Criticism: Film, Media and Culture	3 cr.

*ENGL 301 and ENGL 303: Recommended; NOTE: These 18 credits should be completed before the student enrolls in 400 level courses.*

**Six credits from the following courses in Rhetoric and Composition:**

Students must take a total of 12 credit hours at the 400 level or above.

ENGL 418	History of Rhetoric	3 cr.
ENGL 419	Modern Rhetorical Theory	3 cr.
ENGL 448	Advanced Study in Empirical Research	3 cr.
ENGL 449	Advanced Study in Writing	3 cr.
ENGL 451	Practicum in the Grammar of American English	3 cr.
ENGL 452	History of the English Language	3 cr.
ENGL 470	Approaches to Composition	3 cr.

**Six credits from the following courses in Professional Communication:**

Students must take a total of 12 credit hours at the 400 level or above.

ENGL 318G	Advanced Technical and Professional Communication	3 cr.
ENGL 412	Writing in the Workplace	3 cr.
ENGL 431	Technical Editing	3 cr.
ENGL 449	Advanced Study in Writing	3 cr.
ENGL 460	Proposal Writing	3 cr.
ENGL 462	Interdisciplinary, Client-Based Project Practicum	3 cr.
ENGL 497	Internship	3-6 cr.

**Six credits from the following courses in Digital Rhetoric and Design:**

Students must take a total of 12 credit hours at the 400 level or above.

ENGL 315	Writing for the Web	3 cr.
ENGL 326	Cultural Identity and Representation Across the Media	3 cr.
ENGL 449	Advanced Study in Writing	3 cr.
ENGL 478	Document Design	3 cr.

*ENGL 427, ENGL 436, and ENGL 437: advisor approval required***Six credits of upper division level, advisor-approved English courses relevant to program of study.****MINOR: CREATIVE WRITING**

Students not earning a bachelor's degree in English with an emphasis in Creative Writing are eligible to pursue a minor in Creative Writing. Students must earn 18 credits from the approved course lists below. At least 12 credits must be upper division. Students may request approval for other courses clearly related to the minor from the undergraduate advisor in the Department of English. Students earning a BA in English must earn at least 6 credits approved by the Department of English undergraduate advisor beyond those earned for the major in order to earn a minor in Creative Writing.

**REQUIREMENTS****Six credits from the following:**

ENGL 220G	Introduction to Creative Writing	3 cr.
ENGL 243	The Bible as Literature	3 cr.
ENGL 251	Survey of American Literature I	3 cr.
ENGL 252	Survey of American Literature II	3 cr.
ENGL 262	Masterpieces of Western European Literature, Post-Renaissance to Modern Times	3 cr.
ENGL 263	History of Argument	3 cr.
ENGL 271	Survey of English Literature I	3 cr.
ENGL 272	Survey of English Literature II	3 cr.

Students may make 1 or 2 of the following substitutions: HON 229G for ENGL 243; HON 220G, HON 231G, HON 234G, or HON 239G for ENGL 271; HON 220G, HON 234G, or HON 239G for ENGL 261; HON 231G for ENGL 272.

**Six credits from the following:**

ENGL 304	Creative Writing: Prose	3 cr.
ENGL 306	Creative Writing: Poetry	3 cr.
ENGL 307	Creative Writing: Creative Nonfiction	3 cr.
ENGL 308	Creative Writing: Playwriting	3 cr.
ENGL 309	Screenwriting I	3 cr.
ENGL 413	Advanced Creative Writing: Prose Workshop	3 cr.
ENGL 414	Advanced Creative Writing: Poetry Workshop	3 cr.
ENGL 415	Advanced Creative Writing: playwriting Workshop	3 cr.

ENGL 480	Screenwriting II	3 cr.
----------	------------------	-------

*All Creative Writing workshops may be taken more than once.***Three credits from the following:**

ENGL 413	Advanced Creative Writing: Prose Workshop	3 cr.
ENGL 414	Advanced Creative Writing: Poetry Workshop	3 cr.
ENGL 415	Advanced Creative Writing: playwriting Workshop	3 cr.
ENGL 480	Screenwriting II	3 cr.

**Three additional credits from English literature courses numbered 300 and above.****MINOR: ENGLISH**

Students not earning a bachelor's degree in English are eligible to pursue a minor in English. Students must earn 18 credits from the approved course lists below. Students may request approval for other courses clearly related to the minor from the undergraduate advisor in the Department of English.

**REQUIREMENTS****Six credits from the following:**

ENGL 220G	Introduction to Creative Writing	3 cr.
ENGL 243	The Bible as Literature	3 cr.
ENGL 251	Survey of American Literature I	3 cr.
ENGL 252	Survey of American Literature II	3 cr.
ENGL 262	Masterpieces of Western European Literature, Post-Renaissance to Modern Times	3 cr.
ENGL 263	History of Argument	3 cr.
ENGL 271	Survey of English Literature I	3 cr.
ENGL 272	Survey of English Literature II	3 cr.

Students may make 1 or 2 of the following substitutions: HON 229G for ENGL 243; HON 220G, HON 231G, HON 234G, or HON 239G for ENGL 271; HON 220G, HON 234G, or HON 239G for ENGL 261; HON 231G for ENGL 272.

**Three credits from the following:**

ENGL 301	Theory and Criticism: Rhetoric and Culture	3 cr.
ENGL 302	Theory and Criticism: Literature and Culture	3 cr.
ENGL 303	Theory and Criticism: Film, Media and Culture	3 cr.
ENGL 310	Critical Writing	3 cr.
ENGL 311G	Advanced Composition	3 cr.

**Six credits from English courses numbered 300-499 and three additional credits from English courses numbered 400-499****MINOR: LITERATURE**

Students not earning a bachelor's degree in English with an emphasis in Literature, Language and Culture are eligible to pursue a minor in Literature. Students must earn 18 credits from the approved course lists below. At least 12 credits must be upper division. Students may request approval for other courses clearly related to the minor from the undergraduate advisor in the Department of English. Students earning a BA in English must earn at least 6 credits approved by the Department of English undergraduate advisor beyond those earned for the major in order to earn a minor in Literature.

**REQUIREMENTS****Six credits from the following:**

ENGL 243	The Bible as Literature	3 cr.
ENGL 251	Survey of American Literature I	3 cr.
ENGL 252	Survey of American Literature II	3 cr.
ENGL 262	Masterpieces of Western European Literature, Post-Renaissance to Modern Times	3 cr.
ENGL 263	History of Argument	3 cr.
ENGL 271	Survey of English Literature I	3 cr.
ENGL 272	Survey of English Literature II	3 cr.

Students may make 1 or 2 of the following substitutions: HON 229G for ENGL 243; HON 220G, HON 231G, HON 234G, or HON 239G for ENGL 271; HON 220G, HON 234G, or HON 239G for ENGL 261; HON 231G for ENGL 272.

**Three credits from the following:**

ENGL 301	Theory and Criticism: Rhetoric and Culture	3 cr.
----------	--	-------

ENGL 302	Theory and Criticism: Literature and Culture	3 cr.
ENGL 303	Theory and Criticism: Film, Media and Culture	3 cr.
ENGL 310	Critical Writing	3 cr.

Note: ENGL 302 is recommended

**Three credits from the following:**

ENGL 321V	Modern European Drama	3 cr.
ENGL 323	American Drama	3 cr.
ENGL 325V	Contemporary International Literature	3 cr.
ENGL 326	Cultural Identity and Representation Across the Media	3 cr.
ENGL 327V	Shakespeare around the Globe	3 cr.
ENGL 328V	Literature of Science Fiction and Fantasy	3 cr.
ENGL 329	Studies in Drama	3 cr.
ENGL 330V	Studies in Poetry	3 cr.
ENGL 335V	Studies in the Novel	3 cr.
ENGL 336	Studies in Film	3 cr. (3+3P)
ENGL 339V	Chicana/o Literature	3 cr.
ENGL 341V	American Indian Literature	3 cr.
ENGL 349	The Short Story	3 cr.
ENGL 363	Literature for Children and Young Adults	3 cr.
ENGL 380V	Women Writers	3 cr.
ENGL 392V	Mythology	3 cr.
ENGL 394V	Southwestern Literature	3 cr.
ENGL 399	Special Topics	3 cr.

ENGL 399: with advisor approval; Note: Substitutions allowed: HON 325V, HON 345V, HON 348V, HON 365V, HON 366V, HON 369V, HON 376V, and HON 382V.

**Six credits from the following:**

ENGL 405	Chaucer	3 cr.
ENGL 407	Milton	3 cr.
ENGL 408	Shakespeare I	3 cr.
ENGL 409	Shakespeare II	3 cr.
ENGL 417	Advanced Study in Critical Theory	3 cr.
ENGL 421	Advanced Study in a Literary Period or Movement	3 cr.
ENGL 422	Advanced Study in a Literary Form or Genre	3 cr.
ENGL 423	Advanced Study in a Major Author	3 cr.
ENGL 424	Advanced Study in a Major Text	3 cr.
ENGL 425	Advanced Study in Comparative Literature	3 cr.
ENGL 429	British Romanticism	3 cr.
ENGL 432	Gothic Literature	3 cr.
ENGL 433	Victorian Literature	3 cr.
ENGL 438	Literature of the American Renaissance	3 cr.
ENGL 442	Modern and Contemporary American Poetry	3 cr.
ENGL 444	Modern British Fiction	3 cr.
ENGL 445	Postmodern Fiction	3 cr.
ENGL 451	Practicum in the Grammar of American English	3 cr.
ENGL 452	History of the English Language	3 cr.
ENGL 453	World Literatures	3 cr.
ENGL 456	Ethnic Studies in US Literature and Culture	3 cr.
ENGL 458	Latino/a Literature and Culture	3 cr.
ENGL 463	Advanced Study in English Literature	3 cr.
ENGL 469	Advanced Study in American Literature	3 cr.
ENGL 481	Women's Literature	3 cr.
ENGL 486	Hollywood Film	3 cr. (3+3P)
ENGL 489	Cultural Studies: Literature and Theory	3 cr.
ENGL 493	Middle English Textual Cultures	3 cr.

**MINOR: MEDIEVAL AND EARLY MODERN STUDIES**

**REQUIREMENTS**

Students must earn 18 credits from the approved course lists below. At least 9 credits must be upper division. No more than 9 credits may be taken under faculty in any department. Students may request approval for other courses clearly related to Medieval and/or Early Modern Studies from the undergraduate advisor

in the Department of English in consultation with faculty in medieval and early modern studies.

**18 credits from the following:**

ART 295G	Introduction to Art History I	3 cr.
ENGL 243	The Bible as Literature	3 cr.
ENGL 271	Survey of English Literature I	3 cr.
HIST 101G	Roots of Modern Europe	3 cr.
HIST 211G	East Asia to 1600	3 cr.
HIST 221G	Islamic Civilizations to 1800	3 cr.
HON 222G	Foundations of Western Culture	3 cr.
HON 229G	The New Testament as Literature	3 cr.
HON 234G	The Worlds of Arthur	3 cr.
HON 239G	Medieval Understandings: Literature and Culture in the Middle Ages	3 cr.

**9 credits from the following:**

ART 300	Special Topics in Art History	3 cr.
ART 328	Baroque Art and Architecture in Northern Europe	3 cr.
ART 333	Baroque Art and Architecture in Italy, Spain, and Hispanic Latin America	3 cr.
ART 477	Independent Research Problems in Art History	1-9 cr.
ART 478	Seminar: Selected Topics in Art History	3 cr.
ENGL 380V	Women Writers	3 cr.
ENGL 392V	Mythology	3 cr.
ENGL 405	Chaucer	3 cr.
ENGL 407	Milton	3 cr.
ENGL 408	Shakespeare I	3 cr.
ENGL 409	Shakespeare II	3 cr.
ENGL 421	Advanced Study in a Literary Period or Movement	3 cr.
ENGL 422	Advanced Study in a Literary Form or Genre	3 cr.
ENGL 423	Advanced Study in a Major Author	3 cr.
ENGL 424	Advanced Study in a Major Text	3 cr.
ENGL 425	Advanced Study in Comparative Literature	3 cr.
ENGL 452	History of the English Language	3 cr.
ENGL 463	Advanced Study in English Literature	3 cr.
ENGL 481	Women's Literature	3 cr.
W S 484	Women's Literature	3 cr.
ENGL 493	Middle English Textual Cultures	3 cr.
FREN 381	Survey of French Literature I	3 cr.
FREN 451	Special Topics in French	1-3 cr.
HIST 311V	Colonial Latin America	3 cr.
HIST 323	Cultural History of Later Imperial China	3 cr.
HIST 372	The Roman World	3 cr.
HIST 383	Germany	3 cr.
HIST 387	Spain	3 cr.
HIST 388	Women in Europe I	3 cr.
HIST 392	Tudor-Stuart England, 1485-1715	3 cr.
HIST 392	Tudor-Stuart England, 1485-1715	3 cr.
HIST 400	Special Topics	1-9 cr.
HIST 433	United States Labor History Since 1877	3 cr.
HIST 434	Urban History	3 cr.
HIST 542	Art and Life in Renaissance Italy	3 cr.
HIST 471	China through the Ming Dynasty	3 cr.
HON 326V	Art and Mythology	3 cr.
HON 355V	Sexuality in Christianity and Islam	3 cr.
HON 400	Honors Thesis	3 cr.
MUS 302	Music History and Literature: Classic through Romantic	3 cr.
MUS 420	Music of the Middle Ages and Renaissance	3 cr.
MUS 421	Music of the Baroque Era	3 cr.
PHIL 344	Modern Philosophy	3 cr.
PHIL 363	Independent Studies	1-3 cr.
PHIL 463	Independent Studies	1-3 cr.
SPAN 306	Special Topics	3 cr.
THTR 312	Acting Shakespeare	3 cr.

ART 300, ART 477, ART 478, ENGL 380, ENGL 421, ENGL 422, ENGL 423, ENGL 424, ENGL 425, ENGL 481, ENGL 484, FREN 451, HIST 400, HON 400, PHIL 363, PHIL 463, SPAN 306, and W S 250: Courses are approved for the minor only when their topics are appropriate. Students must seek approval to count these courses for the minor from the undergraduate advisor in the Department of English.

### MINOR: RHETORIC AND PROFESSIONAL COMMUNICATION

Students not earning a bachelor's degree in English with an emphasis in Rhetoric, Digital Media and Professional Communication are eligible to pursue a minor in Rhetoric and Professional Communication. Students must earn 18 credits from the approved course lists below. Students may request approval for other courses clearly related to the minor from the undergraduate advisor in the Department of English. Students earning a BA in English must earn at least 6 credits approved by the Department of English undergraduate advisor beyond those earned for the major in order to earn a minor in Rhetoric and Professional Communication.

### REQUIREMENTS

#### Three credits from the following:

ENGL 220G	Introduction to Creative Writing	3 cr.
ENGL 243	The Bible as Literature	3 cr.
ENGL 251	Survey of American Literature I	3 cr.
ENGL 252	Survey of American Literature II	3 cr.
ENGL 262	Masterpieces of Western European Literature, Post-Renaissance to Modern Times	3 cr.
ENGL 263	History of Argument	3 cr.
ENGL 271	Survey of English Literature I	3 cr.
ENGL 272	Survey of English Literature II	3 cr.

Students may make 1 or 2 of the following substitutions: HON 229G for ENGL 243; HON 220G, HON 231G, HON 234G, or HON 239G for ENGL 271; HON 220G, HON 234G, or HON 239G for ENGL 261; HON 231G for ENGL 272.

#### Three credits from the following:

ENGL 203G	Business and Professional Communication	3 cr.
ENGL 211G	Writing in the Humanities and Social Sciences	3 cr.
ENGL 218G	Technical and Scientific Communication	3 cr.
ENGL 311G	Advanced Composition	3 cr.
ENGL 318G	Advanced Technical and Professional Communication	3 cr.

#### Twelve credits from the following:

ENGL 301	Theory and Criticism: Rhetoric and Culture	3 cr.
ENGL 315	Writing for the Web	3 cr.
ENGL 318G	Advanced Technical and Professional Communication	3 cr.
ENGL 319	Introduction to Scientific Research and Writing	3 cr.
ENGL 326	Cultural Identity and Representation Across the Media	3 cr.
ENGL 412	Writing in the Workplace	3 cr.
ENGL 418	History of Rhetoric	3 cr.
ENGL 431	Technical Editing	3 cr.
ENGL 448	Advanced Study in Empirical Research	3 cr.
ENGL 449	Advanced Study in Writing	3 cr.
ENGL 451	Practicum in the Grammar of American English	3 cr.
ENGL 452	History of the English Language	3 cr.
ENGL 460	Proposal Writing	3 cr.
ENGL 462	Interdisciplinary, Client-Based Project Practicum	3 cr.
ENGL 470	Approaches to Composition	3 cr.
ENGL 478	Document Design	3 cr.
ENGL 497	Internship	3-6 cr.

## GEOGRAPHY

Associate Professor, Christopher Brown, Department Head

**Professors** DeMers, Wright; **Associate Professors** Brown, Buenemann, Campbell; **Assistant Professors** Dugas; **Adjunct Faculty** Rango, Whitford; **Professor Emeritus** Czerniak

phone: (575) 646-3509

website: <http://geography.nmsu.edu>

### Program Description

The Geography Program emphasizes the interaction of humans with the environment, and the program prepares students for professional positions in the public and private sectors, as well as for graduate work. The Department offers two concentrations for the major:

- The Geographic Information Science and Technology (GIS&T) Concentration emphasizes the acquisition of knowledge and skills in geographic information systems and remote sensing tools and concepts;
- The Human-Environment Relationships (HER) Concentration focuses on the analysis and interpretation of the coupled and complex interactions between people and the environment.

As detailed below, the Department also offers minors in Geography and GIS&T. The requirements for teaching fields in earth sciences are listed under the Department of Curriculum and Instruction in the College of Education chapter.

*Note: A grade of "C-" or better is required for all courses taken for the major. Students may not take any of these courses S/U.*

### DEGREE: BACHELOR OF SCIENCE

#### MAJOR: GEOGRAPHY

#### CONCENTRATION: Geographic Information Science and Technology (GIS&T)

The Geographic Information Science and Technology (GIS&T) Concentration offers a solid foundation in geographic thought and human and physical geography, and provides students with advanced knowledge and skills in spatial analysis and modeling through the use of geographic information systems and remote sensing tools and concepts. Preparation for advanced studies is also provided.

#### Departmental Requirements (42 or 43 credits)

GEOG 111G	Geography of the Natural Environment	4 cr. (3+3P)
GEOG 112G	World Regional Geography	3 cr.
	or	
GEOG 120G	Culture and Environment	3 cr.
GEOG 281	Map Use: Reading, Analysis and Interpretation	3 cr. (2+3P)
GEOG 373	Introduction to Remote Sensing	4 cr. (3+3P)
GEOG 381	Cartography and Geographic Information Systems	4 cr. (3+3P)
GEOG 481	Fundamentals of Geographic Information Science and Technology (GIS & T)	4 cr. (3+3P)
GEOG 482	Geodatabase Design	3 cr. (2+3P)

#### Two courses from the following:

GEOG 441	System Design for Geographic Information Science and Technology (GIS&T)	3 cr.
GEOG 473	Advanced Remote Sensing	4 cr. (3+3P)
GEOG 487	Geographic Information Science and Technology	3 cr. (2+3P)
GEOG 491	Special Topics	1-3 cr.
GEOG 492	GIS&T Applications and Modeling	3 cr.

**Three of the following courses:**

Including either one physical geography (PG) class and two human geography (HG) classes, OR two physical geography (PG) classes and one human geography (HG) class.

**Physical Geography (PG)**

GEOG 351	Fundamentals of Biogeography	3 cr.
GEOG 353	Geomorphology	3 cr. (2+3P)
GEOG 357	Climatology	3 cr.
GEOG 452	Landscape Ecology	4 cr. (3+2P)

**Human Geography (HG)**

GEOG 361V	Economic Geography	3 cr.
GEOG 363V	Cultural Geography	3 cr.
GEOG 365V	Urban Geography	3 cr.
GEOG 467	Transportation Geography	3 cr.

**One of the following Human Environment Geography (HEG) courses**

GEOG 325V	New Mexico and the American West	3 cr.
GEOG 326	U.S. National Parks	3 cr.
GEOG 328V	Geography of Latin America	3 cr.
GEOG 331V	Europe	3 cr.
GEOG 483	Field Explorations in Geography	3 cr. (6P)

**Non-Departmental Requirements (9 credits)**

A ST 251G	Statistics for Business and the Behavioral Sciences	3 cr.
	or	
A ST 311	Statistical Applications	3 cr.
	or	
STAT 251G	Statistics for Business and the Behavioral Sciences	3 cr.
ENGL 218G	Technical and Scientific Communication	3 cr.
	or	
ENGL 318G	Advanced Technical and Professional Communication	3 cr.
MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)
	or	
MATH 190G	Trigonometry and Precalculus	4 cr. (3+2P)

**Second Language Requirement**

**Option 1**

Complete up to 112 (for non- native speakers; this course may require a 111 course as a prerequisite); or up to 113 (for heritage speakers)

**Option 2**

Complete six additional upper division credits in Geography beyond the major requirements.

**Electives**

Total classes taken must be sufficient to total 120 credits, including 48 upper-division credits.

**CONCENTRATION: Human/ Environment Relationships (HER)**

The Human Environment Relationships Concentration offers a solid foundation in geographic thought and geospatial analysis and provides students with advanced knowledge and skills for assessing human and environmental systems and the coupled and complex interactions between people and the environment. Preparation for advanced graduate studies is also provided.

**Departmental Requirements (41 credits)**

GEOG 111G	Geography of the Natural Environment	4 cr. (3+3P)
GEOG 112G	World Regional Geography	3 cr.
GEOG 120G	Culture and Environment	3 cr.

GEOG 281	Map Use: Reading, Analysis and Interpretation	3 cr. (2+3P)
GEOG 381	Cartography and Geographic Information Systems	4 cr. (3+3P)
GEOG 455	Southwest Environments	3 cr.

**Two of the following human geography courses:**

GEOG 361V	Economic Geography	3 cr.
GEOG 363V	Cultural Geography	3 cr.
GEOG 365V	Urban Geography	3 cr.
GEOG 467	Transportation Geography	3 cr.

**Two of the following physical geography courses:**

GEOG 351	Fundamentals of Biogeography	3 cr.
GEOG 353	Geomorphology	3 cr. (2+3P)
GEOG 357	Climatology	3 cr.
GEOG 452	Landscape Ecology	4 cr. (3+2P)

**Two of the following Human-Environment Geography courses:**

GEOG 325V	New Mexico and the American West	3 cr.
GEOG 326	U.S. National Parks	3 cr.
GEOG 328V	Geography of Latin America	3 cr.
GEOG 331V	Europe	3 cr.
GEOG 483	Field Explorations in Geography	3 cr. (6P)

HER students will also take one more class from the Human, Physical, or Human-Environment Geography class areas.

**Non-Departmental Requirements (9 credits)**

ENGL 218G	Technical and Scientific Communication	3 cr.
	or	
ENGL 318G	Advanced Technical and Professional Communication	3 cr.
A ST 251G	Statistics for Business and the Behavioral Sciences	3 cr.
	or	
A ST 311	Statistical Applications	3 cr.
	or	
STAT 251G	Statistics for Business and the Behavioral Sciences	3 cr.
MATH 121G	College Algebra	3 cr.

**Second Language Requirement**

**Option 1**

Complete up to 112 (for non- native speakers; this course may require 111 as a prerequisite); or up to 113 (for heritage speakers)

**Option 2**

Complete six additional upper division credits in Geography beyond the major requirements.

**Electives**

Total classes taken must be sufficient to total 120 credits, including 48 upper-division credits.

**MINOR: GEOGRAPHY**

**REQUIREMENTS**

The Department of Geography offers a minor in Geography to interested undergraduate students from departments outside of Geography. To earn a minor in Geography, the following courses are required. *Note: A grade of C- or better is required for all courses taken for the minor. Students may not take any of these courses S/U.*

**Departmental Requirements (19 credits)**

GEOG 111G	Geography of the Natural Environment	4 cr. (3+3P)
-----------	--------------------------------------	-----------------

GEOG 112G	World Regional Geography	3 cr.
	or	
GEOG 120G	Culture and Environment	3 cr.

**One course from the following:**

GEOG 281	Map Use: Reading, Analysis and Interpretation	3 cr. (2+3P)
GEOG 381	Cartography and Geographic Information Systems	4 cr. (3+3P)
GEOG 481	Fundamentals of Geographic Information Science and Technology (GIS & T)	4 cr. (3+3P)

**Three of the following courses:**

Including one physical geography (PG) class, one human geography (HG) classes, AND one Human-Environment Geography (HEG) class.

**Physical Geography (PG)**

GEOG 351	Fundamentals of Biogeography	3 cr.
GEOG 353	Geomorphology	3 cr. (2+3P)
GEOG 357	Climatology	3 cr.
GEOG 452	Landscape Ecology	4 cr. (3+2P)

**Human Geography (HG)**

GEOG 361V	Economic Geography	3 cr.
GEOG 363V	Cultural Geography	3 cr.
GEOG 365V	Urban Geography	3 cr.
GEOG 467	Transportation Geography	3 cr.

**Human-Environment Geography (HEG)**

GEOG 325V	New Mexico and the American West	3 cr.
GEOG 326	U.S. National Parks	3 cr.
GEOG 328V	Geography of Latin America	3 cr.
GEOG 331V	Europe	3 cr.
GEOG 483	Field Explorations in Geography	3 cr. (6P)

**MINOR: Geographic Information Science and Technology****REQUIREMENTS**

The Department of Geography offers a minor in Geographic Information Science and Technology (GIS&T); this option applies for non-geography majors only. To earn a minor in GIS&T, the following courses are required. *Note: A grade of C- or better is required for all courses taken for the minor.* Students may not take any of these courses S/U.

**Departmental Requirements (20 or 21 credits)**

GEOG 373	Introduction to Remote Sensing	4 cr. (3+3P)
GEOG 381	Cartography and Geographic Information Systems	4 cr. (3+3P)
GEOG 481	Fundamentals of Geographic Information Science and Technology (GIS & T)	4 cr. (3+3P)
GEOG 482	Geodatabase Design	3 cr. (2+3P)

**Two courses from the following:**

GEOG 441	System Design for Geographic Information Science and Technology (GIS&T)	3 cr.
GEOG 473	Advanced Remote Sensing	4 cr. (3+3P)
GEOG 487	Geographic Information Science and Technology	3 cr. (2+3P)
GEOG 492	GIS&T Applications and Modeling	3 cr.

## GEOLOGICAL SCIENCES

**Professor, Nancy J. McMillan, Department Head**

**Professors** Amato, McMillan; **Associate Professor** Ramos; **Assistant Professor**; Burgette, Hampton; **College Assistant Professor** Johnson; **Adjunct Professors**, Davis, Witcher; **Emeritus Faculty** Lawton, Mack

**phone: (575) 646-2708**

**website: <http://geology.nmsu.edu>**

Students earning the BS in Geology, any option, may also earn the Undergraduate Research Certificate in the Department of Geological Sciences. Completion of the Undergraduate Research Certificate includes completion of an undergraduate research project, participation in the department's undergraduate research meetings and one of the following: 1) a senior thesis; 2) a manuscript submitted for a publication; or 3) an oral or poster presentation at a national or regional meeting. Undergraduate Research Certificates are presented at the department's annual awards ceremony.

The Department of Geological Sciences also cooperates with the Department of Physics in offering a BS degree in physics with a concentration in geophysics. Requirements are listed in the Department of Physics section of this catalog.

**DEGREE: BACHELOR OF SCIENCE  
MAJOR: GEOLOGY****OPTION: Earth and Environmental Systems**

The option in geological sciences provides students with scientific insight as a foundation for careers in environmental earth science, environmental policy and resource management. Qualified students are also prepared for graduate study in these areas. This option does not prepare students for graduate study in the geological sciences; these students should follow the curriculum in the Geological Sciences Option.

**Nondepartmental Requirements (41 credits)**

(May not be taken S/U and a grade of C- or better must be earned.)

A ST 311	Statistical Applications	3 cr.
AG E 337V	Natural Resource Economics	3 cr.
	or	
AG E 384V	Water Resource Economics	3 cr.
BIOL 111G	Natural History of Life	3 cr.
CHEM 111G	General Chemistry I	4 cr. (3+3P)
ECON 252G	Principles of Microeconomics	3 cr.
GEOG 120G	Culture and Environment	3 cr.
GEOG 381	Cartography and Geographic Information Systems	4 cr. (3+3P)
PHYS 211G	General Physics I	3 cr.
PHYS 211GL	General Physics I Laboratory	1 cr.
	Two semesters of a foreign language (111, 112) or high school equivalent (2 years)	8 cr.

**Two courses from the following:**

GOVT 343	Congress and the Legislative Process	3 cr.
GOVT 395	Law and Society	3 cr.
GOVT 399	New Mexico Law	3 cr.

**Departmental Requirements (29 credits)**

(May not be taken S/U and a grade of C- or better must be earned.)

GEOL 111G	Survey of Geology	4 cr. (3+3P)
	or	
HON 219G	Earth, Time, and Life	4 cr. (3+3P)
GEOL 305V	Fossils and the Evolution of Life	3 cr.
GEOL 310	Mineralogy	3 cr. (2+3P)

GEOL 335V	Earthquakes, Volcanoes, Hurricanes, and Floods: The Role of Natural Hazards in Civ Past and Present	3 cr.
GEOL 360	General Geochemistry	3 cr.
GEOL 399	Igneous and Metamorphic Petrology	3 cr. (2+3P)
GEOL 420	Stratigraphy and Sedimentology	3 cr. (2+3P)
GEOL 449	The Geological Profession	1 cr.
GEOL 470	Structural Geology	3 cr. (2+3P)
GEOL 491	Tectonic Evolution of North America	3 cr.

**Elective Requirements (9 credits)**

Students must obtain a C- or better in any three of the following courses:

C E 357	Soil Mechanics	3 cr. (2+3P)
GEOL 295	Environmental Geology	3 cr.
GEOL 312	Optical Mineralogy	3 cr. (2+3P)
GEOL 353	Geomorphology	3 cr.
GEOL 424	Soil Chemistry	3 cr.
	or	
GEOL 479	Environmental Soil Chemistry	3 cr.
GEOL 434	Tectonics of Sedimentary Basins	3 cr.
GEOL 444	GIS for Geology	3 cr.
GEOL 452	Geohydrology	4 cr. (3+2P)
GEOL 465	Isotope Geochemistry	3 cr.
GEOL 475	Geology of Mineral Resources	3 cr. (2+3P)
GEOL 478	Petroleum Geology	3 cr. (2+3P)
GEOL 480	Seminar	1-3 cr.
GEOL 490	Field Geology	3 cr. (9P)
GEOL 495	Geology Field Camp	4 cr. (12P)
SOIL 252	Soils	3 cr.

Other electives, including those selected to satisfy the college and university requirements, must bring the total credits to 120, of which 48 must be upper-division (300 or above).

Students must work closely with their advisors in order to plan programs that allow them to meet all requirements and earn sufficient upper-division credit.

**OPTION: Earth Science Education**

The option in earth science education is a collaboration between the Department of Geological Sciences and the Department of Curriculum and Instruction in the College of Education. In this option, students earn a Secondary Licensure as well as a BS in Geology, and become qualified to teach the Broad Sciences at the middle and high school levels. Students take one year of graduate classes in the College of Education to complete the Secondary Licensure.

**Nondepartmental Requirements (51 credits)**

(May not be taken S/U and a grade of C- or better must be earned.)

ASTR 105G	The Planets	4 cr. (3+2P)
	or	
ASTR 110G	Introduction to Astronomy	4 cr. (3+2P)
BIOL 111G	Natural History of Life	3 cr.
BIOL 111GL	Natural History of Life Laboratory	1 cr. (3P)
BIOL 313	Structure and Function of Plants	3 cr.

		(2+3P)
	or	
BIOL 322	Zoology	3 cr. (2+3P)
C EP 110G	Human Growth and Behavior	3 cr.
C EP 210	Educational Psychology	3 cr.
CHEM 111G	General Chemistry I	4 cr. (3+3P)
	or	
CHEM 115	Principles of Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
	or	
CHEM 116	Principles of Chemistry II	4 cr. (3+3P)
EDLT 368	Integrating Technology with Teaching	3 cr.
EDUC 315	Multicultural Education	3 cr. (2+2P)
EDUC 381	Secondary Field Experience	3 cr. (2+2P)
PHYS 211G	General Physics I	3 cr.
	or	
PHYS 215G	Engineering Physics I	3 cr.
PHYS 212G	General Physics II	3 cr.
	or	
PHYS 216G	Engineering Physics II	3 cr.
PHYS 211GL	General Physics I Laboratory	1 cr.
	or	
PHYS 215GL	Engineering Physics I Laboratory	1 cr. (3P)
PHYS 212GL	General Physics II Laboratory	1 cr.
	or	
PHYS 216GL	Engineering Physics II Laboratory	1 cr. (3P)
	Two semesters of a foreign language (111, 112) or high school equivalent (2 years)	8 cr.

*CHEM 115 and CHEM 116: Preferred*

**Departmental Requirements (29 credits)**

(May not be taken S/U and a grade of C- or better must be earned.)

GEOL 111G	Survey of Geology	4 cr. (3+3P)
	or	
HON 219G	Earth, Time, and Life	4 cr. (3+3P)
GEOL 305V	Fossils and the Evolution of Life	3 cr.
GEOL 310	Mineralogy	3 cr. (2+3P)
GEOL 335V	Earthquakes, Volcanoes, Hurricanes, and Floods: The Role of Natural Hazards in Civ Past and Present	3 cr.
GEOL 360	General Geochemistry	3 cr.
GEOL 399	Igneous and Metamorphic Petrology	3 cr. (2+3P)
GEOL 420	Stratigraphy and Sedimentology	3 cr. (2+3P)
GEOL 434	Tectonics of Sedimentary Basins	3 cr.



GEOL 444	GIS for Geology	3 cr.
GEOL 449	The Geological Profession	1 cr.
GEOL 470	Structural Geology	3 cr. (2+3P)
GEOL 491	Tectonic Evolution of North America	3 cr.

Other electives, including those selected to satisfy the college and university requirements, must bring the total credits to 120, of which 48 must be upper-division (300 or above).

Students must work closely with their advisors in order to plan programs that allow them to meet all requirements and earn sufficient upper-division credit. After completing the BS in Geology, Option Earth Science Education, students should apply and be admitted to the Graduate School in the Department of Curriculum and Instruction, and be admitted to the Teacher Education Program (TEP). For additional details, see the Curriculum and Instruction portion of the NMSU Graduate Catalog.

#### OPTION: Geological Sciences

The option in geological sciences is a broad field of study that prepares students for employment by energy and mineral industries, environmental and water resource companies, federal, state and local governments, as well as service companies that utilize earth resources. Qualified students are also prepared for graduate study in the geological sciences.

#### Nondepartmental Requirements (33 credits)

(May not be taken S/U and a grade of C- or better must be earned.)

CHEM 111G	General Chemistry I	4 cr. (3+3P)
	or	
CHEM 115	Principles of Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
	or	
CHEM 116	Principles of Chemistry II	4 cr. (3+3P)
MATH 191G	Calculus and Analytic Geometry I	4 cr.
	and	
MATH 192G	Calculus and Analytic Geometry II	4 cr.
PHYS 211G	General Physics I	3 cr.
	or	
PHYS 215G	Engineering Physics I	3 cr.
PHYS 212G	General Physics II	3 cr.
	or	
PHYS 216G	Engineering Physics II	3 cr.
PHYS 211GL	General Physics I Laboratory	1 cr.
	or	
PHYS 215GL	Engineering Physics I Laboratory	1 cr. (3P)
PHYS 212GL	General Physics II Laboratory	1 cr.
	or	
PHYS 216GL	Engineering Physics II Laboratory	1 cr. (3P)
	Two semesters of a foreign language (111, 112) or high school equivalent (2 years)	8 cr.

*CHEM 115 and CHEM 116: Preferred*

#### One course from the following:

C S 167	C Programming	3 cr. (2+2P)
C S 187	Java Programming	3 cr. (2+2P)

C E 151	Introduction to Civil Engineering	3 cr.
E E 161	Computer Aided Problem Solving	4 cr. (3+3P)
GEOG 381	Cartography and Geographic Information Systems	4 cr. (3+3P)
STAT 271G	Statistics for Psychological Sciences	3 cr.
STAT 371	Statistics for Engineers and Scientists I	3 cr.

#### Departmental Requirements (36 credits)

(May not be taken S/U and a grade of C- or better must be earned.)

GEOL 111G	Survey of Geology	4 cr. (3+3P)
	or	
HON 219G	Earth, Time, and Life	4 cr. (3+3P)
GEOL 305V	Fossils and the Evolution of Life	3 cr.
GEOL 310	Mineralogy	3 cr. (2+3P)
GEOL 312	Optical Mineralogy	3 cr. (2+3P)
GEOL 360	General Geochemistry	3 cr.
GEOL 399	Igneous and Metamorphic Petrology	3 cr. (2+3P)
GEOL 420	Stratigraphy and Sedimentology	3 cr. (2+3P)
GEOL 449	The Geological Profession	1 cr.
GEOL 470	Structural Geology	3 cr. (2+3P)
GEOL 490	Field Geology	3 cr. (9P)
GEOL 491	Tectonic Evolution of North America	3 cr.
GEOL 495	Geology Field Camp	4 cr. (12P)

#### Elective Requirements (12 credits)

Students must obtain a C- or better in any four of the following courses:

C E 357	Soil Mechanics	3 cr. (2+3P)
GEOL 295	Environmental Geology	3 cr.
GEOL 335V	Earthquakes, Volcanoes, Hurricanes, and Floods: The Role of Natural Hazards in Civ Past and Present	3 cr.
GEOL 353	Geomorphology	3 cr.
GEOL 424	Soil Chemistry	3 cr.
	or	
GEOL 479	Environmental Soil Chemistry	3 cr.
GEOL 434	Tectonics of Sedimentary Basins	3 cr.
GEOL 444	GIS for Geology	3 cr.
GEOL 452	Geohydrology	4 cr. (3+2P)
GEOL 465	Isotope Geochemistry	3 cr.
GEOL 475	Geology of Mineral Resources	3 cr. (2+3P)
GEOL 478	Petroleum Geology	3 cr. (2+3P)
GEOL 480	Seminar	1-3 cr.
SOIL 252	Soils	3 cr.

Other electives, including those selected to satisfy the college and university requirements, must bring the total credits to 120, of which 48 must be upper-division (300 or above).

Students must work closely with their advisors in order to plan programs that allow them to meet all requirements and earn sufficient upper-division credit.

## SECONDARY TEACHING LICENSURE

To earn the Secondary Teaching Licensure, students must complete these courses and pass the NMTA Basic Skills, NMTA General Knowledge, and NMTA Content Knowledge Licensure Exams:

### Required Courses (21 credits)

EDUC 505	Classroom Management	3 cr.
EDUC 509	Teaching Methods Laboratory	3 cr.
EDUC 510	Internship/Student Teaching	6 cr.
EDUC 563	Teaching Science at the Middle and High School Level	3 cr. (2+2P)
RDG 514	Content Area Literacy	3 cr.
SPED 480	Secondary Curriculum, Methods and Materials for Special Education in a Diverse Society	3 cr.

## MINOR: GEOLOGY

A student cannot earn a BS in Geology and also earn a minor in Geology.

## REQUIREMENTS

### Required Courses

GEOL 111G	Survey of Geology	4 cr. (3+3P)
	or	
HON 219G	Earth, Time, and Life	4 cr. (3+3P)
GEOL 305V	Fossils and the Evolution of Life	3 cr.

### Eleven credits from the following:

GEOL 295	Environmental Geology	3 cr.
GEOL 310	Mineralogy	3 cr. (2+3P)
GEOL 312	Optical Mineralogy	3 cr. (2+3P)
GEOL 335V	Earthquakes, Volcanoes, Hurricanes, and Floods: The Role of Natural Hazards in Civ Past and Present	3 cr.
GEOL 353	Geomorphology	3 cr.
GEOL 360	General Geochemistry	3 cr.
GEOL 399	Igneous and Metamorphic Petrology	3 cr. (2+3P)
GEOL 420	Stratigraphy and Sedimentology	3 cr. (2+3P)
GEOL 434	Tectonics of Sedimentary Basins	3 cr.
GEOL 444	GIS for Geology	3 cr.
GEOL 465	Isotope Geochemistry	3 cr.
GEOL 470	Structural Geology	3 cr. (2+3P)
GEOL 475	Geology of Mineral Resources	3 cr. (2+3P)
GEOL 477	Special Problems	1-3 cr.
GEOL 478	Petroleum Geology	3 cr. (2+3P)
GEOL 480	Seminar	1-3 cr.
GEOL 490	Field Geology	3 cr. (9P)
GEOL 491	Tectonic Evolution of North America	3 cr.
GEOL 495	Geology Field Camp	4 cr. (12P)

GEOL 477 and GEOL 480: variable credit; GEOL 312, GEOL 399, GEOL 420, GEOL 465, GEOL 470, GEOL 475, GEOL 477, GEOL 478, GEOL 480, GEOL 490, GEOL 491, GEOL 495: courses with Geology prerequisites other than GEOL 111G or HON 219G

## GOVERNMENT

### Professor, Neil Harvey, Department Head

**Professors** Butler, Harvey; **Associate Professor** Medina; **Assistant Professors** Chand, Conner, Liang, Rosendorf; **College Professor** Seckler; **Emeritus Professors** Baker, Lapid, Taggart, Winn  
**phone:**(575) 646-4936  
**website:** <http://deptofgov.nmsu.edu/>

The study of government and political science blends the strengths of a liberal arts education while preparing students for a career in their field. Career opportunities can include positions in: federal, state, and local government; public administration and public service; and in public policy analysis.

The government major program calls for a thorough preparation in the study of government as described below with the opportunity for those interested in specific careers to concentrate in one of the subfields: American government and politics, public law, public administration and policy, comparative politics, political theory and international relations.

The department also offers a supplementary major in law and society, which is supportive of law-related careers.

A government minor program involving 18 credits of course work is also offered. A subfield minor or a general minor may be selected. In addition, the department participates in an interdisciplinary minor in Contemporary Social Studies.

## DEGREE: BACHELOR OF ARTS

### MAJOR: GOVERNMENT

## REQUIREMENTS

### Departmental Requirements

GOVT 100G	American National Government	3 cr.
	or	
HON 249G	American Politics in a Changing World	3 cr.
GOVT 101	Introductory Government Seminar	1 cr.
GOVT 110G	Introduction to Political Science	3 cr.
	or	
HON 248G	The Citizen and the State: Great Political Issues	3 cr.
GOVT 300	Political Research Skills	3 cr.
	or	
	another social science research methods course (a list of approved options is available in the department office)	
GOVT 415	Senior Seminar	2 cr.

Majors must take three lower level courses: GOVT 100G American National Government (or HON 249G American Politics in a Changing World)(3 credits); GOVT 110G Introduction to Political Science (or HON 248G Citizen and the State: Great Political Issues)(3 credits); and GOVT 101 Introductory Government Seminar (1 credit). Majors should complete these lower level requirements before registering for upper-division government credits.

Majors must take one upper-division course in four of the six subfields. Subfields are identified by the middle course numbers: public administration and policy (20/30 series), American government and politics (40/50 series), international relations (60 series, may include HON 304V), comparative politics (70 series, may include HON 307V), political theory (80 series, may include GOVT 380V), and public law (90 series). In their final year, majors must also take GOVT 415 Senior Seminar (2 credits). Additional credits in government to bring total credits in major to 33, including 20 upper-division.

*Note: Students may not count S/U grades taken in their major unless the particular course is regularly graded S/U. All courses must be passed with grades of C- or better. In addition, while research methods courses taken outside*

of the department may count toward the methods requirement, only GOVT 300 counts toward the 33 credits in the major.

Up to twelve hours of internship credit are available. However, only three hours count toward the major. Internship guidelines are available in the department office and on the Government Department web page, <http://deptofgov.nmsu.edu/>.

Students seeking the B.A. in Government must complete the second language requirement at the 212 or 214 level or above as described in the College Degree Requirements for the College of Arts and Sciences.

### SUPPLEMENTARY MAJOR: LAW AND SOCIETY

The Department of Government also coordinates a supplementary major in law and society that may be taken in addition to a regular major. The program is designed to provide a multidisciplinary preprofessional education for undergraduates interested in law school or who contemplate careers in fields closely related to the legal profession, such as government, politics, social work or law enforcement.

### REQUIREMENTS

#### Departmental Requirements

The supplementary major consists of 24 credits chosen from the courses listed below. At least 18 credits must be earned in upper-division courses and 6 credits must be earned from listed courses outside the student's primary major. Candidates for the Law and Society degree must declare their supplementary major prior to completing the last 9 credits of the program.

#### Three of the following Core Courses:

C J 205	Criminal Law I	3 cr.
GOVT 395	Law and Society	3 cr.
GOVT 391	Constitutional Law	3 cr.
GOVT 394	Judicial Process	3 cr.
	*One of the following three courses: C J 306; GOVT 392, JOUR 493/HON 377V	3 cr.

\*C J 306 (p. 204), *Criminal Procedural Law*; GOVT 392 (p. 252), *Civil Liberties*; JOUR 493 (p. 267)/HON 377V (p. 260), *Mass Communications Law*

#### One of the following Communication Skills:

COMM 351	Persuasion Theory and Practice	3 cr.
COMM 353	Advanced Public Speaking	3 cr.
ENGL 311G	Advanced Composition	3 cr.
PHIL 448	Writing Philosophy	3 cr.

#### One of the following Critical Thinking Skills:

GOVT 382	Classical Political Thought	3 cr.
PHIL 211G	Informal Logic	3 cr.
PHIL 312	Formal Logic	3 cr.

#### One of the following Jurisprudence:

C J 307	Law of Evidence	3 cr.
C J 424	Forensic Law	3 cr.
GOVT 385	American Political Thought	3 cr.
PHIL 376	Philosophy of Law	3 cr.
PSY 330	Psychology and the Law	3 cr.
SOC 391	Crime and Society	3 cr.

#### Two of the following Legal Policy Issues:

BLAW 316	Legal Environment of Business	3 cr.
BLAW 385V	Consumers and the Law	3 cr.
C J 250	Courts and the Criminal Justice System	3 cr.
C J 332	Correctional Law	3 cr.
C J 399	New Mexico Law	3 cr.
GOVT 345	The Supreme Court	3 cr.
GOVT 387	Religion and Politics	3 cr.
GOVT 390	Special Topics in Public Law	3 cr.
GOVT 396	International Law	3 cr.
GOVT 397	Law and Sex	3 cr.
HON 335V	Legal Issues in Modern Society	3 cr.
HON 350V	Law, Culture and Conflict	3 cr.
HON 352V	Crime, Justice and Society	3 cr.
HRTM 304	Hospitality and Travel Law	3 cr.

PHIL 100G	Philosophy, Law and Ethics	3 cr.
PHIL 320	Social and Political Philosophy	3 cr.
SOC 392	Juvenile Delinquency	3 cr.

### MINORS:

The Department of Government offers a general Government minor and specialized sub field minors. In addition, the department participates in an interdisciplinary minor in Contemporary Social Studies with History and other departments.

A student cannot earn both a B.A. in Government and a general minor in Government. Government majors may pursue a subfield minor in the department, however, they cannot double count any upper division courses in Government toward the minor.

### MINORS: AMERICAN GOVERNMENT AND POLITICS, COMPARATIVE POLITICS, INTERNATIONAL RELATIONS, POLITICAL THEORY, PUBLIC ADMINISTRATION, PUBLIC LAW

Students pursuing a subfield minor may count a maximum of 3 credits in an independent studies course or an internship. Students may request permission to substitute courses between subfields, subject to approval of the Department of Government undergraduate committee.

### REQUIREMENTS

#### Required Courses

GOVT 100G	American National Government	3 cr.
	or	
HON 249G	American Politics in a Changing World	3 cr.
GOVT 110G	Introduction to Political Science	3 cr.
	or	
HON 248G	The Citizen and the State: Great Political Issues	3 cr.
	Twelve additional credits, of which at least 9 are upper division, including 3 upper division courses from the same subfield	12 cr.

The subfield series include courses in the 20/30 series (public administration and policy), 40/50 series (American government and politics), 60 series and HON 304V (international relations), 70 series and HON 307V (comparative politics), 80 series, including GOVT 380V (political theory), and 90 series (public law)

### MINOR: CONTEMPORARY SOCIAL STUDIES

This minor focuses on world issues since 1900. See requirements for this minor under Department of History.

### MINOR: GOVERNMENT

### REQUIREMENTS

#### Required Courses

GOVT 100G	American National Government	3 cr.
	or	
HON 249G	American Politics in a Changing World	3 cr.
GOVT 110G	Introduction to Political Science	3 cr.
	or	
HON 248G	The Citizen and the State: Great Political Issues	3 cr.
	Twelve additional credits, of which at least 9 are upper division, including 3 upper division courses from different subfields	12 cr.

The subfield series include courses in the 20/30 series (public administration and policy), 40/50 series (American government and politics), 60 series and HON 304V (international relations), 70 series and HON 307V (comparative politics), 80 series, including GOVT 380V (political theory), and 90 series (public law)

# HISTORY

## Professor, Ken Hammond, Department Head

**Professors** Bronstein, Horodowich, Hunner, Malamud **Associate Professors** Brooks, Garcia-Bryce, Orzoff; **Assistant Professors** Galvan, Kopp, Seong-Leong Quintana **College Professors** E. Hammond, Tollefson; Pitcaithley, Schneider-Hector; **College Assistant Professors** Milliorn  
**phone: (575) 646-4601**  
**website: <http://history.nmsu.edu/>**

A knowledge of history prepares students for careers in: teaching; law; public service; management; journalism; education; communications; travel counseling; and library, museum and archival staff work.

## DEGREE: BACHELOR OF ARTS

### MAJOR: HISTORY

The undergraduate history major consists of at least 42 credits in the major field, 24 credits of which must be numbered 300 or above. All courses must be passed with grades of C- or higher, and none may be taken on an S/U basis. Electives must be carefully selected by the student and approved by a Department of History advisor so that the student's program is well tailored to individual goals. All majors must be advised prior to registration.

Among the upper-division courses that majors take, one or more (in addition to HIST 398) must require a research-based paper or papers. In fulfilling their research requirements, majors must write one research-based paper or papers which together total at least 20 pages.

## REQUIREMENTS

### Departmental Requirements

Students must pass at least 18 credits from the list below, including courses from at least two complete pairs of these courses: HIST 101G-102G, HIST 111G- 112G, HIST 201G-202G, HIST 211G-212G, HIST 221G-222, and HIST 311-312.

HIST 101G	Roots of Modern Europe	3 cr.
HIST 102G	Modern Europe	3 cr.
HIST 111G	Global History to 1500	3 cr.
HIST 112G	Global History Since 1500	3 cr.
HIST 201G	Introduction to Early American History	3 cr.
HIST 202G	Introduction to Recent American History	3 cr.
HIST 211G	East Asia to 1600	3 cr.
HIST 212G	East Asia since 1600	3 cr.
HIST 221G	Islamic Civilizations to 1800	3 cr.
HIST 222G	Islamic Civilizations since 1800	3 cr.
HIST 311V	Colonial Latin America	3 cr.
HIST 312V	Modern Latin America	3 cr.

### Required Course

HIST 398	Historians and History	3 cr.
----------	------------------------	-------

*HIST 398: Should be taken in junior year after consultation with advisor. Course prerequisite is English 311G.*

### At least one course from the following:

HIST 401	Environmental History	3 cr.
HIST 413	Native American History	3 cr.
HIST 415	Western American History	3 cr.
HIST 420	History of Women and Gender	3 cr.
HIST 424	History of Art, Thought and Literature	3 cr.
HIST 431	History of Race and Ethnicity	3 cr.
HIST 432	United States Labor History to 1877	3 cr.
HIST 433	United States Labor History Since 1877	3 cr.
HIST 434	Urban History	3 cr.
HIST 435	History of War and Revolution	3 cr.
HIST 436	Nations and Nationalism	3 cr.
HIST 438	Antiquity and Modernity	3 cr.
HIST 443	The Cold War in Latin America	3 cr.

**Six additional 3-credit upper division History courses, at least 1 of which must be a course numbered 400 or above.**

No more than nine upper division credits (with exception of HIST 398) may be from any particular field of History. Students may count additional credits in a particular field of History if they pass more than the minimal number of required upper division credits for the degree.

**Majors must pass a total of 18 upper division History credits**

(not including HIST 311, HIST 312, and HIST 398) with at least 6 at the 400 level.

**Majors must pass the second language requirement at the 212/214 level or the 300- level.**

Please see College of Arts and Sciences pages for discussion of the ways to pass this requirement.

### Electives

Sufficient to bring total credits to 120, including 48 upper-division credits.

## SECONDARY LICENSURE

History majors who are planning on pursuing certification as public school teachers should take the following six courses in preparation. These six courses will complete approximately half of the course work necessary for students to earn teaching licensure in New Mexico. After completing the undergraduate degree in History with a grade point average of 2.5 or above, the student should apply to the Graduate School for admission to the Department of Curriculum and Instruction and the Teacher Education Program in the College of Education to pursue the remaining courses needed to complete secondary licensure.

### Required Courses

EDUC 315	Multicultural Education	3 cr. (2+2P)
EDLT 368	Integrating Technology with Teaching	3 cr.
SPED 350	Introduction to Special Education in a Diverse Society	3 cr.
EDUC 381	Secondary Field Experience	3 cr. (2+2P)
EDUC 530	Exploration in Education	3 cr. (2+2P)

*EDUC 530: recommended for senior year or as a graduate student*

## MINOR: CONTEMPORARY SOCIAL STUDIES

This minor focuses on world issues since 1900. Students must pass one course taken from each of the five departments listed below, plus an additional course taken from any of the five areas or a course that is approved by the Department of History, with grades of C- or higher. Courses must not be taken on an S/U basis unless they are automatically S/U for all students. Students may substitute an appropriate subtitled special topics course, an independent readings or projects course, or an Honors course in any area with the permission of the head of the department offering the courses in that area.

## REQUIREMENTS

### Criminal Justice

C J 322	Organized Crime	3 cr.
C J 451	Border Violence and Justice	3 cr.
C J 452	Upper World Crime	3 cr.
C J 453	Women and Justice	3 cr.

### Geography

GEOG 325V	New Mexico and the American West	3 cr.
GEOG 328V	Geography of Latin America	3 cr.
GEOG 331V	Europe	3 cr.
GEOG 363V	Cultural Geography	3 cr.
GEOG 365V	Urban Geography	3 cr.

### Government

GOVT 324	Environmental Policy	3 cr.
GOVT 343	Congress and the Legislative Process	3 cr.
GOVT 344	The American Presidency	3 cr.
GOVT 345	The Supreme Court	3 cr.
GOVT 354	American Indian Politics	3 cr.
GOVT 360	International Relations	3 cr.

GOVT 366	American Foreign Policy	3 cr.
GOVT 371	Latin American Politics	3 cr.
GOVT 378	U.S.-Mexico Border Politics	3 cr.
GOVT 391	Constitutional Law	3 cr.
GOVT 392	Civil Liberties	3 cr.
GOVT 394	Judicial Process	3 cr.
GOVT 397	Law and Sex	3 cr.
GOVT 469	Globalization	3 cr.

**History**

HIST 302V	Science in Modern Society	3 cr.
HIST 331	Rebels, Guerrillas, and Terrorists in Modern Latin America	3 cr.
HIST 338	World War I	3 cr.
HIST 339	World War II	3 cr.
HIST 356	The Mexican Revolution	3 cr.
HIST 362	Afro-American History II	3 cr.
HIST 365	Cold War Europe	3 cr.
HIST 382V	Modern Russia	3 cr.
HIST 383	Germany	3 cr.
HIST 390V	The Holocaust	3 cr.
HIST 391	Twentieth Century World History	3 cr.
HIST 395	From Rule Britannia to Cool Britannia: Twentieth-Century Britain	3 cr.
HIST 433	United States Labor History Since 1877	3 cr.
HIST 443	The Cold War in Latin America	3 cr.
HIST 448	Nuclear Nation	3 cr.
HIST 481	Time Traveling Through New Mexico's Past	3 cr.

*HIST 481: twentieth century topics only*

**Sociology**

SOC 361V	Social Issues in the Rural Americas	3 cr.
SOC 371	Race and Ethnic Relations	3 cr.
SOC 372	Sociology of Health and Medicine	3 cr.
SOC 374V	Comparative Family Systems	3 cr.
SOC 375	Social Inequality	3 cr.
SOC 376V	Social Change	3 cr.
SOC 381	Individual and Society	3 cr.
SOC 392	Juvenile Delinquency	3 cr.
SOC 430	Social Movement Theory	3 cr.
SOC 458V	Comparative Global Family Systems	3
SOC 459	Advanced Issues in Sex and Gender	3 cr.
SOC 465V	Environmental Sociology	3 cr.
SOC 470	Sociology of Latinos/as in the United States	3 cr.
SOC 474	Sociology of Organizations	3 cr.
SOC 477	Sociology of Education	3 cr.
SOC 479	Sociology Perspectives on the U.S.-Mexico Border	3 cr.
SOC 489	Globalization	3 cr.

**MINOR: HISTORY**

A student may not earn both a bachelor's degree in the Department of History and a minor in History.

**REQUIREMENTS**

**Students must pass six credits from the following:**

HIST 101G	Roots of Modern Europe	3 cr.
HIST 102G	Modern Europe	3 cr.
HIST 111G	Global History to 1500	3 cr.
HIST 112G	Global History Since 1500	3 cr.
HIST 201G	Introduction to Early American History	3 cr.
HIST 202G	Introduction to Recent American History	3 cr.
HIST 211G	East Asia to 1600	3 cr.
HIST 212G	East Asia since 1600	3 cr.
HIST 221G	Islamic Civilizations to 1800	3 cr.
HIST 222G	Islamic Civilizations since 1800	3 cr.

**Students must pass at least 12 additional credits in History, of which at least 9 credits are numbered 300 and above.**

*Note: All courses must be passed with grades of C- or above. No courses may be taken S/U.*

**INTERDISCIPLINARY STUDIES**

**Professor, James R. Maupin, Department Head**

**Professor, Laura A. Williams, Women's Studies Program Director**

**Professors** Bejarano, Maupin; **Associate Professors** Hamzeh; **Assistant Professors** Jonet; **College Associate Professors** Benanti; **College Assistant Professors** Williams

**phone: (575) 646-4601**

**website: <http://idsas.nmsu.edu/>**

The Interdisciplinary Studies Department extends New Mexico State University's reach beyond traditional academic programs to provide educational opportunities for students to meet their academic, professional and personal learning goals. The Interdisciplinary Studies Department offers flexible degree programs in the Bachelor of Applied Studies and the Bachelor of Individualized Studies, giving students the opportunity to develop their own interdisciplinary studies program, appropriate to their unique educational and career goals.

Advising for the Bachelor of Applied Studies and Bachelor of Individualized Studies is offered by the College of Arts and Sciences. Visit the Arts & Sciences Advising Center website to make an appointment.

The Interdisciplinary Studies Department also offers a Bachelor of Arts in Women's Studies and an Undergraduate Minor in Women's Studies. The Women's Studies Program at NMSU is an interdisciplinary program focusing on the study of women, gender and sexuality in a global context. Classes in Women's Studies focus on women, gender and other categorical differences, multicultural learning, critical thinking and the integration of theory and practice.

**Minors**

Students seeking a Bachelor of Applied Studies or the Bachelor of Individualized Studies degree are encouraged to complete one or more minors offered through various NMSU colleges. A minor is designated on a transcript and consists of a minimum of 18 credits, nine of which must be upper-division. Courses required to complete a minor may be in a single department or interdepartmental, are offered through various NMSU colleges, and are subject to availability. Students seeking to complete a minor must have the minor verified, prior to graduation, by the college academic department administering the minor. Specific requirements for minors may be obtained from the academic department administering a specific minor, the academic department's college dean's office, and in the college departmental listings of this catalog. *Note: BAS and BIS majors may not earn the Business Administration minor.*

**DEGREE: BACHELOR OF APPLIED STUDIES****MAJOR: APPLIED STUDIES**

The Bachelor of Applied Studies (BAS) degree promotes the mission and purpose of NMSU by making available flexible degree options and by providing a pathway of study for community college graduates with technical and applied degrees from an accredited institution. The BAS degree helps minimize credit loss for associate degree graduates when pursuing a baccalaureate degree at NMSU. The student population targeted for this program differs significantly from traditional degree programs at NMSU. The BAS offers opportunity for current and prospective students, and welcomes those employed full-time, completing their upper division coursework at a distance, veterans, active duty military personnel or active duty family, transfers from other institutions or returning to college after time away.

**TO DECLARE A BAS**

Students entering the BAS program are required to:

- Have an Associate of Applied Science or a similar degree from a regionally accredited institution

- Have completed the English and Mathematics Basic Skills Requirements of NMSU (see Regulations- Basic Academic Skills (p. 26))
- Declare the BAS degree by the last date to drop with a "W" in a student's final semester of study (see the NMSU Academic Calendar for date)

Additional information is available at <http://artsci.nmsu.edu/basbis-programs>.

#### Degree Requirements

- Complete the total number of credits as determined by your academic advisor (*Note: a maximum of 30 credit hours in course subjects offered by the NMSU College of Business may be counted towards the degree*).
- Pass all courses approved with a grade of C- or higher

To graduate from the Bachelor of Applied Studies program, you must:

- Complete a minimum of 120 credit hours (or more, depending on your program of study)
- Complete a minimum of 48 credit hours of upper-division courses (300-499 level) including six hours of Viewing a Wider World from two separate colleges at NMSU
- Complete a minimum of 36 upper-division credit hours beyond General Education Core requirements with a grade of C- or better
- Complete the university's general education core requirements (at least 35 credit hours of approved New Mexico Common Core courses)
- Not have completed the requirements for, or be a candidate for another baccalaureate degree

#### DEGREE: BACHELOR OF ARTS

##### Assistant Professor, Laura A. Williams, Program Director

*Associate Professors* Hamzeh; *Assistant Professors* Jonet, Williams; *College Associate Professor* Benanti; *Affiliated Faculty* Bejarano, Garay, Greene, Haynes, Writer, Joseph, Pelak, Schirmer, Steinkopf-Rice, Torres, Wojahn, Wolf, Wosick <http://wsprograms.nmsu.edu/>

Women's Studies at NMSU is an interdisciplinary program focusing on the study of women, gender and sexuality in a global context from multiple disciplinary perspectives. Classes in Women's Studies explore the relations, practices, theories, and institutions concerning gender and other interesting categories of identity and difference. The Women's Studies Program also works collaboratively with other academic units to cross-list a range of courses. The benefits of a Women's Studies degree include strong critical-thinking and analytical skills developed in a student-centered environment that encourages independent thought; as well as insights into questions of gender, sexuality, race and ethnicity, class, ability, nation and power. Graduates of Women's Studies find successful careers in a range of fields including the advocacy, arts, business, counseling, education, health care, media, politics and law, social work, psychology and sports. The Women's Studies program offers a major and a minor, described below.

#### MAJOR: WOMEN'S STUDIES

Degree requirements for the major include 9 credit hours of required Women's Studies courses; 9 credit hours of Women's Studies electives; and 18 credit hours from a number of cross-listed courses offered both by Women's Studies and by other programs/departments. The total credit hour requirement for the major is 36 credit hours with 21 hours at the upper division level. All requirements must be completed with a grade of C- or higher.

#### DEGREE REQUIREMENTS

##### Required core courses (9 credits)

W S 201G	Introduction to Women s Studies	3 cr.
	or	
W S 202G	Representing Women Across Cultures	3 cr.
W S 455	Feminist Research Methods	3 cr.
	or	
W S 465	Sex, Gender and the Body	3 cr.
W S 471	Seminar in Feminist Theory	3 cr.

##### Electives from the following (9 credits):

W S 401	Women & Immigration	3 cr.
---------	---------------------	-------

W S 402	Transnational Feminisms	3 cr.
W S 403	Gender & Horror	3 cr.
W S 450	Special Topics	3 cr.
W S 454	Women Crossing Borders	3 cr.

*Electives from upper division W S and cross-listed courses (18 credit hours)*

#### DEGREE: BACHELOR OF INDIVIDUALIZED STUDIES MAJOR: INDIVIDUALIZED STUDIES

The *Bachelor of Individualized Studies (BIS)* prepares students for 21<sup>st</sup> century challenges. The degree was created to serve students desiring an academic degree not already offered at NMSU. Students served by the BIS are those with extensive, comprehensive or eclectic academic and career interests. Self-motivated and self-directed students work closely with an advisor to select classes each semester with the intent of graduating in a timely manner. Recommended and chosen courses should be organized to meet the unique educational needs of the student, be it professional advancement within an existing career, academic preparation for graduate or professional programs, designing a strategy for career change or efficiently utilizing prior university credits to complete a Bachelor Degree.

A well-designed individualized curriculum emphasizes the value of approaching complex issues from multiple perspectives, equipping students with the requisite critical and analytical skills to become effective problem solvers in their chosen field of study or career. Each student should select courses designed to integrate academic and career goals into a cohesive degree program.

Extensive flexibility in program design implies increased individual responsibility for the BIS student. BIS students must be *active participants* in their academic experience, simultaneously pursuing a skill-set demonstrating:

- Coherent expression of ideas in writing;
- Capacity to conduct systematic and objective inquiry within their program of study;
- Ability to tolerate ambiguity within the design and implementation of a program of study;
- Proactive communication with the academic advisor;
- Commitment to effective follow-through on tasks related to program of study design and implementation.

#### TO DECLARE A BIS

Students entering the BIS degree program work in consultation with a BIS advisor and complete a series of courses building on the applicant's existing coursework and complementing the applicant's education or career goals.

To schedule an appointment with an Academic Advisor for the BIS or BAS program, please call: 575-646-2941, or contact an adviser directly.

#### Advisors:

Annette Flores – [annettef@nmsu.edu](mailto:annettef@nmsu.edu) or 575-646-7364 – all Bachelor of Applied Studies students and Bachelor of Individualized Studies students with ID numbers ending in 50-99

Cecilia Guerrero – [ceguerre@nmsu.edu](mailto:ceguerre@nmsu.edu) or 575-646-5837 – Bachelor of Individualized Studies students with ID numbers ending in 00-49

Students must declare the BIS degree by the last date to drop with a "W" in a student's final semester of study (*see NMSU Academic Calendar for date*).

#### Degree Requirements

- Complete the total number of credits as determined by your academic advisor and reflected in your Program of Study. (*Note: a maximum of 30 credit hours in courses offered by the NMSU College of Business may be counted towards the degree, inclusive of courses used to satisfy NMSU General Education Core Requirements*)
- Complete a minimum of 120 credit hours. (*Note: total credits earned may exceed 120 dependent upon the developed Program of Study*).
- Complete a minimum of 48 credit hours of upper-division courses (*courses numbered 300 – 499*) including six credit hours of Viewing a Wider World curriculum from two separate colleges at NMSU.
- Complete a minimum of 36 upper-division credit hours beyond the NMSU General Education Core Requirements with a grade of C- or better.

- Complete the University's General Education Core Requirements (*minimum of 35 credit hours of approved New Mexico Common Core courses*).
- Student may not have completed the requirements for, or be a candidate for, another baccalaureate degree at NMSU.

### MINOR: WOMEN'S STUDIES

A minor in Women's Studies consists of 18 credit hours of approved course work in Women's Studies of which at least 12 are upper division (300 level or above).

### REQUIREMENTS

A minor in Women's Studies consists of 18 credit hours of approved course work in Women's Studies of which at least 12 are upper division (300 level or above).

#### Required core course (6 credits)

W S 201G	Introduction to Women's Studies	3 cr.
	or	
W S 202G	Representing Women Across Cultures	3 cr.
W S 471	Seminar in Feminist Theory	3 cr.
	or	
W S 402	Transnational Feminisms	3 cr.
	or	
W S 455	Feminist Research Methods	3 cr.
	or	
W S 465	Sex, Gender and the Body	3 cr.

#### Twelve credits from the following:

W S 401	Women & Immigration	3 cr.
W S 402	Transnational Feminisms	3 cr.
W S 403	Gender & Horror	3 cr.
W S 450	Special Topics	3 cr.
W S 454	Women Crossing Borders	3 cr.
	Twelve additional credits from the Women's Studies and cross-listed curriculum, of which at least 9 credits are upper division	12 cr.

*Note: A student may not earn a bachelor's degree in Women's Studies and also earn a minor in Women's Studies.*

## JOURNALISM AND MASS COMMUNICATIONS

### Professor, Chung, Department Head

**Associate Professors** Berman, Lamonica, Mellen; **Assistant Professor** Cardenas, J. Page; **College Assistant Professor** Miller, Perez; **Professor Emeritus** McCleneghan, Thayer **Instructors** Faivre, B. Page, Porter, Tallman; **News22 Director** Miller; **Spanish News22 Director** Perez  
**phone: (575) 646-1034**  
**website: <http://journalism.nmsu.edu/>**

### DEGREE: BACHELOR OF ARTS

#### MAJOR: JOURNALISM AND MASS COMMUNICATIONS

Studies in Journalism and Mass Communications prepares students for careers in mass media, including print, broadcasting, advertising, public relations and photojournalism. Students study these disciplines and learn the trends and changes in the industry, such as how they converge on the internet. The curriculum emphasizes the skills of gathering, evaluating and disseminating information and related skills. Students also are instructed in the theory, law, history and professional guidelines of mass media.

Students are required to complete 15 hours of core courses, 17 hours of core courses if they do not meet the required English ACT or SAT scores (see below), then complete a minimum 24 hours of courses in the department, bringing the allowable minimum of 39 hours (41 hours to those who don't meet the required English scores). Students must complete at least 72 hours of courses outside the department. Students are required to fulfill a Second Language equivalent to one year. Refer to the Arts & Sciences College Degree Requirements for specifics.

### REQUIREMENTS

#### Core Requirements (required of majors)

JOUR 102	Grammar for Journalists	2 cr.
JOUR 105G	Media and Society	3 cr.
JOUR 110	Introduction to Mass Media Writing	3 cr. (2+2P)
JOUR 201	Introduction to Multimedia	3 cr.
JOUR 210	Newswriting for Print and Internet	3 cr. (2+2P)
JOUR 493	Mass Communications Law	3 cr.

*JOUR 102: for those with ACT English score below 25 or SAT below 570*

Students must pass JOUR 102 or have an ACT score of 25+ or 570+ SAT score prior to enrolling in basic writing classes, such as JOUR 110, Introduction to Mass Media Writing and higher writing-based JOUR courses and to earn a Journalism and Mass Communications Degree. However, students are allowed to take JOUR 110 while they are taking JOUR 102.

#### Advanced Requirements

Students must complete 24 hours of non-core courses, including at least one course from each category listed below. Entry into courses is subject to successful completion of appropriate prerequisites.

#### Introductory Professional Courses (Take one or more courses)

All introductory classes, except JOUR 310, don't require any prerequisite class to get into these classes. However, students must successfully finish JOUR 210 to get into JOUR 310.

JOUR 300	Introduction to Advertising	3 cr.
JOUR 302	Video Production	3 cr.
JOUR 310	Intermediate Print Reporting	3 cr.
JOUR 319	Intro Photography	3 cr.
JOUR 321	Media Graphic Design	3 cr.
JOUR 374	Principles of Public Relations	3 cr.
JOUR 407	Media Internship	3 cr.
JOUR 408	Media Practicum	1-3 cr.

*JOUR 300 and JOUR 374: recommended for students specializing in advertising or public relations (PR); JOUR 302: recommended for students specializing in broadcasting; JOUR 310: recommended for students specializing in news editorial or multi-media; JOUR 319: recommended for students specializing in photojournalism.*

#### Intermediate Professional Courses (Take one or more courses)

JOUR 306	Feature Writing for magazines and Newspapers	3 cr.
JOUR 312	Advertising/Copywriting	3 cr.
JOUR 314	Broadcast Reporting	3 cr. (2+2P)
JOUR 315	News 22	1-3 cr.
JOUR 317	News Editing	3 cr.
JOUR 320	Photojournalism	3 cr.
JOUR 330	Electronic News Gathering	3 cr. (2+4P)
JOUR 425	Media Planning and Buying	3 cr.
JOUR 427	Multimedia Publishing	3 cr.

JOUR 306, 317 and 427: recommended for students specializing in news editorial or multi-media; JOUR 312 and JOUR 425: recommended for students specializing in advertising and PR; JOUR 314, 315, and 330: recommended for students specializing in broadcasting; JOUR 320: recommended for students specializing in photojournalism.

#### Advanced/ Capstone Professional Courses (Take one or more courses)

JOUR 412	Documentary Photojournalism	3 cr.
JOUR 414	RTV Scriptwriting/Performance	3 cr.
JOUR 423	Advanced Digital Reporting	3 cr. (2+2P)
JOUR 476	Public Relations Cases and Problems	3 cr.
JOUR 490	Advertising Campaigns	3 cr.

*JOUR 412: capstone class for students specializing in photojournalism; JOUR 414: capstone class for students specializing in broadcasting; JOUR 423: capstone class for students specializing in news editorial or multi-media; JOUR 476:*

capstone class for students specializing in PR; JOUR 490: capstone class for students specializing in advertising.

#### Mass Communications Courses (Take one or more courses)

JOUR 350	History of Mass Media	3 cr.
JOUR 377V	Mass Media Ethics	3 cr.
JOUR 380	Women and the Mass Media	3 cr.
JOUR 460	Public Relations Promotion in Sports	3 cr.
JOUR 484	Public Opinion	3 cr.
JOUR 489	Mass Media Research	3 cr.
JOUR 494	Special Topics	3 cr.
JOUR 495	Mass Communication Theory	3 cr.
JOUR 499	Independent Study in Mass Communications	1-3 cr.

#### MINOR: JOURNALISM AND MASS COMMUNICATIONS

Students may not earn both a Bachelor of Arts in Journalism and Mass Communications and minor in Journalism and Mass Communications

#### REQUIREMENTS

##### Required Courses

JOUR 102	Grammar for Journalists	2 cr.
JOUR 105G	Media and Society	3 cr.
JOUR 110	Introduction to Mass Media Writing	3 cr. (2+2P)
JOUR 210	Newswriting for Print and Internet	3 cr. (2+2P)
	Upper division JOUR courses totaling 9 upper division credits	9

JOUR 102: for those with ACT English score below 25 or SAT below 570; Note: students must pass JOUR 102 or have an ACT score of 25+ or 570+ SAT score prior to enrolling in JOUR 110, Introduction to Mass Media Writing and higher writing-based JOUR courses and to earn a Journalism and Mass Communications Minor.

## LANGUAGES AND LINGUISTICS

Professor, Glenn W. Fetzer, Department Head

**Professors** Fouillade, Garcia, MacGregor-Mendoza, Pollack, Villa; **Associate Professors** Herrera, Waltemire; **Assistant Professors** Deshors, Moreno; **College Professor** Longwell; **College Associate Professor** Buchenau; ; **College Assistant Professors** Pedersen, Zollner  
**phone: (575) 646-3408**  
**website: <http://www.nmsu.edu/~langling/>**

Programs of study in the Department of Languages and Linguistics prepare students for a diverse number of professions and provide them with critical skills that complement many careers in an increasingly interdependent and global marketplace. Students also increase their awareness of the important role language plays in human interaction on individual and global levels.

The major curriculum plans in each language include balanced groups of courses in language, linguistics, literature and culture. Students may choose to major, double major or minor in French, German or Spanish.

#### College Second Language Requirement

To meet the second language requirement, the student must do one of the following:

- Non-Heritage language speakers should complete the normal language course sequence: 111, 112, 211, 212. Students should enter the sequence at their proficiency level. Heritage language speakers should complete the 113, 213, 214 sequence. Students who successfully complete either SPAN 113 or SPAN 213 or SPAN 214 may not take SPAN 111, SPAN 112, SPAN 211 or SPAN 212 for credit.
- Challenge the 212 level of Arabic, Chinese, French, German, Japanese, Latin or Spanish, or the 214 level of Portuguese, or Spanish for Heritage Speakers.

- Obtain college certification of completion of three consecutive years of one second language at the high school level with a grade of C- or higher.
- Obtain, from the head of the Department of Languages and Linguistics, certification of a working knowledge of a second language if such language is not taught at New Mexico State University. The student must demonstrate reading, writing, listening and speaking skills in the language at a minimum of the 212 or equivalent level through examination.
- Obtain certification of a working knowledge of a Native American language from the American Indian program director or as attested by a Native American Elder.
- Pass an upper-division course (numbered 300 or above- does not include directed reading, independent study, practicum or Viewing a Wider World courses) taught in a second language by the Department of Languages and Linguistics.
- Pass C D 476, American Sign Language III with a grade of C- or better
- In the case of a foreign student who is required to take the TOEFL exam, the dean will automatically waive the second language requirement if the student scores 500 or above or the equivalent.
- ESL or English language may not be used to fulfill the language requirement.
- Students should satisfy the language requirement as soon as possible and take the necessary courses in the sequence indicated by the advisor.

#### DEGREE: BACHELOR OF ARTS

#### MAJOR OR DOUBLE MAJOR: FOREIGN LANGUAGES

#### REQUIREMENTS

##### Departmental Requirements for Majors

- Select at least one option: French, Spanish or German
- Complete LING 200G
- Complete a second language through the 212 level (214 in Portuguese or Spanish for Heritage Speakers)
- Viewing a Wider World courses (FREN 365V, GER 333V, SPAN 364V, SPAN 365V) do not satisfy requirements for a major in Foreign Languages
- Electives sufficient to bring the total number of credits to 120, including 48 upper-division credits

##### Departmental Requirements for Double Majors

A double major means a major in a department outside Languages and Linguistics in combination with a major in Foreign Languages. Students with double majors are exempt from LING 200G and second language requirement.

- Viewing a Wider World courses (FREN 365V, GER 333V, SPAN 364V, SPAN 365V) do not satisfy the requirement for a double major in Foreign Languages
- Electives sufficient to bring the total number of credits to 120, including 48 upper-division credits

#### OPTION: French

##### Requirements

24 FREN credits (at least one class each in the following areas):

- Language Studies: FREN 315, French Grammar; FREN 325, Intermediate Conservation; FREN 352, French Phonetics; FREN 425, Advanced Conservation; FREN 466, Introduction to French Linguistics
- Culture: FREN 306, French Culture and Civilization; FREN 360, French Cinema; FREN 362, Contemporary French Culture; FREN 378, Francophone Cultures; FREN 410, Paris: History and Cultures; FREN 462, Advanced Contemporary French Culture; FREN 478, Advanced Francophone Cultures
- Literature: FREN 381, Survey of Literature I; FREN 382, Survey of Literature II; FREN 386, Contemporary Women Writers; FREN 471, The French Novel; FREN 472, The French Short Story; FREN 486, Advanced Contemporary Women Writers
- One course is required at the 400 level. Other courses may be selected with the help of an advisor



**OPTION: German****Requirements:**

24 GER credits at either the 300 or 400 level selected with the aid of an advisor.

**OPTION: Spanish****Requirements**

24 SPAN credits at either the 300 or 400 level from each of the following: of which at least 6 credits must be at the 400 level.

- SPAN 312 or SPAN 313. Credit will not be given for both courses (3 cr.)
- SPAN 314 or SPAN 315. Credit will not be given for both courses (3 cr.)
- SPAN 340 (3 cr.)
- SPAN 380 (3 cr.)
- Linguistics/ Methodology: SPAN 327, SPAN 430, SPAN 445, SPAN 454, SPAN 457, SPAN 461, SPAN 491 or SPAN 493 (3 cr.)
- Literature/ Culture: SPAN 385, SPAN 386, SPAN 387, SPAN 388, SPAN 413, SPAN 428, SPAN 447, SPAN 448 or SPAN 450 (3 cr.)
- Electives: Any 300 or 400 level SPAN course. SPAN 364V and SPAN 365V do not count, as they are taught in English (6 cr.)
- At least 6 credits must be at the 400 level

**SUPPLEMENTARY MAJOR: CHICANO STUDIES**

This program consists of 24 credits from the lists below. Advisor: Dr. Spencer R. Herrera, Languages and Linguistics.

**REQUIREMENTS****Core Requirements (9 credits)**

ANTH 308	Peoples of the Southwest	3 cr.
COMM 445	Communication, Ethnicity, and Prejudice	3 cr.
SPAN 327	Spanish in the Community	3 cr.
SPAN 448	U.S.-Hispanic Film	3 cr.
GOVT 346	New Mexico Government and Politics	3 cr.
HIST 367	Mexican-Americans in the United States	3 cr.
HIST 369	History of Latinos in the United States	3 cr.
SOC 470	Sociology of Latinos/as in the United States	3 cr.
SPAN 350	Introduction to Chicano Studies	3 cr.

**Culture and Literature (6 credits)**

ART 320	Art and Architecture in Pre-Columbian Meso-America	3 cr.
ENGL 339V	Chicana/o Literature	3 cr.
ENGL 394V	Southwestern Literature	3 cr.
ENGL 458	Latino/a Literature and Culture	3 cr.
SPAN 361	US-Mexico Border Culture- Literature and /or Culture	3 cr.
SPAN 385	Introduction to Chicano/US-Mexican Literature	3 cr.
SPAN 427	Chicano Literature	3 cr.
SPAN 450	Mexican Cultures	3 cr.
SPAN 451	Hispanic Cultures	3 cr.
SPAN 428	U.S. Latino Culture and Literature	3 cr.
SPAN 470	Methods for Teaching Literature to Spanish Heritage Learners	3 cr.
	Applicable upper-division honors courses	3 cr.
	Applicable upper-division "special topics" courses	3 cr.

**Social Studies (6 credits)**

C J 414	Race, Crime and Justice	3 cr.
C J 451	Border Violence and Justice	3 cr.
GOVT 346	New Mexico Government and Politics	3 cr.
GOVT 378	U.S.-Mexico Border Politics	3 cr.
GOVT 399	New Mexico Law	3 cr.
HIST 261	New Mexico History	3 cr.
HIST 369	History of Latinos in the United States	3 cr.
HIST 400	Special Topics	1-9 cr.
HIST 410	New Mexico History for Educators	3 cr.
SOC 371	Race and Ethnic Relations	3 cr.

SPAN 353	Spanglish	3 cr.
SPAN 361	US-Mexico Border Culture- Literature and /or Culture	3 cr.
SPAN 493	Studies in U.S. Spanish	3 cr.
	Applicable upper-division honors courses	3 cr.
	Applicable upper-division "special topics" courses	3 cr.

**Electives (3 credits)**

ANTH 313	Ancient Mexico	3 cr.
ANTH 361V	Social Issues in the Rural Americas	3 cr.
C EP 517	Multicultural Counseling	3 cr.
EDUC 315	Multicultural Education	3 cr. (2+2P)
EDUC 344	Issues in Schooling for Bilingual Learners	3 cr.
ENGL 394V	Southwestern Literature	3 cr.
GEOG 325V	New Mexico and the American West	3 cr.
GOVT 399	New Mexico Law	3 cr.
HIST 311V	Colonial Latin America	3 cr.
HIST 483	Historic Preservation	3 cr.
PHLS 462	Hispanic Health Issues	3 cr.
PHLS 469	U.S.-Mexico Border Health Issues	3 cr.
SPAN 457	Strategies for Teaching Spanish for Heritage/Native Speakers	3 cr.
W S 454	Women Crossing Borders	3 cr.

*C EP 517: only with prior written permission of instructor, department head and course dean*

Independent study, honors or special topics courses may be chosen with the approval of the advisor for Supplementary Majors in Chicano Studies, the head of the Department of Languages and Linguistics, and the College of Arts and Sciences. As departments add new courses they may be included in the program.

**SUPPLEMENTARY MAJOR: LATIN AMERICAN STUDIES**

This program consists of 24 credits drawn from the lists below of which 18 credits must be numbered 300 or above. In addition, students must satisfy the College of Arts and Sciences Second Language Requirement. Advisor: Mark Milliron, Languages and Linguistics.

**Options**

There are two options based on the section chosen by the student:

**Option 1:**

Concentration in Latin American Language, Culture and Literature (Spanish or Portuguese):

- 12 credits from Section 1
- 12 credits from Section 2, (*Note: No more than 6 credits may be taken in a single department*)

**Option 2:**

Concentration in one major (e.g., history, government, economics, health science, anthropology, sociology) included in Latin American Social Sciences and Art:

- 12 credits in the chosen area of Section 2 (if the major is government, one of these courses may be ECON 325V)
- 6 credits from another area (or areas) of Section 2
- 6 credits from Section 1

Both options require that the student take at least two Spanish or Portuguese courses above 300-level.

**SECTION 1: LATIN AMERICAN LANGUAGE, CULTURE AND LITERATURE****Spanish/Portuguese Language**

Only 3 credits will count.

SPAN 325	Advanced Conversation	3 cr.
SPAN 327	Spanish in the Community	3 cr.
PHLS 461	Health Disparities: Determinants and Interventions	3 cr.
PORT 325	Portuguese Conversation	3 cr.

**Culture**

SPAN 305	Topics in Hispanic Civilization	3 cr.
SPAN 306	Special Topics	3 cr.
SPAN 363	US-Hispanic Culture	3 cr.
SPAN 450	Mexican Cultures	3 cr.
SPAN 491	History of the Spanish Language	3 cr.

**Literature**

SPAN 388	Contemporary Hispanic Literature	3 cr.
----------	----------------------------------	-------

**SECTION 2: LATIN AMERICAN SOCIAL SCIENCES AND ART****Course List**

ANTH 110	North American Prehistory	3 cr.
ANTH 306V	Peoples of Latin America	3 cr.
ANTH 307	Anthropology of Mexico and Guatemala	3 cr.
ANTH 312	The Ancient Maya	3 cr.
ANTH 313	Ancient Mexico	3 cr.
ANTH 361V	Social Issues in the Rural Americas	3 cr.
ANTH 387	Field work in Latin America	3-12 cr.
ART 320	Art and Architecture in Pre-Columbian Meso-America	3 cr.
ART 321	Pre-Columbian Art and Architecture of the Andes	3 cr.
ECON 324V	Developing Nations	3 cr.
ECON 325V	Economic Development of Latin America	3 cr.
GEOG 328V	Geography of Latin America	3 cr.
GOVT 371	Latin American Politics	3 cr.
GOVT 378	U.S.-Mexico Border Politics	3 cr.
GOVT 379	Mexican Politics	3 cr.
HIST 311V	Colonial Latin America	3 cr.
HIST 312V	Modern Latin America	3 cr.
HIST 331	Rebels, Guerrillas, and Terrorists in Modern Latin America	3 cr.
HIST 353	Colonial Mexico	3 cr.
HIST 354	Modern Mexico	3 cr.
HIST 356	The Mexican Revolution	3 cr.
HIST 387	Spain	3 cr.
HIST 453	Cuba: Colony to Castro	3 cr.
HIST 455	Brazil	3 cr.
HIST 459	Peru: From Incas to Inca Kola	3 cr.
PHLS 462	Hispanic Health Issues	3 cr.
PHLS 465	International Health Problems	3 cr.
PHLS 469	U.S.-Mexico Border Health Issues	3 cr.
PORT 453	Independent Lusio-Brazilian Studies	1-3 cr.
SOC 361V	Social Issues in the Rural Americas	3 cr.
SOC 479	Sociology Perspectives on the U.S.-Mexico Border	3 cr.
SPAN 364V	Culture and Civilization of Mexico	3 cr.
SPAN 365V	Culture and Civilization of Spanish America	3 cr.
SPAN 410	Mitos y Leyendas Indigenas	3 cr.
SPAN 412	Spanish-American Poetry	3 cr.
SPAN 413	Mexican Literature	3 cr.
SPAN 415	Spanish-American Women Writers	3 cr.
SPAN 416	Nineteenth Century Spanish-American Literature	3 cr.
SPAN 417	Spanish-American Essay	3 cr.
SPAN 418	Spanish-American Short Story	3 cr.
SPAN 419	Spanish American Drama	3 cr.
SPAN 421	Culture and Literature of New Mexico	3 cr.
SPAN 422	Literature of the Mexican Revolution	3 cr.
SPAN 424	Post-Modern Hispanic Literature	3 cr.
SPAN 425	Conquest, Colonial and Indigenous Literatures	3 cr.
SPAN 426	Spanish-American Novel	3 cr.
SPAN 447	Hispanic Film	3 cr.

In both sections, independent studies, honors or special topics courses may be chosen with the approval of the Supplementary Major in Latin American Studies advisor, the head of the Department of Languages and Linguistics, and the

College of Arts and Sciences. As departments add new courses they may be included in the program.

**SUPPLEMENTARY MAJOR: LINGUISTICS**

This program consists of 24 credits drawn from the lists below. In addition, students must satisfy the College of Arts and Sciences Second Language Requirement. Advisor: Dr. Patricia MacGregor-Mendoza, Languages and Linguistics.

**REQUIREMENTS****Core Requirements (12 credits)**

LING 200G	Introduction to Language	3 cr.
LING 301	Introduction to Psycholinguistics	3 cr.
LING 302V	Language and Society	3 cr.
LING 303	Exploring Language Systems	3 cr.

**Electives (12 credits)**

Take 12 credits from the list below and follow these guidelines: (1) at least 3 hours must be at the 400 level, (2) no more than 6 hours may be from the department where the student is obtaining his/her major.

ANTH 320	Anthropological Linguistics	3 cr.
C D 365	Language Acquisition for Educators	3 cr.
C D 374	American Sign Language I	3 cr.
C D 375	American Sign Language II	3 cr.
C D 476	American Sign Language III	3 cr.
C S 409	Independent Study	1-3 cr.
C S 471	Programming Language Structure I	3 cr.
C S 479	Special Topics	1-6 cr.
COMM 305	Communication Research Methods	3 cr.
COMM 351	Persuasion Theory and Practice	3 cr.
COMM 370	Organizational Communication	3 cr.
COMM 376	Communication and Culture	3 cr.
COMM 384	Interpersonal Communication	3 cr.
COMM 440	Political Communication	3 cr.
COMM 445	Communication, Ethnicity, and Prejudice	3 cr.
COMM 450	Technologies of Human Communication	3 cr.
COMM 460	Deception and Communication	3 cr.
COMM 463	Communication and Gender	3 cr.
COMM 465	Nonverbal Communication	3 cr.
COMM 475	International Communication	3 cr.
COMM 480	Health Communication	3 cr.
COMM 484	Verbal Communication	3 cr.
COMM 490	Independent Study	1-3 cr.
COMM 491	Selected Topics	1-6 cr.
EDUC 483	Second Language Acquisition	3 cr.
ENGL 451	Practicum in the Grammar of American English	3 cr.
ENGL 452	History of the English Language	3 cr.
FREN 352	French Phonetics	3 cr.
GER 451	Special Topics in German	1-3 cr.
GER 453	Independent Studies in German	1-3 cr.
LING 451	Independent Studies in Linguistics	1-3 cr.
PHIL 312	Formal Logic	3 cr.
PHIL 315	Philosophy of Language	3 cr.
PHIL 346	Philosophy of Mind	3 cr.
PORT 453	Independent Lusio-Brazilian Studies	1-3 cr.
PSY 401	Directed Readings	1-3 cr.
SPAN 340	Introduction to Spanish Linguistics	3 cr.
SPAN 352	Spanish in Social Contexts	3 cr.
SPAN 353	Spanglish	3 cr.
SPAN 439	Topics in Applied Spanish Linguistics	3 cr.
SPAN 453	Independent Studies in Hispanic Linguistics	1-3 cr.
SPAN 460	Spanish Language Acquisition	3 cr.
SPAN 461	Introduction to Spanish Phonetics	3 cr.
SPAN 462	Spanish Phonology	3
SPAN 491	History of the Spanish Language	3 cr.
SPAN 492	Structure of Spanish	3 cr.
SPAN 493	Studies in U.S. Spanish	3 cr.

C S 409, C S 479, COMM 490, COMM 491, EDUC 465, GER 451, GER 453, LING 451, PORT 453, PSY 401, SPAN 453: *Special topics, independent studies, and directed readings must be approved by the Department of Languages and Linguistics.*

#### Department Requirements for a Minor in French, German, or Spanish

A minor requires 18 hours of course work in the target language.

#### MINOR: FRENCH

Students must pass at least 18 credits of FREN courses of which at least 12 credits are upper division. Students may not count FREN 111 or FREN 112, but may count FREN 211 and/or FREN 212. A student whose primary language for a Bachelor of Arts in Foreign Languages is French may not also earn a minor in French.

#### REQUIREMENTS

##### Required Courses

	One upper division course in French or Francophone Culture	3 cr.
	One upper division course in French language studies	3 cr.
	One upper division course in French or Francophone Literature	3 cr.
	One additional upper-division class in one area above	3 cr.
	Nine additional French credits chosen with the help of an advisor	9 cr.

#### MINOR: GERMAN

Students must pass at least 18 credits of GER courses of which at least 12 credits are upper division. Students may not count GER 111 or GER 112, but may count GER 211 and/or GER 212. A student whose primary language for a Bachelor of Arts in Foreign Languages is German may not also earn a minor in German.

#### MINOR: LINGUISTICS

The department offers a minor in linguistics. Students will take LING 200G and two of the three core courses (LING 301/PSY 301, LING 302V or LING 303). The remaining 9 credit hours will be chosen with the help of an advisor from related fields; see list of electives for the supplementary major in Linguistics.

#### MINOR: SPANISH

Students must pass at least 18 credits of SPAN courses of which at least 12 credits are at either the 300 or 400 level. Students may not count SPAN 111 or SPAN 112, but may count SPAN 211 and/or SPAN 212. A student whose primary language for a Bachelor of Arts in Foreign Languages is Spanish may not also earn a minor in Spanish.

#### REQUIREMENTS

##### Required Courses

SPAN 312	Grammar for Heritage/Native Speakers of Spanish	3 cr.
	or	
SPAN 313	Spanish Grammar	3 cr.
SPAN 314	Spanish Composition	3 cr.
	or	
SPAN 315	Composition for Heritage/Native Speakers of Spanish	3 cr.

SPAN 312 and SPAN 313: Credit will not be given for both courses; SPAN 314 and SPAN 315: Credit will not be given for both courses

##### Electives

	Any 300 or 400 level SPAN course	12 cr.
--	----------------------------------	--------

Up to 6 elective credits may be at the 200 level. SPAN 364V and SPAN 365V do not count for a minor in Spanish as they are taught in English.

## MATHEMATICAL SCIENCES

#### Professor, Joseph Lakey, Department Head

**Professors** Baggett, Barany, Bezhanishvili, DeBlassie, Giorgi, Harding, Lakey, Lodder, Morandi, B. Olberding, Smits, Staffeldt, Wang; **Associate Professors** Ballyk, Cohen, Salamanca-Riba, Stanford; **Assistant Professors** Dai, Fouli, Michalowski; **College Professors** Fulte, Mostafa, Zimmerman; **College Associate Professors** Stuart, Zarret; **College Assistant Professors** M. Olberding, Train, White-Hosford; **College Instructors** Reece  
**phone: (575) 646-3901**  
**website: <http://math.nmsu.edu/>**

This department offers programs leading to a major or minor in mathematics. Courses in this department are listed as Mathematics (MATH) or as Statistics (STAT).

#### DEGREE: BACHELOR OF SCIENCE MAJOR: MATHEMATICS

In addition to meeting University and College requirements, students earning a Bachelor of Science in Mathematics must fulfill the core departmental requirements and choose from one of three emphases: General, Applied Mathematics or Actuarial Science and Insurance. Students must earn a grade of C- or better in all departmental and nondepartmental courses for any degree in the Department of Mathematical Sciences.

#### REQUIREMENTS

##### Core Departmental Requirements

MATH 191G	Calculus and Analytic Geometry I	4 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.
MATH 291G	Calculus and Analytic Geometry III	3 cr.
MATH 279	Introduction to Higher Mathematics	3 cr.
MATH 280	Introduction to Linear Algebra	3 cr.

#### Notes

Some students may be able to bypass one or more courses in the calculus sequence 191-192-291. The calculus sequence, finite mathematics, and linear algebra provide knowledge that is basic to further work, and students are advised to complete them or their equivalent as early as possible.

Students planning to enter a graduate program in Mathematics should select the General Emphasis. In any case, such students are strongly advised to take both MATH 331 and MATH 332, since these courses are required by most programs, and should take as many as possible of the courses MATH 481, 491, 492. Students planning to do graduate work in Mathematics are encouraged to take French or German to meet the requirement of a second language.

#### Emphasis: Actuarial Science and Insurance

The emphasis in Actuarial Science and Insurance draws on courses from mathematics and business to prepare students for a mathematical career in insurance. The coursework in this emphasis focuses on the analysis of risk and its applications to insurance finance. Students fulfilling the requirements for the Actuarial Science and Insurance Emphasis earn a minor in insurance.

#### Departmental Requirements

MATH 331	Introduction to Modern Algebra	3 cr.
	or	
MATH 332	Introduction to Analysis	3 cr.
STAT 371	Statistics for Engineers and Scientists I	3 cr.
STAT 470	Probability: Theory and Applications	3 cr.
STAT 480	Statistics: Theory and Applications	3 cr.

#### Departmental Electives

The Actuarial Science Emphasis requires also at least a 9 additional upper-division credit hours of approved courses prefixed MATH or STAT, excluding:

MATH 300	Readings	1-3 cr.
MATH 313	Fundamentals of Algebra and Geometry I	3 cr. (3+1P)

MATH 316	Calculus with Hands-on Applications	3 cr.
MATH 400	Undergraduate Research	1-3 cr.
MATH 402	General Special Topics	1-3 cr.
MATH 459	Survey of Geometry	3 cr.
STAT 400	Undergraduate Research	1-3 cr.

Any special topics course MATH or STAT 301 and MATH or STAT 401 must be approved by the department for credit towards the major. At least 6 of the MATH and STAT credit hours must be numbered higher than 400.

#### Nondepartmental Requirements

ACCT 221	Financial Accounting	3 cr.
ACCT 222	Management Accounting	3 cr.
BLAW 316	Legal Environment of Business	3 cr.
	or	
BLAW 385V	Consumers and the Law	3 cr.
E E 161	Computer Aided Problem Solving	4 cr. (3+3P)
ECON 251G	Principles of Macroeconomics	3 cr.
ECON 252G	Principles of Microeconomics	3 cr.
FIN 322	Principles of Insurance	3 cr.
FIN 341	Financial Analysis and Markets	3 cr.

#### One course from the following:

FIN 326	Business Risk Management	3 cr.
FIN 323	Life/Health/Employee Benefits	3 cr.
FIN 324	Property and Liability Insurance	3 cr.

#### Two courses from the following Insurance Electives:

FIN 303V	Personal Financial Planning and Investing in a Global Economy	3 cr.
	or	
FIN 421	Personal Financial Planning for Professionals	3 cr.
FIN 323	Life/Health/Employee Benefits	3 cr.
FIN 324	Property and Liability Insurance	3 cr.
FIN 391	Finance Internship and Cooperative Education I	1-3 cr.

#### Emphasis: Applied Mathematics

The Applied Mathematics emphasis is intended to prepare students planning a mathematically oriented career upon graduation. The coursework in this emphasis provides a foundation in mathematics important in many scientific and engineering applications.

#### Departmental Requirements

MATH 377	Introduction to Numerical Methods	3 cr.
MATH 392	Introduction to Ordinary Differential Equations	3 cr.
MATH 471	Complex Variables	3 cr.
MATH 472	Fourier Series and Boundary Value Problems	3 cr.
STAT 371	Statistics for Engineers and Scientists I	3 cr.
STAT 470	Probability: Theory and Applications	3 cr.

#### Departmental Electives

The Applied Mathematics emphasis requires at least 6 additional upper-division credit hours of approved courses prefixed MATH or STAT, excluding:

MATH 300	Readings	1-3 cr.
MATH 313	Fundamentals of Algebra and Geometry I	3 cr. (3+1P)
MATH 400	Undergraduate Research	1-3 cr.
MATH 402	General Special Topics	1-3 cr.
MATH 459	Survey of Geometry	3 cr.
STAT 400	Undergraduate Research	1-3 cr.

Any special topics course MATH 301 or STAT 301 and MATH 401 or STAT 401 must be approved by the department for credit towards the major. At least 3 of the MATH and STAT credit hours must be numbered higher than 400.

#### Nondepartmental Requirements

Majors choosing an Applied Mathematics emphasis must select a minimum of 12 credit hours of elective courses to form a coherent cluster in an applied area. Students may propose clusters subject to departmental approval. Examples of acceptable clusters are given below. A cluster must contain either C S 172 or E E 161. A major or minor in any of the following fields (along with C S 172 or E E 161) will also fulfill the Cluster Electives requirement: Computer Science, Physics, Biology, Chemistry and Biochemistry, Chemical Engineering, Engineering Physics, Electrical and Computer Engineering, Industrial Engineering, Mechanical Engineering, Civil Engineering, Economics and Finance.

Examples of acceptable clusters

#### Signals

E E 161	Computer Aided Problem Solving	4 cr. (3+3P)
---------	--------------------------------	-----------------

#### Nine credits from the following:

E E 280	DC and AC Circuits	4 cr. (3+3P)
E E 312	Signals and Systems I	3 cr.
E E 395	Introduction to Digital Signal Processing	3 cr.
E E 496	Introduction to Communication Systems	4 cr. (3+3P)

#### Structures

C S 172	Computer Science I	4 cr. (3+2P)
	or	
E E 161	Computer Aided Problem Solving	4 cr. (3+3P)

#### Nine credits from the following:

PHYS 215G	Engineering Physics I	3 cr.
C E 233	Mechanics-Statics	3 cr.
C E 301	Mechanics of Materials	3 cr.
C E 315	Structural Analysis	4 cr. (3+3P)
C E 365	Intermediate Structural Analysis	1 cr.

#### Operations Research

E E 161	Computer Aided Problem Solving	4 cr. (3+3P)
---------	--------------------------------	-----------------

#### Nine credits from the following:

I E 311	Engineering Data Analysis	3 cr.
I E 365	Quality Control	3 cr.
I E 413	Engineering Operations Research I	3 cr.
I E 423	Engineering Operations Research II	3 cr.
I E 460	Evaluation of Engineering Data	3 cr.

#### Algorithm Theory

C S 172	Computer Science I	4 cr. (3+2P)
C S 272	Introduction to Data Structures	4 cr. (3+2P)
C S 370	Compilers and Automata Theory	4 cr. (3+2P)
C S 372	Data Structures and Algorithms	4 cr. (3+2P)

#### Bioinformatics

BIOL 211G	Cellular and Organismal Biology	3 cr.
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr. (3P)
C S 486	Bioinformatics	3 cr.

#### Six credits from the following:

C S 172	Computer Science I	4 cr. (3+2P)
C S 272	Introduction to Data Structures	4 cr. (3+2P)
C S 370	Compilers and Automata Theory	4 cr. (3+2P)

C S 371	Software Development	4 cr. (3+2P)
C S 372	Data Structures and Algorithms	4 cr. (3+2P)

**Computer Systems**

C S 172	Computer Science I	4 cr. (3+2P)
---------	--------------------	-----------------

**Nine credits from the following:**

C S 271	Object Oriented Programming	4 cr. (3+2P)
	or	
C S 272	Introduction to Data Structures	4 cr. (3+2P)
C S 371	Software Development	4 cr. (3+2P)

**Two courses from the following:**

C S 370	Compilers and Automata Theory	4 cr. (3+2P)
C S 474	Operating Systems I	3 cr.
C S 475	Artificial Intelligence I	3 cr.
C S 476	Computer Graphics I	3 cr.
C S 482	Database Management Systems I	3 cr.
C S 484	Computer Networks I	3 cr.
C S 485	User Interface Design	3 cr.

**Emphasis: General**

Students seeking a foundation in pure mathematics and flexibility in the curriculum are encouraged to pursue the General Emphasis. Students choosing this emphasis should work closely with a faculty advisor to select courses appropriate to their interests.

**Departmental Requirements**

MATH 331	Introduction to Modern Algebra	3 cr.
MATH 332	Introduction to Analysis	3 cr.

**Departmental Electives**

At least 18 additional upper-division credits of approved courses prefixed MATH or STAT, excluding:

MATH 300	Readings	1-3 cr.
MATH 313	Fundamentals of Algebra and Geometry I	3 cr. (3+1P)
MATH 316	Calculus with Hands-on Applications	3 cr.
MATH 400	Undergraduate Research	1-3 cr.
MATH 402	General Special Topics	1-3 cr.
MATH 459	Survey of Geometry	3 cr.
STAT 400	Undergraduate Research	1-3 cr.

Any special topics course MATH or STAT 301 and MATH or STAT 401 must be approved by the department for credit towards the major. At least 12 of the MATH and STAT credits must be numbered higher than 400.

**Nondepartmental Requirements for the Major:**

*NOTE: A grade of C- or better must be earned.*

Majors in the General Emphasis must pass the second language requirement at the 212/214 level or above, as described in the College Degree Requirements for the College of Arts and Sciences.

C S 172	Computer Science I	4 cr. (3+2P)
C S 272	Introduction to Data Structures	4 cr. (3+2P)

*Note: It is strongly recommended that mathematics majors in the General emphasis consider a minor or second major in an area that uses mathematics, such as physics or computer science. All programs should be planned with the guidance of a departmental advisor. More information is available at [www.math.nmsu.edu](http://www.math.nmsu.edu)*

**SUPPLEMENTARY MAJOR: APPLIED MATHEMATICS**

The program consists of 24 credits in the designated list of courses. To earn a supplementary major in applied mathematics a student must earn 15 credits from Categories I.A and I.B of which at least 9 credits must be from Category I.B. A student must also earn 9 credits from the Category II list of related disciplines. The courses in Category II may be taken from any combination of areas. A student may not earn a bachelor's degree in mathematics and also a supplementary major in applied mathematics.

**CATEGORY I.A.****Six credits from the following:**

MATH 377	Introduction to Numerical Methods	3 cr.
MATH 391	Vector Analysis	3 cr.
MATH 392	Introduction to Ordinary Differential Equations	3 cr.
MATH 421	Financial Mathematics I	3 cr.
STAT 371	Statistics for Engineers and Scientists I	3 cr.

**CATEGORY I.B.****Nine credits from the following:**

MATH 331	Introduction to Modern Algebra	3 cr.
MATH 332	Introduction to Analysis	3 cr.
MATH 422	Financial Mathematics II	3 cr.
	or	
MATH 423	Numerical Optimization and Applications to Financial Mathematics	3 cr.
MATH 430	Combinatorial Mathematics	3 cr.
MATH 451	Introduction to Differential Geometry	3 cr.
MATH 453	Introduction to Topology	3 cr.
MATH 454	Mathematical Logic	3 cr.
MATH 471	Complex Variables	3 cr.
MATH 472	Fourier Series and Boundary Value Problems	3 cr.
MATH 473	Calculus of Variations and Optimal Control	3 cr.
MATH 480	Matrix Theory and Applied Linear Algebra	3 cr.
STAT 470	Probability: Theory and Applications	3 cr.
STAT 480	Statistics: Theory and Applications	3 cr.

**CATEGORY II****Nine credits from the following Related disciplines**

C E 315	Structural Analysis	4 cr. (3+3P)
C E 331	Hydraulic Engineering	3 cr.
C E 356	Fundamentals of Environmental Engineering	3 cr.
C E 382	Hydraulic Systems Design	3 cr.
C S 372	Data Structures and Algorithms	4 cr. (3+2P)
C S 476	Computer Graphics I	3 cr.
C S 486	Bioinformatics	3 cr.
C S 491	Parallel Programming	3 cr.
CHME 305	Transport Operations I: Fluid Flow	3 cr.
CHME 306	Transport Operations II: Heat and Mass Transfer	4 cr.
CHME 412	Process Dynamics and Control	3 cr.
CHME 441	Chemical Kinetics and Reactor Engineering	3 cr.
CHEM 433	Physical Chemistry I	3 cr.
CHEM 434	Physical Chemistry II	3 cr.
CHEM 456	Inorganic Structure and Bonding	3 cr.
ECON 405	Economic Statistics	3 cr.
ECON 457	Mathematical Economics	3 cr.
ECON 498	Independent Study	1-3 cr.
E E 312	Signals and Systems I	3 cr.
E E 314	Signals and Systems II	4 cr. (3+3P)
E E 351	Applied Electromagnetics	4 cr. (3+3P)

E E 395	Introduction to Digital Signal Processing	3 cr.
E E 473	Introduction to Optics	3 cr.
E E 475	Automatic Control Systems	3 cr.
E E 476	Computer Control Systems	3 cr.
E E 496	Introduction to Communication Systems	4 cr. (3+3P)
E E 497	Digital Communication Systems I	3 cr.
FIN 355	Investments	3 cr.
FIN 385	Analysis of Financial Markets and Institutions	3 cr.
FIN 406	Theory of Financial Decisions	3 cr.
FIN 435	Investment Analysis	3 cr.
I E 365	Quality Control	3 cr.
I E 413	Engineering Operations Research I	3 cr.
I E 423	Engineering Operations Research II	3 cr.
I E 460	Evaluation of Engineering Data	3 cr.
I E 466	Reliability	3 cr.
M E 332	Vibrations	3 cr.
M E 333	Intermediate Dynamics	3 cr.
M E 338	Fluid Mechanics	3 cr.
M E 341	Heat Transfer	3 cr.
PHYS 395	Intermediate Mathematical Methods of Physics	3 cr.
PHYS 451	Intermediate Mechanics I	3 cr.
PHYS 454	Intermediate Modern Physics I	3 cr.
PHYS 455	Intermediate Modern Physics II	3 cr.
PHYS 461	Intermediate Electricity and Magnetism I	3 cr.
PHYS 462	Intermediate Electricity and Magnetism II	3 cr.
PHYS 473	Introduction to Optics	3 cr.
PHYS 476	Computational Physics	3 cr.
PHYS 480	Thermodynamics	3 cr.
PHYS 485	Independent Study	1-3 cr.
PHYS 495	Mathematical Methods of Physics I	3 cr.
PHYS 497	Introduction to Space Plasma Physics	3 cr.
SUR 351	Introductory Survey Measurements, Analysis, and Adjustments	3 cr.
SUR 451	Advanced Survey Measurements, Analysis, and Adjustments	3 cr. (2+3P)
SUR 461	Introduction to Satellite Geodesy	3 cr. (2+3P)

*ECON 498: with approval*

**For the next two courses, the student must be eligible to take 500-level courses**

C S 510	Automata, Languages, Computability	3 cr.
C S 570	Analysis of Algorithms	3 cr.

## MINOR: MATHEMATICS

### REQUIREMENTS

A student must pass 18 or more credit hours in MATH and STAT courses, with at least 9 of the credits in upper division courses and three of those 9 credits in courses numbered above 400.

**The following courses are excluded from the minor**

	Courses numbered below 190	
MATH 200	Directed Study	1-3 cr.
MATH 210G	Mathematics Appreciation	3 cr.
MATH 300	Readings	1-3 cr.
MATH 313	Fundamentals of Algebra and Geometry I	3 cr. (3+1P)
MATH 316	Calculus with Hands-on Applications	3 cr.
MATH 400	Undergraduate Research	1-3 cr.
MATH 402	General Special Topics	1-3 cr.
MATH 459	Survey of Geometry	3 cr.
MATH 498	Directed Reading	1-6 cr.
STAT 400	Undergraduate Research	1-3 cr.

**One from the following (at most):**

STAT 251G	Statistics for Business and the Behavioral Sciences	3 cr.
-----------	---	-------

STAT 271G	Statistics for Psychological Sciences	3 cr.
STAT 371	Statistics for Engineers and Scientists I	3 cr.

Any special topics courses, MATH 301 or STAT 301 and MATH 401 or STAT 401, must be approved by the department for credit toward the minor. Any course taught outside the Department of Mathematical Sciences but cross-listed with a MATH or STAT course, must also be approved by the department for credit toward the minor. A student may not earn a bachelor's degree in mathematics or a supplementary major in applied mathematics and also earn a minor in mathematics.

## MILITARY SCIENCE

**LTC David McCoy, Department Head**

**Assistant Professors and Staff** MAJ Paul Saiz, CPT Josh Rivera, CPT Michael Rivera, MSG Collin Doolan, SFC James Walker, William Dove  
**phone: (575) 646-4030**  
**website: <http://www.nmsu.edu/~armyrotc/>**

The Military Science program leads to a commission as an officer in the Army Reserve, National Guard or Active Duty Army. The program consists of four parts: the student's academic major, nondepartmental courses of value to the military service, courses in military science and a six-week Leader Development and Assessment course. The department offers a four-year program divided into two parts: the basic course (two years) and the advanced course (two years). Selected students may qualify for the two-year program with prior military service or successful completion of a six-week summer Leaders' Training Course. Financial assistance and scholarships are available for qualified individuals. Students should contact the Department of Military Science to obtain additional information.

### MILITARY SCIENCE PROGRAM

#### REQUIREMENTS

##### Basic Course—Freshman

M SC 110	Introduction to Military Science	2 cr. (2+1P)
M SC 111	Introduction to Leadership	2 cr. (2+1P)

##### Basic Course—Sophomore

M SC 210	Self/Team Development	3 cr. (3+1P)
M SC 211	Leadership in Action and Team Building	3 cr. (3+1P)
M SC 225	Directed Studies	1-3 cr.

*M SC 250: summer only*

Courses should be taken in sequence, normally one per semester.

##### Advanced Course—Junior

M SC 310	Leading Small Organizations I	3 cr.
M SC 310 L	Advanced Course Leadership Laboratories	1 cr.
M SC 320	Leading Small Organizations II	3 cr.
M SC 320 L	Leading Small Organization Lab	1 cr.
M SC 325	Advanced Directed Studies	1-3 cr.
M SC 350	Leadership Internship II	1-6 cr.

##### Advanced Course—Senior

M SC 401	Leadership Challenges and Goal Setting	3 cr.
M SC 401 L	Advanced Course Leadership Laboratories	1 cr.
M SC 425	Practicum	1-4 cr.

##### Nondepartmental Requirements

One course in Military History must be successfully completed to meet Professional Military Education requirements. See your Military Science advisor for specific courses.

The student's Military Science advisor will recommend course sequence. Military Science students must sign up for and attend courses plus laboratories. Departmental requirements may not be taken S/U.

### MINOR: MILITARY SCIENCE

The minor in Military Science is administered by the Department of Military Science (Army ROTC) in the College of Arts and Sciences. To obtain a minor in Military Science a student must complete a total of 19 credits, all of which must be upper division. A grade of C- or better must be obtained for each course. The only credits in which a grade of S will be accepted is MSC 350. Students should contact the Department of Military Science to obtain additional information.

## MUSIC

### Professor, Lon W. Chaffin, Department Head

**Professors** Borchert, Kaplan, Klein, Romero, Shearer; **Associate Professors** Bugbee, Daughtrey, Flanery, Hughes, Joy, Martinez-Rios, Spitzer, Vega-Albela; **Assistant Professors** Espinoza, Pierce, L. Van Winkle; **College Associate Professors** Taylor; **College Assistant Professors** Larragoity-Martin; **College Instructor** Brennan  
**phone: (575) 646-2421**  
**website: <http://music.nmsu.edu/>**

### Mission Statement

The mission of the Music Department at NMSU is:

1. to prepare students for careers in music education, business and/or performance;
2. to give the student body opportunities to perform, study, create and experience music;
3. to enhance the cultural lives of our constituency by performance of superior music; and
4. to create an artistic environment which fosters the development of personal realizations we believe to be essential to the fabric of a healthy society.

All students are required to meet the State Common Core as well as the College of Arts and Sciences general education requirement as listed in earlier sections of this catalog. Please see a Music Department advisor for a specific list of courses.

### Admission into the Program

For a student to be officially accepted as a Music major or minor, he/she must do the following:

- perform an audition for a panel of no less than three Music faculty members
  - one of whom must be the director of his/ her program area
  - one of whom must be the applied teacher of the student's principal instrument
- provide recommendation letters from at least two music professionals
- take a Music Theory placement exam

Any student declaring Music as his/her major may be accepted for a one-semester probationary period. During that first semester, the Music faculty will determine if the student has the necessary skills and work ethic to continue as a major. The student's course work, ensemble participation and applied jury will be the basis for the decision to allow the student to continue or not.

### Departmental Requirements for all Bachelor's Degrees (Music Core)

A student must earn a grade of C- or better in all departmental requirements for any degree in the Department of Music. All students wishing to pursue a music degree must audition and take the theory placement exam. Contact the department for current audition requirements.

Students enrolled in this department's major(s) or minor(s) may count credits in required applied courses toward their degrees beyond the normal maximum of 9 credits allowed in the College of Arts and Sciences. However, if students change

major(s) or minor(s) or do not complete the requirements for the minor at the time of graduation, they may only count a maximum of 9 credits of the applied/occupational credits toward graduation.

### Recital Requirements for all Music Degrees

#### Bachelor of Music

All performance majors are required to give a half recital (30 minutes of music) in the junior year and a full recital (60 minutes of music) in the senior year. Students taking the Music Business option will give a half recital in their major performance area.

#### Bachelor of Music Education

All music education majors will give a half recital (30 minutes of music) in their major performance area.

### Applied Music Requirements for All Music Degrees

All Music degrees require at least two semesters of applied music study at the 430 level.

All students enrolling in applied music will audition and obtain permission from an applied teacher before enrolling for applied music credit.

Students may obtain further information by contacting the music department.

### Other Music Requirements, Fees and Regulations

1. A Piano Proficiency Examination is required of all music majors. Each student must enroll in Functional Piano or Applied Piano every semester, until the Proficiency is passed. Detailed requirements may be obtained from the Department of Music office. Students must pass the piano Proficiency Exam before presenting a Senior Recital.
2. Qualitative grade-point average for graduation in music is 2.0 or higher. All grades in required music courses must be C- or better.
3. A Music Theory Placement Examination is required of all entering freshman and transfer students.
4. An instrument rental fee is charged each semester for students using university instruments. Consult the music department concerning these fees.
5. All applied students pay an additional fee. Consult the music department concerning these fees.
6. Outside groups and individuals must have special permission to use music department facilities. Contact the music office for additional information.

### Music Ensembles

All students majoring or minoring in Music, must enroll and participate in the ensemble appropriate for their particular degree plan. The appropriate ensemble will be determined by degree requirements in consultation with the student's advisor and ensemble directors. The student must enroll each and every semester he/she is considered full-time until the degree requirements are met, for a minimum of 8 semesters (7 semester for Music Education majors). Any student receiving any kind of financial assistance through the Music Department must enroll each and every semester while he/she is attending NMSU. Music Education Students will not receive Music Scholarship funds during their semester of Student Teaching. For more information, contact the Music Office.

### Music Scholarships and Awards

A limited number of performance stipends and other music scholarships are available to any full-time registered student and are awarded through the department. Amounts awarded will reflect excellence and achievement in performance, determined by audition—either in person or by a recording—and references.

For more information on performance stipends and other music scholarships and awards, write to: Department of Music, PO Box 30001, MSC 3 F, Las Cruces, New Mexico 88003-8001 or e-mail [music@nmsu.edu](mailto:music@nmsu.edu).

### DEGREE: BACHELOR OF MUSIC MAJOR: MUSIC

The Bachelor of Music (BM) curriculum is designed to prepare students for performance careers and private studio teaching and serves as a foundation for advanced study toward master's and doctoral degrees: M.M., D.M.A., or Ph.D in

Music. In addition, the BM degree may lead to positions as professional entertainers or teachers at the college and university levels, or lead to music related work in the business world.

**OPTION: Instrumental Performance**

**Requirements – Basic Music and Performance - 91 credits**

**Music Theory and Ear Training - 19 credits**

MUS 103	Ear Training I	1 cr.
MUS 105	Music Theory I	3 cr.
MUS 203	Ear Training III	1 cr.
MUS 205	Music Theory III	3 cr.
MUS 104	Ear Training II	1 cr.
MUS 106	Music Theory II	3 cr.
MUS 204	Ear Training IV	1 cr.
MUS 206	Music Theory IV	3 cr.
MUS 413	Form and Analysis	3 cr.

**History and Literature - 15 credits**

MUS 202	An Introduction to World Music, Jazz and Music Research	3 cr.
MUS 207	Music History and Literature: Antiquity through Baroque	3 cr.
MUS 302	Music History and Literature: Classic through Romantic	3 cr.
MUS 303	Music History and Literature: 20th Century Through the Present	3 cr.
	One 400-level music history courses	3 cr.

**Techniques - 14 credits**

MUS 273	Introduction to Music Technology	1 cr.
MUS 325	Beginning Conducting	1 cr.
MUS 326	Instrumental Conducting, Techniques and Literature	3 cr.
	or	
MUS 327	Choral Conducting	3 cr.
MUS 386	Applied Music Pedagogy and Literature I	2 cr.
MUS 415	Orchestration	3 cr.
MUS 441	Supervised Studio Teaching	2 cr.
MUS 486	Applied Music Pedagogy and Literature II	2 cr.

**Performance - 43 credits**

MUS 121	Concert and Recital Laboratory	.5 cr. (.5+1P)
	(Must be taken for eight semesters for a total of 4 credits)	
MUS 230	Applied Music I	1-4 cr.
	and	
MUS 330	Applied Music II	1-4 cr.
	and	
MUS 430	Applied Music III	1-4 cr.
MUS 340	Junior Recital	1 cr.
MUS 440	Senior Recital	1-2 cr.
	Applied or Functional Piano	4 cr.
	Instrumental Ensemble	12 cr.

*Note: Students must take MUS 230, MUS 330, MUS 430, Applied Music (Instrumental) for a total of 20 credits.*

**Piano Proficiency**

Students must pass Piano Proficiency before presenting a Senior Recital.  
Students must enroll for Functional Piano until the Proficiency is passed.  
Students must complete PHYS 120G, Intro to Acoustics.

	Students must pass Piano Proficiency before presenting a Senior Recital.	
	Students must complete PHYS 120G	

**OPTION: Piano Performance**

**Requirements – Basic Music and Performance - 91 credits**

**Music Theory and Ear Training - 19 credits**

MUS 103	Ear Training I	1 cr.
MUS 105	Music Theory I	3 cr.
MUS 203	Ear Training III	1 cr.
MUS 205	Music Theory III	3 cr.
MUS 104	Ear Training II	1 cr.
MUS 106	Music Theory II	3 cr.
MUS 204	Ear Training IV	1 cr.
MUS 206	Music Theory IV	3 cr.
MUS 413	Form and Analysis	3 cr.

**History and Literature - 15 credits**

MUS 202	An Introduction to World Music, Jazz and Music Research	3 cr.
MUS 207	Music History and Literature: Antiquity through Baroque	3 cr.
MUS 302	Music History and Literature: Classic through Romantic	3 cr.
MUS 303	Music History and Literature: 20th Century Through the Present	3 cr.
	One 400-level music history courses	3 cr.

**Techniques - 10 credits**

MUS 273	Introduction to Music Technology	1 cr.
MUS 325	Beginning Conducting	1 cr.
MUS 386	Applied Music Pedagogy and Literature I	2 cr.
MUS 486	Applied Music Pedagogy and Literature II	2 cr.
MUS 441	Supervised Studio Teaching	2 cr.

**Performance - 47 credits**

MUS 121	Concert and Recital Laboratory	.5 cr. (.5+1P)
	(Must be taken for eight semesters for a total of 4 credits)	
MUS 164	Chamber Ensembles	1 cr.
	(Must take two semesters for a total of 2 credits)	
MUS 230	Applied Music I	1-4 cr.
	and	
MUS 330	Applied Music II	1-4 cr.
	and	
MUS 430	Applied Music III	1-4 cr.
MUS 340	Junior Recital	1 cr.
MUS 350	Chamber Music	1 cr.
	(Must take two semesters for a total of 2 credits)	
MUS 417	Studio Accompanying	2 cr.
	(Must take two semesters for a total of 4 credits)	
MUS 440	Senior Recital	1-2 cr.
	Ensemble	4 cr.
	Secondary Applied	4 cr.
	Upper Level Music Electives	4 cr.

*Note: Students must take MUS 230, MUS 330, MUS 430, Applied Music (Piano) for a total of 20 credits.*

**Secondary Proficiency**

Students must pass Secondary Proficiency before presenting a Senior Recital  
Students must complete PHYS 120G, Intro to Acoustics.

**OPTION: Vocal Performance**

**Requirements – Basic Music and Performance - 88 credits**

**Music Theory and Ear Training - 19 credits**

MUS 103	Ear Training I	1 cr.
---------	----------------	-------



MUS 105	Music Theory I	3 cr.
MUS 203	Ear Training III	1 cr.
MUS 205	Music Theory III	3 cr.
MUS 104	Ear Training II	1 cr.
MUS 106	Music Theory II	3 cr.
MUS 204	Ear Training IV	1 cr.
MUS 206	Music Theory IV	3 cr.
MUS 413	Form and Analysis	3 cr.

**History and Literature - 15 credits**

MUS 202	An Introduction to World Music, Jazz and Music Research	3 cr.
MUS 207	Music History and Literature: Antiquity through Baroque	3 cr.
MUS 302	Music History and Literature: Classic through Romantic	3 cr.
MUS 303	Music History and Literature: 20th Century Through the Present	3 cr.
MUS 429	Opera and Music Drama	3 cr.

**Techniques - 12 credits**

MUS 262	Diction I	2 cr.
MUS 263	Diction II	2 cr.
MUS 273	Introduction to Music Technology	1 cr.
MUS 325	Beginning Conducting	1 cr.
MUS 386	Applied Music Pedagogy and Literature I	2 cr.
	or	
MUS 486	Applied Music Pedagogy and Literature II	2 cr.
MUS 441	Supervised Studio Teaching	2 cr.

**Performance - 42 credits**

MUS 121	Concert and Recital Laboratory	.5 cr. (.5+1P)
	(Must be taken for eight semesters for a total of 4 credits)	
MUS 230	Applied Music I	1-4 cr.
	and	
MUS 330	Applied Music II	1-4 cr.
	and	
MUS 430	Applied Music III	1-4 cr.
MUS 340	Junior Recital	1 cr.
MUS 440	Senior Recital	1-2 cr.
	Choral Ensembles	6 cr.
	Opera Ensembles	6 cr.
	Applied or Functional Piano	4 cr.

Note: Students must take MUS 230, MUS 330, MUS 430, Applied Music (Vocal) for a total 19 credits.

**Piano Proficiency**

Students must pass Piano Proficiency before presenting a Senior Recital.

Students must enroll for Functional Piano until the Proficiency is passed.

Student must complete PHYS 120G, Intro to Acoustics.

**Support Courses - 8 credits**

FREN 111	Elementary French I	4 cr.
GER 111	Elementary German I	4 cr.

**DEGREE: BACHELOR OF MUSIC EDUCATION****MAJOR: MUSIC EDUCATION**

The Bachelor of Music Education (BME) is a diversified four- to five-year degree program of teaching, performance, and specialized studies in music. The goal of this degree is to prepare the student for certification to teach music in the public schools, and serves as a foundation for advanced study toward master's and doctoral degrees: M.M., M.M.E., D.M.A. or Ph.D in music education.

**OPTION: K-12 – Instrumental****Requirements: Basic Music and Performance - 70.5 credits****Music Theory and Ear Training - 19 credits**

MUS 103	Ear Training I	1 cr.
MUS 104	Ear Training II	1 cr.
MUS 203	Ear Training III	1 cr.
MUS 204	Ear Training IV	1 cr.
MUS 105	Music Theory I	3 cr.
MUS 106	Music Theory II	3 cr.
MUS 205	Music Theory III	3 cr.
MUS 206	Music Theory IV	3 cr.
MUS 413	Form and Analysis	3 cr.

**History and Literature - 12 credits**

MUS 202	An Introduction to World Music, Jazz and Music Research	3 cr.
MUS 207	Music History and Literature: Antiquity through Baroque	3 cr.
MUS 302	Music History and Literature: Classic through Romantic	3 cr.
MUS 303	Music History and Literature: 20th Century Through the Present	3 cr.

**Techniques - 19 credits**

MUS 141	Class Voice I	1 cr.
MUS 273	Introduction to Music Technology	1 cr.
MUS 301	Marching Band Techniques	2 cr.
MUS 322	Guitar Methods	1 cr.
MUS 325	Beginning Conducting	1 cr.
MUS 326	Instrumental Conducting, Techniques and Literature	3 cr.
MUS 415	Orchestration	3 cr.

**Five courses from the following:**

MUS 315	Brass Techniques I	1 cr.
MUS 316	Brass Techniques II	1 cr.
MUS 317	Woodwind Techniques I	1 cr.
MUS 318	Woodwind Techniques II	1 cr.
MUS 319	String Techniques I	1 cr.
MUS 320	String Technique II	1 cr.
MUS 323	Percussion Technique I	1 cr.
MUS 324	Percussion Technique II	1 cr.

**One course from the following:**

MUS 390	Survey of Wind Literature	2 cr.
MUS 391	Survey of Orchestral Literature	2 cr.

**Performance - 20.5 credits**

MUS 121	Concert and Recital Laboratory	.5 cr. (.5+1P)
	(Must be taken seven semesters for a total of 3.5 credits)	
MUS 163	Jazz Ensembles	1 cr.
MUS 172	Marching Band	1 cr.
	(Must take two semesters for a total of 2 credits)	
MUS 230	Applied Music I	1-4 cr.
MUS 330	Applied Music II	1-4 cr.
MUS 430	Applied Music III	1-4 cr.
MUS 440	Senior Recital	1-2 cr.
	Instrumental Ensemble	4 cr.

Note: Students must take MUS 230, MUS 330, MUS 430, Applied Music (Instrumental) for a total of 9 credits; String students may substitute MUS 151, MUS 164, MUS 350 or MUS 362.

**Piano Proficiency**

Students must pass the TEP Exam before taking MUS 346 or MUS 349.

Students must pass Piano Proficiency before presenting a Senior Recital.

Students must enroll for Functional Piano until Proficiency is passed.

Students must present Senior Recital before student teaching.

Students must complete PHYS 120G, Intro to Acoustics.

#### Professional Education Courses - 27 credits

C EP 210	Educational Psychology	3 cr.
EDUC 471	Secondary Student Teaching	9 cr.
EDUC 482	Middle and High School Student Teaching Seminar	3 cr.
MUS 250	Introduction to Music Education	2 cr.
MUS 346	Elementary Music Methods	2 cr.
MUS 349	Secondary Music Methods	2 cr.
RDG 414	Content Area Literacy	3 cr. (2+2P)
SPED 350	Introduction to Special Education in a Diverse Society	3 cr.

#### OPTION: K-12 –Vocal

#### Requirements: Basic Music and Performance - 70.5 credits

#### Music Theory and Ear Training - 19 credits

MUS 103	Ear Training I	1 cr.
MUS 104	Ear Training II	1 cr.
MUS 203	Ear Training III	1 cr.
MUS 204	Ear Training IV	1 cr.
MUS 105	Music Theory I	3 cr.
MUS 106	Music Theory II	3 cr.
MUS 205	Music Theory III	3 cr.
MUS 206	Music Theory IV	3 cr.
MUS 413	Form and Analysis	3 cr.

#### History and Literature - 12 credits

MUS 202	An Introduction to World Music, Jazz and Music Research	3 cr.
MUS 207	Music History and Literature: Antiquity through Baroque	3 cr.
MUS 302	Music History and Literature: Classic through Romantic	3 cr.
MUS 303	Music History and Literature: 20th Century Through the Present	3 cr.

#### Techniques - 19 credits

MUS 262	Diction I	2 cr.
MUS 263	Diction II	2 cr.
MUS 273	Introduction to Music Technology	1 cr.
MUS 321	Instrumental Techniques for Vocal Music Education Majors	2 cr.
MUS 322	Guitar Methods	1 cr.
MUS 325	Beginning Conducting	1 cr.
MUS 327	Choral Conducting	3 cr.
MUS 386	Applied Music Pedagogy and Literature I	2 cr.
MUS 392	Survey of Choral Literature	2 cr.
MUS 415	Orchestration	3 cr.

#### Performance - 20.5 credits

MUS 121	Concert and Recital Laboratory	.5 cr. (.5+1P)
	(Must be taken seven semesters for a total of 3.5 credits)	
MUS 230	Applied Music I	1-4 cr.
MUS 330	Applied Music II	1-4 cr.
MUS 430	Applied Music III	1-4 cr.
MUS 440	Senior Recital	1-2 cr.
	Vocal Ensemble	7 cr.

Note: Students must take MUS 230, MUS 330, MUS 430, Applied Music (vocal) for a total of 9 credits.

#### Piano Proficiency

Students must pass the TEP Exam before taking MUS 346 or MUS 349.

Students must pass Piano Proficiency before presenting a Senior Recital.

Students must enroll for Functional Piano until the Proficiency is passed.

Students must present Senior Recital before student teaching.

Students must complete PHYS 120G, Intro to Acoustics.

#### Professional Education Courses -26 credits

C EP 210	Educational Psychology	3 cr.
EDUC 471	Secondary Student Teaching	9 cr.
EDUC 482	Middle and High School Student Teaching Seminar	3 cr.
MUS 250	Introduction to Music Education	2 cr.
MUS 346	Elementary Music Methods	2 cr.
MUS 349	Secondary Music Methods	2 cr.
RDG 414	Content Area Literacy	3 cr. (2+2P)
SPED 350	Introduction to Special Education in a Diverse Society	3 cr.

#### MINOR: MUSIC

A student may not earn both a bachelor's degree in the Department of Music and a minor in Music.

#### REQUIREMENTS

#### Required Courses (24 credits)

MUS 202	An Introduction to World Music, Jazz and Music Research	3 cr.
MUS 103	Ear Training I	1 cr.
MUS 105	Music Theory I	3 cr.
MUS 104	Ear Training II	1 cr.
MUS 106	Music Theory II	3 cr.
	Nine upper division elective credits	9 cr.
	Applied music	2 cr.
	Ensemble	2 cr.

## PHILOSOPHY

#### Professor, Danny Scoccia, Department Head

**Professors** Cleveland, Scoccia; **Associate Professor** Vessel, Walker; **Assistant**

**Professors** Keleher; **College Associate Professor** Noonan

phone: (575) 646-4616

website: <http://www.nmsu.edu/~philos/>

A major in philosophy serves not only as preparation for further graduate study in philosophy but also as an area of concentration in a liberal arts program. A philosophy major is appropriate for students planning to attend medical school as well as for those students interested in a career that requires critical reading and argument analysis. Such careers include business, theology and above all, law.

While the course requirements for the major should meet the ends of the liberal arts student, those students interested in graduate study in philosophy or in a career in law are encouraged to seek advice from a faculty advisor as early in their career as possible.

A minor program in philosophy requiring 18 hours of course work is also offered as well as a minor in Ethics. For more information visit the Department of Philosophy's web page at [www.nmsu.edu/~philos/](http://www.nmsu.edu/~philos/).

#### DEGREE: BACHELOR OF ARTS

#### MAJOR: PHILOSOPHY

#### REQUIREMENTS

#### Departmental Requirements

#### Three credits in Introductory Philosophy

PHIL 101G	The Art of Wondering	3 cr.
	or	
PHIL 201G	Introduction to Philosophy	3 cr.

#### Three credits in Ethics

PHIL 320	Social and Political Philosophy	3 cr.
----------	---------------------------------	-------

PHIL 373	Ethical Theory	3 cr.
PHIL 376	Philosophy of Law	3 cr.

**Three credits in Formal Logic**

PHIL 312	Formal Logic	3 cr.
----------	--------------	-------

**Three credits in History of Philosophy**

PHIL 341	Ancient Philosophy	3 cr.
	or	
PHIL 344	Modern Philosophy	3 cr.

**Three credits in Applied Ethics**

PHIL 302	Business Ethics	3 cr.
PHIL 321	Biomedical Ethics	3 cr.
PHIL 322	Environmental Ethics	3 cr.
PHIL 323V	Engineering Ethics	3 cr.
PHIL 327	Ethics and Sports	3 cr.
PHIL 328	Applied Ethics	3 cr.
PHIL 330	Ethics and Biomedical Research	3 cr.
PHIL 332	Ethics and Global Poverty	3 cr.

**Six credits from the following:**

PHIL 315	Philosophy of Language	3 cr.
PHIL 316	Philosophy of Mathematics	3 cr.
PHIL 346	Philosophy of Mind	3 cr.
PHIL 350	Epistemology	3 cr.
PHIL 351	Philosophy of Science	3 cr.
PHIL 380	Metaphysics	3 cr.

**Three credits in Philosophical Writing**

PHIL 448	Writing Philosophy	3 cr.
----------	--------------------	-------

**At least 12 additional credits in philosophy, 6 of which are courses numbered 300 or above.**

HON 225G, 226G, 227G, and 228G will also satisfy this requirement.

**Second language requirement**

Students are required to fulfill a Second Language (212 for Spanish, French, German or Japanese, or 214 for Portuguese or Spanish for Heritage speakers, or the equivalent for any other language that is offered).

**Electives**

Sufficient to bring total credits to 120, including 48 upper-division.

**MINOR: ETHICS**

A student who earns a Bachelor of Arts in Philosophy may not also earn a minor in Ethics.

**REQUIREMENTS****Required Courses**

PHIL 101G	The Art of Wondering	3 cr.
	or	
PHIL 201G	Introduction to Philosophy	3 cr.
PHIL 211G	Informal Logic	3 cr.
	or	
PHIL 312	Formal Logic	3 cr.
PHIL 373	Ethical Theory	3 cr.

**Three of the following courses, of which at least two must be upper division:**

C J 425	Issues in Ethics, Law, and Criminal Justice	3 cr.
HON 225G	History of Ethics	3 cr.
HON 304V	Dilemmas of War and Peace	3 cr.
HON 306V	Science, Ethics and Society	3 cr.
JOUR 377V	Mass Media Ethics	3 cr.
PHIL 302	Business Ethics	3 cr.
PHIL 321	Biomedical Ethics	3 cr.
PHIL 322	Environmental Ethics	3 cr.
PHIL 323V	Engineering Ethics	3 cr.
PHIL 327	Ethics and Sports	3 cr.
PHIL 328	Applied Ethics	3 cr.

PHIL 330	Ethics and Biomedical Research	3 cr.
PHIL 332	Ethics and Global Poverty	3 cr.
SUR 401	Ethics and Professionalism in Surveying and Mapping	3 cr.

Students may earn up to 3 credits in this category from special topics or Honors courses approved by the head of the Department of Philosophy

**MINOR: PHILOSOPHY**

A student who earns a Bachelor of Arts in Philosophy may not also earn a minor in Philosophy.

**REQUIREMENTS****Required Courses**

PHIL 101G	The Art of Wondering	3 cr.
	or	
PHIL 201G	Introduction to Philosophy	3 cr.
PHIL 211G	Informal Logic	3 cr.
	or	
PHIL 312	Formal Logic	3 cr.
PHIL 373	Ethical Theory	3 cr.
	Nine additional Philosophy credits at the 300 or above level	9 cr.

**One course from the following:**

PHIL 223G	Ethics	3 cr.
PHIL 328	Applied Ethics	3 cr.
PHIL 373	Ethical Theory	3 cr.

**PHYSICS**

**Professor, Stefan Zollner, Department Head**

**Professor, Matthias Burkardt, Undergraduate Program Head**

**Associate Professor, Vassilios Papavassiliou, Graduate Program Head**

**Professor, Heinz Nakotte, Engineering Physics Program Head**

**Professors** M. Burkardt, Gibbs, Nakotte, Pate, Vasiliev, Zollner; **Associate Professors** Engelhardt, Hearn, Kanim, Kiefer, Papavassiliou, Urquidi; **Assistant Professors** Fohntung, Wang; **College Professor** Burkardt; **College Associate Professor** DeAntonio; **Emeritus Faculty** Armstrong, Burleson, Goedecke, Ingraham, Kyle, Liefeld, Ni, Stromberg

**phone: (575) 646-3831**

**website: <http://physics.nmsu.edu/>**

A bachelor's degree in physics provides the basis for careers in industry, teaching, the military, government or for study toward advanced degrees in physics or engineering. It should also provide the skills that recipients of physics degrees have listed as among the most important in obtaining their current positions, including problem solving ability, computer skills, mathematical skills, and laboratory skills, as well as knowledge of physics.

The Physics Department requires Physics BA and Physics BS students to have some knowledge of a second language. To meet this requirement, the student must do one of the following:

- Complete the introductory second language course sequence, 111 and 112, for any language taught at NMSU (or PORT 213; or SPAN 113 for heritage speakers). Students should enter the sequence at their proficiency level.
- Challenge the 112 level of any second language taught at NMSU (or PORT 213; or SPAN 113 for heritage speakers).
- Obtain college certification of completion of two years of one second language at the high school level with a grade of C- or higher in the second year level.

- Obtain, from the head of the Department of Languages and Linguistics, certification of a working knowledge of a second language if such language is not taught at NMSU.
- Obtain certification of a working knowledge of a Native American language from the American Indian program director.
- Successfully complete a regular university course taught in a language other than English. A student can receive credit only once for the same course taught in two languages.
- Pass a three-credit, upper-division course (numbered 300 or above) taught in a second language by the department of Languages and Linguistics.
- Pass C D 375, American Sign Language II with a grade of C- or better.
- In the case of a foreign student who is required to take the TOEFL exam, the dean will automatically waive the second language requirement.

Further information about the department may be found on the web at [www.physics.nmsu.edu](http://www.physics.nmsu.edu). All incoming (new or transfer) students must schedule an orientation meeting with the department head and/or the undergraduate program head before their first semester at NMSU. All students will be assigned a faculty advisor in the physics department to discuss course selection, career resources, internships and coops, and other topics.

## DEGREE: BACHELOR OF ARTS MAJOR: PHYSICS

The curriculum for the Bachelor of Arts degree is designed for students who would like to have a firm foundation in physics combined with study in another area and greater flexibility in choosing elective courses. The program requires a minor in a second field of study chosen by the student in consultation with an advisor.

### REQUIREMENTS

#### Nondepartmental Requirements

May not be taken S/U and must earn a grade of C- or better.

MATH 191G	Calculus and Analytic Geometry I	4 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.
MATH 291G	Calculus and Analytic Geometry III	3 cr.
MATH 392	Introduction to Ordinary Differential Equations	3 cr.
	Minor in a second field from another department (18 credits)	18 cr.

#### Department Requirements

May not be taken S/U and must earn a grade of C- or better.

PHYS 150	Elementary Computational Physics	3 cr. (2+2P)
PHYS 213	Mechanics	3 cr.
PHYS 213 L	Experimental Mechanics	1 cr. (3P)
PHYS 214	Electricity and Magnetism	3 cr.
PHYS 214 L	Electricity and Magnetism Laboratory	1 cr. (3P)
PHYS 217	Heat, Light, and Sound	3 cr.
PHYS 217 L	Experimental Heat, Light and Sound	1 cr. (3P)
PHYS 315	Modern Physics	3 cr.
PHYS 315 L	Experimental Modern Physics	3 cr. (1+6P)
PHYS 395	Intermediate Mathematical Methods of Physics	3 cr.
PHYS 451	Intermediate Mechanics I	3 cr.
PHYS 454	Intermediate Modern Physics I	3 cr.
PHYS 455	Intermediate Modern Physics II	3 cr.
PHYS 461	Intermediate Electricity and Magnetism I	3 cr.
PHYS 462	Intermediate Electricity and Magnetism II	3 cr.
PHYS 480	Thermodynamics	3 cr.

#### Electives

Sufficient to bring total number of credits to 128, including 48 upper-division.

## Suggested Minors for the Bachelor of Arts Physics Major

**Basic Science Minor**— A minor in a related scientific field broadens the overall knowledge of the student majoring in physics. Some departments which offer such minors are astronomy, chemistry, computer science, geology and mathematics.

**Prehealth Minor**— Students wishing to attend a medical or dental post-graduate school are strongly encouraged to obtain a minor in a life science field such as biochemistry, biology, human biology or microbiology.

**Prelaw Minor**— Students wishing to attend a post-graduate law school should obtain a minor in a law-related field, such as government, accounting, finance, international business or a Supplementary Major in Law and Society (24 credits).

## DEGREE: BACHELOR OF SCIENCE MAJOR: PHYSICS

A Bachelor of Science degree in physics at NMSU prepares a student well for graduate study in physics, geophysics, or engineering or for a variety of careers in research and teaching. Specialization in one of the emphasis areas should increase employability at the BS level.

### REQUIREMENTS

#### Nondepartmental Requirements

May not be taken S/U and must earn a grade of C- or better.

MATH 191G	Calculus and Analytic Geometry I	4 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.
MATH 291G	Calculus and Analytic Geometry III	3 cr.
MATH 392	Introduction to Ordinary Differential Equations	3 cr.
CHEM 115	Principles of Chemistry I	4 cr. (3+3P)
CHEM 116	Principles of Chemistry II	4 cr. (3+3P)
	or	
	higher-level courses	

#### Departmental Requirements

May not be taken S/U and must earn a grade of C- or better.

PHYS 150	Elementary Computational Physics	3 cr. (2+2P)
PHYS 213	Mechanics	3 cr.
PHYS 213 L	Experimental Mechanics	1 cr. (3P)
PHYS 214	Electricity and Magnetism	3 cr.
PHYS 214 L	Electricity and Magnetism Laboratory	1 cr. (3P)
PHYS 217	Heat, Light, and Sound	3 cr.
PHYS 217 L	Experimental Heat, Light and Sound	1 cr. (3P)
PHYS 315	Modern Physics	3 cr.
PHYS 315 L	Experimental Modern Physics	3 cr. (1+6P)
PHYS 395	Intermediate Mathematical Methods of Physics	3 cr.
PHYS 451	Intermediate Mechanics I	3 cr.
PHYS 454	Intermediate Modern Physics I	3 cr.
PHYS 455	Intermediate Modern Physics II	3 cr.
PHYS 461	Intermediate Electricity and Magnetism I	3 cr.
PHYS 462	Intermediate Electricity and Magnetism II	3 cr.
PHYS 480	Thermodynamics	3 cr.
	Six additional credits in physics or geophysics numbered 300 or above	6 cr.

#### Advanced laboratory

#### One course from the following

PHYS 471	Modern Experimental Optics	2-3 cr.
PHYS 475	Advanced Physics Laboratory	1-3 cr.
PHYS 493	Experimental Nuclear Physics	3 cr. (1+6P)

*Note: For the BS in Physics, students must complete at least three credits of PHYS 471, PHYS 475, and PHYS 493 (in any combination).*

### Electives

Sufficient to bring total number of credits to at least 128, including 48 upper-division.

Students who plan to pursue graduate study in physics or geophysics are strongly advised to take one or more senior-level courses in optics, nuclear physics, space physics, condensed matter physics, geophysics, or computational physics.

Students who plan to seek employment at the B.S. level are advised to take one of the following concentration area curricula in addition to the general and departmental requirements. The program of study should be chosen by the student in consultation with an advisor. Some recommended courses are listed below.

### CONCENTRATION: Applied Optics

#### Required Courses

PHYS 473	Introduction to Optics	3 cr.
PHYS 478	Fundamentals of Photonics	4 cr. (3+3P)
PHYS 479	Lasers and Applications	4 cr. (3+3P)

### CONCENTRATION: Applied Physics

The program of study in applied physics is planned by the student and the physics advisor and includes classes in electrical and mechanical engineering along with classes in computer science.

### CONCENTRATION: Computational Physics

#### Required Courses

C S 157	Topics in Software Programming and Applications	3 cr. (2+2P)
	or	
C S 167	C Programming	3 cr. (2+2P)
C S 171G	Introduction to Computer Science	4 cr. (3+2P)
MATH 279	Introduction to Higher Mathematics	3 cr.
PHYS 476	Computational Physics	3 cr.

### CONCENTRATION: Geophysics

#### Required Courses

GEOL 111G	Survey of Geology	4 cr. (3+3P)
GPHY 340V	Planet Earth	3 cr.
GPHY 450	Selected Topics	1-3 cr.

*NOTE: For the geophysics concentration, students must take at least three credits of GPHY 450.*

### CONCENTRATION: Materials Science

#### Required Courses

CHME 361	Engineering Materials	3 cr.
PHYS 475	Advanced Physics Laboratory	1-3 cr.
PHYS 488	Introduction to Condensed Matter Physics	3 cr.
PHYS 489	Introduction to Modern Materials	3 cr.

*Note: For the materials science concentration, students must take three credits of PHYS 475.*

Geophysics courses are offered by the Department of Physics and are listed under "Geophysics" in the course description chapter of this catalog.

### DEGREE: BACHELOR OF SCIENCE IN ENGINEERING PHYSICS

The Bachelor of Science in Engineering Physics is a joint degree program of the Department of Physics and the College of Engineering. This degree is ideal preparation for technical careers in high-tech industries, research laboratories, and the public sector. It also provides an excellent preparation for graduate

studies in physics or engineering. A full description of the program requirements can be found in the College of Engineering section (p. 144) of this catalog.

### MINOR: PHYSICS

A student cannot earn a BA or a BS in Physics and a minor in Physics. The minor in Physics requires a minimum of 18 credits distributed as follows:

### REQUIREMENTS

#### Three credits from the following:

PHYS 213	Mechanics	3 cr.
PHYS 215G	Engineering Physics I	3 cr.

#### Three credits from the following:

PHYS 214	Electricity and Magnetism	3 cr.
PHYS 216G	Engineering Physics II	3 cr.

#### Three credits from the following:

PHYS 315	Modern Physics	3 cr.
----------	----------------	-------

#### Three-nine credits from the following:

PHYS 217	Heat, Light, and Sound	3 cr.
	and-or	
	other Physics or Geophysics courses numbered 300 or above	

#### Zero-six credits from the following:

Other courses may be chosen with the approval of the Physics department head.

A E 362	Orbital Mechanics	3 cr.
C E 301	Mechanics of Materials	3 cr.
CHME 361	Engineering Materials	3 cr.
CHME 470	Introduction to Nuclear Energy	3 cr.
CHME 471	Health Physics	3 cr.
CHME 475	Nuclear Reactor Theory	3 cr.
CHEM 431	Physical Chemistry	3 cr.
	or	
CHEM 431 H	Physical Chemistry Honors	3 cr.
CHEM 433	Physical Chemistry I	3 cr.
	or	
CHEM 433 H	Physical Chemistry I Honors	3 cr.
CHEM 434	Physical Chemistry II	3 cr.
E E 310	Multivariate and Vector Calculus	3 cr.
E E 351	Applied Electromagnetics	4 cr. (3+3P)
E E 425	Introduction to Semiconductor Devices	3 cr.
E E 473	Introduction to Optics	3 cr.
E E 477	Fiber Optic Communication Systems	4 cr. (3+3P)
E E 478	Fundamentals of Photonics	4 cr. (3+3P)
E E 479	Lasers and Applications	4 cr. (3+3P)
M E 333	Intermediate Dynamics	3 cr.
M E 338	Fluid Mechanics	3 cr.
M E 340	Applied Thermodynamics	3 cr.

## PSYCHOLOGY

### Associate Professor, Dominic A. Simon, Department Head

**Professors** Thompson, Trafimow; **Associate Professors** Guynn, Ketelaar, Kroger, MacDonald, Madson, Marks; **Assistant Professors** Dolgov, Hout; **Affiliated Faculty** Caplan, Ogden; **Emeritus Faculty** Cowie, Johnston, McDonald, Stephan

phone: (575) 646-2502

website: <http://www.psych.nmsu.edu/>

Students may take a major in psychology either as an area of emphasis in a liberal arts program or in preparation for further graduate education leading to professional careers in psychology. A major in psychology may be appropriate for the liberal arts student who wishes to pursue a career involving extensive social interaction and requiring solutions to people-related problems. Such careers include law, business, parenting, government, education, and management. Professional careers in psychology generally require some post-baccalaureate education. These careers include provision of clinical and counseling services, conducting research, applying research findings in industrial or government settings, and doing teaching and research in colleges and universities. Students planning to apply to graduate school are encouraged to take PSY 310, Experimental Methods I, no later than the Spring semester of their junior year.

The requirements listed below should provide an adequate exposure to psychology for the liberal arts student and a basic foundation for students seeking a career in psychology. While all majors should consult with the department's advising center and with a faculty advisor, students wishing to prepare for a professional career in psychology are especially encouraged to work closely with an advisor, as early as possible. The advising center maintains several model programs that help prepare majors to fulfill various career goals.

**DEGREE: BACHELOR OF ARTS  
MAJOR: PSYCHOLOGY**

**REQUIREMENTS**

**General Requirements**

Students must receive a C- or better in courses used to satisfy the departmental and nondepartmental requirements of the psychology major.

**Departmental Requirements**

PSY 201G	Introduction to Psychology	3 cr.
	or	
HON 203G	Understanding the Science of Human Behavior	3 cr.

**Three credits from the following:**

PSY 302	Abnormal Psychology	3 cr.
PSY 350	Developmental Psychology: Conception through Childhood	3 cr.
PSY 440	History and Systems of Psychology	3 cr.

**Eight credits in research methods**

PSY 310	Experimental Methods	4 cr. (2+4P)
	and	
PSY 311	Advanced Research Seminar	4 cr. (2+4P)

*PSY 310: prerequisite of PSY 201G*

**The following requirements are to be met after the student has completed PSY 310 (which has prerequisites of PSY 201G, and either STAT 251 or STAT 271 or A ST 311:**

**Three credits in Basic Mechanisms from the following:**

PSY 301	Introduction to Psycholinguistics	3 cr.
PSY 375	Psychology and the Brain	3 cr.
PSY 376	Evolutionary Psychology	3 cr.
PSY 380	Perception	4 cr. (4+4P)

**Three credits in Acquisition and Use of Knowledge from the following:**

PSY 320	Learning	4 cr. (3+2P)
PSY 340	Cognitive Psychology	3 cr.
PSY 383	Memory	3 cr.
PSY 442	Thinking	3 cr.

**Three credits in Understanding Behavior from the following:**

PSY 315	Emotion	3 cr.
PSY 317	Social Psychology	3 cr.
PSY 321	Psychology of Personality	3 cr.

Additional electives to bring total credits in psychology to at least 34, with at least 24 of those 34 credits being upper division.

**Nondepartmental Requirements**

STAT 251G	Statistics for Business and the Behavioral Sciences	3 cr.
	or	
STAT 271G	Statistics for Psychological Sciences	3 cr.
	or	
A ST 311	Statistical Applications	3 cr.
	Philosophy course 300-level or above (PHIL 346 or PHIL 351 recommended)	3 cr.
	At least three credits of introductory biology	3 cr.

**A course that includes a laboratory is highly recommended, and is required if intended to satisfy Gen Ed Area III**

BIOL 101G	Human Biology	3 cr.
	and	
BIOL 101GL	Human Biology Laboratory	1 cr. (3P)
	or	
BIOL 111G	Natural History of Life	3 cr.
	and	
BIOL 111GL	Natural History of Life Laboratory	1 cr. (3P)
	or	
BIOL 211G	Cellular and Organismal Biology	3 cr.
	and	
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr. (3P)

*BIOL 211G and BIOL 211 L (Prerequisite: CHEM 110G or CHEM 111G or CHEM 115)*

**SECOND LANGUAGE**

Students seeking the BA in Psychology must meet the second language requirement by completing one of the following three skills requirements:

**Option 1: Traditional Language Track**

Options as described in Section III of College Degree Requirements under College Degree Requirements under College of Arts and Sciences (i.e. typically through 212 or 214 or Arts & Sciences Certification, Option B).

**Option 2: Computer Science Track**

C S 167	C Programming	3 cr. (2+2P)
C S 171G	Introduction to Computer Science	4 cr. (3+2P)
C S 177	C++ Programming	3 cr. (2+2P)
C S 187	Java Programming	3 cr. (2+2P)

**Option 3: Math Track**

MATH 121G	College Algebra	3 cr.
MATH 190G	Trigonometry and Precalculus	4 cr. (3+2P)
MATH 191G	Calculus and Analytic Geometry I	4 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.

**MINOR: PSYCHOLOGY**

A student must pass at least 18 credits in Psychology courses with grades of C- or higher, and at least 9 of those credits must be upper division. A student may not earn both a BA in Psychology and a minor in Psychology.

## SOCIOLOGY

### Professor, David G. LoConto, Department Head

**Professor** LoConto; **Associate Professors** Rice, Steinkopf-Rice, Way, Wosick; **Assistant Professors** Newby, Pelak; **College Professor** Hoffman; **College Assistant Professor** Hovey; **Emeritus Professor** Loustaunau  
**phone: (575) 646-3448**  
**website: <http://sociology.nmsu.edu>**

### DEGREE: BACHELOR OF ARTS

#### MAJOR: SOCIOLOGY

The undergraduate major in sociology is broad in scope. It prepares the student for a variety of public and private sector employment opportunities including market research, personnel management, human relations, law enforcement and health services. Successful students often use their major as preprofessional preparation for advanced degrees in law, business, education, counseling and other social science based careers. Courses are offered both online and in the classroom.

#### REQUIREMENTS

##### Departmental Requirements

SOC 101G	Introductory Sociology	3 cr.
SOC 350	Sociological Foundations	3 cr.
SOC 351	Sociological Theory	3 cr.
SOC 352	Social Research: Methods	3 cr.
SOC 353	Sociological Research: Analysis	3 cr.
SOC 401	Introduction to Sociological Practice	3 cr.

Electives in sociology to bring total credits in major to 33, including 24 upper-division of which 6 credits must be 400 level (The six hours does not include SOC 401). Directed readings will not satisfy this requirement, however, a maximum of six credits of Directed Readings (SOC 449 or SOC 449H) is allowed.

Criminal Justice/Sociology double majors may be permitted to substitute C J 300 for SOC 352 and C J 301 for SOC 353. Government/Sociology double majors may be permitted to substitute GOVT 300 for SOC 352 upon approval of appropriate substitution/waiver forms. Other substitution/waivers for courses may be available upon consultation with the sociology undergraduate advisor. In all cases, the total number of sociology credits (courses with SOC prefix) must be a minimum of 33.

#### Second Language

A second language is not required.

#### MINOR: CONTEMPORARY SOCIAL STUDIES

See requirements for this minor in the Department of History (p. 101) section.

#### MINOR: SOCIOLOGY

Students who earn a Bachelor of Arts in Sociology may not also earn a minor in Sociology. Students earning the minor must pass 18 credits with grades of C- or higher. Nine of the credits must be upper division. Students may count S grades only in courses in which all grades are S/U. Students may substitute an upper division social research methods course for the required SOC 352 from the Departments of Criminal Justice and Government. However, students making this substitution must still pass 18 total credits in Sociology in order to earn this minor. Students may not count SOC 249 towards the minor.

#### REQUIREMENTS

##### Required Courses

SOC 101G	Introductory Sociology	3 cr.
SOC 351	Sociological Theory	3 cr.
SOC 352	Social Research: Methods	3 cr.
	Nine additional Sociology credits, of which at least 6 are upper division	9 cr.

## THEATRE ARTS

### Professor, Wil Kilroy, Department Head/Managing Director

**Professor** Smith, Storm **Assistant Professor** Chenard, Lury; **College Associate Professor** C. Billings **College Assistant Professor** McQueen; **Professional Staff** J. Billings, Brunson, Hereford, McMahon, Reynolds, Wise  
**phone: (575) 646-4517**  
**website: <http://www.nmsutheatre.com>**

With strong emphases in acting, musical theater, new works and design/technical theatre, the program prepares students for graduate study or a life in the profession. Students gain practical experience through a wide array of courses designed to expose them to the varied aspects and positions involved in theatrical production. The faculty is augmented by nationally-renowned theatre artists-in-residence.

A minimum of 54 credits with a grade of C- or higher in theatre arts is required for the major. Theatre Arts does not require a second language.

Students enrolled in this department's major or minor may count credits in required applied courses toward their degrees beyond the normal maximum of 9 credits allowed in the College of Arts and Sciences. However, if a student changes the major or does not complete the requirements for the minor at the time of graduation, they may only count a maximum of 9 credits of the applied credits toward graduation.

Students preparing to teach in public schools may qualify for certification by completing the Bachelor of Science in Education degree with theatre arts as a teaching field. (See curricula in the College of Education section (p. 131)).

Starting in Fall of 2016 the Theatre Arts program is undergoing curriculum changes. For the most up-to-date information about degree requirements please visit [www.nmsutheatre.com](http://www.nmsutheatre.com) or visit the Theatre Arts Department at room 321 in the Center for the Arts Building.

### DEGREE: BACHELOR OF ARTS

#### MAJOR: THEATRE ARTS

#### REQUIREMENTS

##### Departmental Requirements

THTR 110	Beginning Acting	3 cr.
THTR 130	The Art of Theatre	3 cr.
THTR 141	Introduction to Stagecraft	3 cr.
THTR 141 L	Stagecraft Laboratory	1 cr.
THTR 142	Introduction to Costume Crafts	3 cr.
THTR 142 L	Costume Craft Lab	1 cr.
THTR 149	Running Crew I	2 cr. (1+2P)
THTR 203	Theatre History I	3 cr.
THTR 204	Theatre History II	3 cr.
THTR 249	Running Crew II	1 cr.
THTR 345	Costume Practicum	1 cr.
THTR 346	Scenic Practicum	1 cr.
THTR 347	Lighting Practicum	1 cr.
THTR 348	Running Crew III	1 cr.
THTR 349	Running Crew IV	1 cr.
THTR 395	Directing I	3 cr.
THTR 396	Theatre Management	3 cr.
THTR 439	Senior Seminar	2 cr.
	THTR elective courses	9 cr.

##### One course from the following:

THTR 321V	Modern European Drama	3 cr.
THTR 322	Dramatic Character	3 cr.
THTR 323	American Drama	3 cr.

##### Two 300/400 level courses from the following categories (6 credits):

Acting, Design, Literature, Theatre Management, Society in Style, Creative Drama, Playwriting

Course from this category must not duplicate selection above

**One course from the following:**

THTR 352	Costume Design	3 cr.
THTR 353	Scene Design	3 cr.
THTR 354	Sound Design	3 cr.
THTR 355	Lighting Design	3 cr.

**One course from the following:**

THTR 352	Costume Design	3 cr.
THTR 353	Scene Design	3 cr.
THTR 355	Lighting Design	3 cr.

**Electives**

Sufficient to bring total to 120, including 48 upper-division.

**EMPHASIS: Musical Theatre**

The musical theatre concentration is designed to provide students with training in musical theatre performance, including singing, dancing and acting.

**Departmental Requirements**

All courses required for the Theatre Arts major must be met, except for the requirement of NINE (9) additional THTR courses. Instead, students MUST take the following courses for a total of NINE (9) credits:

DANC 124	Jazz Technique I	1 cr.
DANC 224	Jazz Technique II	2 cr.
THTR 317	Musical Theatre	3 cr.

THTR 417, Musical Theatre II (3 cr.) will be available starting Spring 2017.

**Plus any additional course from the following:**

DANC 127	Tap Dance I	1 cr.
DANC 227	Tap Dance II	1 cr.
DANC 123	Ballet Technique I	1 cr.
DANC 126	Modern Dance Technique I	1 cr.
DANC 223	Ballet Technique II	2 cr.
DANC 226	Modern Dance Technique II	2 cr.
DANC 323	Ballet Technique III	3 cr.
DANC 326	Modern Dance III	3 cr.

**Complete a minimum of six credits in Voice or Applied Music-Vocal**

Two of the required vocal credits may be in choral ensemble or opera workshop

MUS 130	Applied Music	1-2 cr.
MUS 160	University Singers	1 cr.
MUS 161	Concert Choir	1 cr.
MUS 162	Master Works Chorus	1 cr.
MUS 251	Opera Workshop	1 cr.
MUS 351	Opera Workshop	1 cr.
MUS 361	Concert Choir II	1 cr.
MUS 368	University Singers II	1 cr.

**MINOR: THEATRE ARTS**

The Department of Theatre Arts has one minor in Theatre Arts. Students must pass a minimum of 9 lower division and 9 upper division THTR credits with grades of C- or higher to earn the minor. A student cannot earn both a BA in Theatre Arts and a minor in Theatre Arts.



# COLLEGE OF BUSINESS

## Dean • James Hoffman

Associate Dean (Academics) • Kathleen Brook

Associate Dean (Research) • William Gould

Assistant Dean (Development) • Anthony Casaus

Academic Advisor • Justine Adkisson

Academic Advisor • Debra Cardinali

## Associate in Prebusiness

Bachelor of Accountancy

Bachelor of Arts in Economics

Bachelor of Business Administration—Majors in Economics; Finance; General Business; Information Systems; International Business; Management and Marketing

## Accreditation

New Mexico State University has been accredited since 1926 by the Higher Learning Commission of the North Central Association of Colleges and Secondary Schools as a degree-granting institution. The university was accredited in 1954 by the American Association of University Women.

The baccalaureate and graduate degree programs in business and accounting offered in the College of Business are accredited by AACSB International—The Association to Advance Collegiate Schools of Business.

## Mission of the College of Business

The College of Business transforms lives by providing highly respected programs, instruction and scholarly activities that drive economic, social, educational and community development for New Mexico's diverse population.

## Student Advisement

All students in the college of Business are advised through the College's Advising Center, Guthrie Hall Suite 109, 646-3836, until they have completed all lower division (100-299) requirements after which they are assigned to a faculty advisor in their academic major.

## REQUIREMENTS FOR THE BACHELOR DEGREES

- Successful completion of requirements as listed under The New Mexico General Education Common Core, NMSU Viewing a Wider World Courses, and Graduation Requirements.
- Successful completion of College of Business Requirements below and major requirements. For the Bachelor of Arts in Economics, see the Economics and International Business section for specific requirements.
- A minimum cumulative grade point average (GPA) of 2.0 in all courses taken at NMSU to meet lower and upper division business core and major requirements.
- All majors except Economics and International Business require a minimum cumulative GPA of 2.0 in all courses taken to meet the requirements of the major. For Economics and International Business majors, a minimum cumulative GPA of 2.5 is required for courses taken to meet the requirements for the major.
- A minimum grade of C- is required in each of the following courses: ENGL 111G (or ENGL 111GH or ENGL 111M), ENGL 203G, COMM 265G (or AXED 201G or COMM 253G or HON 265G), BUSA 111, BCIS 110 (or C S 110), ACCT 221, ACCT 222, ECON 251G, ECON 252G, and A ST 251G (or A ST 311 or STAT 251G). Majors in Economics and International Business must also complete MATH 142G with a grade of at least C-.
- A minimum of 50% of business credits required for a Bachelor of Accountancy or Bachelor of Business Administration degree or 18 business credits required for a Bachelor of Arts in Economics degree must be completed in the College of Business and a minimum of 12 credits required in the major must be completed in the College. See

sections below for major-specific transfer criteria. A total of no more than six credits of courses designated as 300E may be used to satisfy the required upper division business elective, the ECON/A ST elective, and electives in the major.

The only courses that may be taken on an S/U option by students in the College of Business are those designated S/U only, general electives outside the college, and up to 9 credits of HON courses used to fulfill General Education requirements.

Before taking upper-division courses (numbered 300 or above) offered by the College of Business, students must complete all lower-division course requirements with the required minimum grades or better.

Business course credits completed more than ten years prior to the degree application may be reviewed at the student's request by the course department head and dean (or a designee) to determine their continued suitability to satisfy current degree, major and minor requirements and learning objectives.

## REQUIREMENTS

### Foundation Requirements (up to 15 credits depending upon mathematics placement)

ENGL 203G	Business and Professional Communication	3 cr.
MATH 120	Intermediate Algebra	3 cr.
MATH 121G	College Algebra	3 cr.
MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)

### One course from the following

A ST 251G	Statistics for Business and the Behavioral Sciences	3 cr.
STAT 251G	Statistics for Business and the Behavioral Sciences	3 cr.
A ST 311	Statistical Applications	3 cr.

### Business Core, lower division (18 credits)

ACCT 221	Financial Accounting	3 cr.
ACCT 222	Management Accounting	3 cr.
BCIS 110	Introduction to Computerized Information Systems	3 cr.
	or	
C S 110	Computer Literacy	3 cr.
BUSA 111	Business in a Global Society	3 cr.
ECON 251G	Principles of Macroeconomics	3 cr.
ECON 252G	Principles of Microeconomics	3 cr.

*ACCT 221 and ECON 252G: Not recommended for freshman year.*

### Business Core, upper division (27 credits)

BCIS 338	Business Information Systems I	3 cr.
BLAW 316	Legal Environment of Business	3 cr.
FIN 341	Financial Analysis and Markets	3 cr.
MGT 309	Human Behavior in Organizations	3 cr.
MGT 449	Strategic Management	3 cr.
MKTG 303	Principles of Marketing	3 cr.

### One course from the following:

BCIS 485	Enterprise Resource Planning	3 cr.
MGT 344	Production and Operations Management	3 cr.
MGT 470	Project Management in Organizations	3 cr.

*Note: Management- Project Supply Change majors may not use MGT 470 to satisfy this requirement since it is a requirement in the major; Accounting majors must take BCIS 485.*

### Upper-division (300 or 400 level) elective in economics or applied statistics

	Upper Division Economics or Applied Statistics Elective (excluding A ST 311)	3 cr.
--	--	-------

**Upper division (300 or 400 level) elective in business, excluding A ST 311**

Upper Division Business Elective (excluding A ST 311)	3 cr.
---	-------

Select from the following prefixes: A ST, ACCT, B A, BCIS, BLAW, ECON, FIN, I B, MGT, MKTG (3)

**Viewing a Wider World (VWW) (6 credits)**

A description of the requirement and a listing of approved VWW courses can be found in this catalog under Required Courses.

**General Electives**

Students may need to complete additional credits to bring total degree credits to a minimum of 120 and upper division credits to 48. The number of general elective credits varies by student and major.

**Associate in Prebusiness Degree**

To complete the associate degree, 60 credits are required, including the General Education Common Core, College of Business Foundation and Business Core (lower division) requirements.

A minimum cumulative grade point average of 2.0 is also required. The last 15 credits towards the degree must be earned through the NMSU system.

**Minors in Business**

Minors are available in accounting, advertising, banking, business administration, economics, enterprise systems, finance, information systems, international business, management, marketing, risk management and insurance, sports marketing, and sustainability. Students pursuing the Bachelor of Individualized Studies or the Bachelor of Applied Studies are not eligible for minors from the College of Business other than the minor in business administration. At least 12 credits of the minor must be completed at the NMSU College of Business.

**Prelaw Students**

Because the practice of law often involves business-related problems, the majors in the college provide an excellent preparation for the prelaw student. The college has attorneys on the faculty who are available as advisors. Please contact the Finance Department for more information.

**Graduate Work**

The College of Business also offers programs leading to the following degrees: Master of Business Administration, Master of Arts (Economics), Master of Accountancy, Master of Science (Applied Statistics), Ph.D. in Business Administration and Doctor of Economic Development. For details on programs leading to these degrees, see the current Graduate School catalog.

**MINOR: BUSINESS ADMINISTRATION**

This minor is available to all bachelors degree seeking students, except those seeking the *Bachelor of Accountancy* and the *Bachelor of Business Administration* degrees. It is the only minor in Business open to students in the Bachelor of Applied Studies and the Bachelor of Individualized Studies.

**MINOR REQUIREMENTS**

Choose 18 credits of coursework from these business core courses:

Lower Division: ACCT 221\*, ACCT 222\*, BCIS 110, BUSA 111, ECON 251G\*, ECON 252G.

Upper Division: BCIS 338, BLAW 316, FIN 341\*, MGT 309, MKTG 303\*, MGT 344 or MGT 470 or BCIS 485.

\*Courses marked with an asterisk (\*) satisfy background knowledge requirements for the MBA program when completed with a B- grade or better.

*Notes: At least 9 of the 18 credits for the minor must be upper division and at least 12 of the 18 credits must be completed at NMSU. A minimum GPA of 2.0 is required in the coursework for the minor.*

*Only one of MGT 344, MGT 470 or BCIS 485 may be applied to this minor.*

*Several courses listed above have prerequisites. It is the responsibility of the student to determine course prerequisites and other registration requirements.*

**TRANSFERRING BUSINESS COURSES**

The following business courses have been identified as transferable from NMSU to other public two year and four year institutions in New Mexico. The equivalent course at other institutions can be identified using the common course number which appears in parentheses below. Similarly, students from other institutions can use the common course number to identify business courses that can be transferred to NMSU.

A ST 251G Statistics for Business and the Behavioral Science, or A ST 311 or STAT 251G (MATH 2313)

ACCT 221 Financial Accounting (ACCT 2113)

ACCT 222 Management Accounting (ACCT 2123)

BCIS 110 Introduction to Computerized Information Systems (BCIS 1113)

BLAW 316 Legal Environment of Business (BLAW 2113)

BLAW 418 Uniform Commercial Code and Advanced Business Law Topics (BLAW 2123)

BUSA 111 Business in a Global Society (BUSA 1113)

ECON 251G Principles of Macroeconomics (ECON 2113)

ECON 252G Principles of Microeconomics (ECON 2123)

FIN 206 Introduction to Finance (FIN 2113)

MKTG 303 Principles of Marketing (MKTG 2113)

MGT 201 Introduction to Management (MGMT 2113)

*Note: BLAW 418, FIN 206, and MGT 201 count as general electives in the College of Business.*

## ACCOUNTING AND INFORMATION SYSTEMS

**Associate Professor, Kevin Melendrez, Department Head**

**Professors** Mills, Oliver, Seipel, Tunnell; **Associate Professors** Billiot, Kreie, Mora, Nelson; **Assistant Professors** Clemons, Joo, Zhang; **College Associate Professor** Green; **College Assistant Professor** Spencer, Taylor; **Emeritus Professor** Scribner  
phone: (575) 646-4901  
website: <http://business.nmsu.edu>

**DEGREE: BACHELOR OF ACCOUNTANCY****MAJOR: ACCOUNTING**

The Bachelor of Accountancy degree is available to students choosing accounting as a major. The curriculum is designed to prepare you for the excellent opportunities that exist in public accounting practice and in business, government and nonprofit organizations. It is also appropriate for those who may choose to seek either the Master of Accountancy or the Master of Business Administration degree after graduation.

Every candidate for the Bachelor of Accountancy degree must fulfill the following requirements in addition to the general education common core, College of Business foundation and the business core courses, Viewing a Wider World requirements and general electives (see above).

**REQUIREMENTS****Major Courses (27 credits)**

These requirements combined with the accounting courses required above provide a minimum of 30 credits in accounting.

ACCT 301	Financial Accounting I	3 cr.
ACCT 302	Financial Accounting II	3 cr.
ACCT 351	Accounting Systems	3 cr.
ACCT 353	Cost Accounting	3 cr.
ACCT 403	Federal Taxation I	3 cr.
ACCT 451	Auditing Theory and Practices	3 cr.

	Elective in business, upper-division	3 cr.
	Electives in accounting, upper-division	6 cr.

In order to count toward the Bachelor of Accountancy, upper-division transfer courses in accounting (1) must have been taken at an institution with AACSB Accounting accreditation or (2) be part of the New Mexico Business Articulation Matrix.

Students will be allowed to complete ACCT 301, 353, and 403 a maximum of three times each.

### DEGREE: BACHELOR OF BUSINESS ADMINISTRATION

Every candidate for this major must fulfill the following requirements in addition to the general education common core, College of Business foundation and business core, Viewing a Wider World requirements and general electives (see above).

In the upper-division core IS majors must take ECON 405, Economic Statistics, as their ECON or A ST elective.

### MAJOR: INFORMATION SYSTEMS

The Information Systems program has a focus on cyber security that prepares you for a variety of administrative and technical positions associated with the security of information systems. Potential employers include information system service organizations, public accounting/consulting firms, manufacturing and merchandising business, banks and other financial institutions, government and others that rely on Information Systems to support their business.

### REQUIREMENTS

#### Major Courses (24 credits)

BCIS 350	Information Systems Analysis and Design	3 cr.
ET 377	Computer Networking I	3 cr. (2+2P)
	or	
ICT 377	Computer Networking I	3 cr.
ET 477	Computer Networking II	3 cr.
	or	
ICT 477	Computer Networking II	3 cr.
ET 339	Introduction to Digital Forensics and Incident Response	3 cr. (2+3P)
	or	
ICT 339	Introduction to Digital Forensics and Incident Response	3 cr.
BCIS 475	Database Management Systems	3 cr.
BCIS 480	E-Commerce Security	3 cr.
BCIS 482	Management of Information Security	3 cr.
BCIS 490	Selected Topics	1-3 cr.

Please note that some of the courses listed may have a prerequisite which would require a student to take an additional course. Substitutions for some of these courses may be considered if a student makes this request to the department.

### MINOR: ACCOUNTING

To obtain a minor in Accounting, a student must complete 18 or more credit hours of approved course work in Accounting (ACCT), of which at least 12 hours are in courses numbered 300, or higher. All courses for the minor must be completed with a grade of C- or better. At least 12 credits must be completed at NMSU. This minor is not open to majors in the Bachelor of Individualized Studies and the Bachelor of Applied Studies.

### DEGREE REQUIREMENTS

#### Required Courses

ACCT 221	Financial Accounting	3 cr.
ACCT 222	Management Accounting	3 cr.
ACCT 301	Financial Accounting I	3 cr.

#### Nine credits from the following:

ACCT 302	Financial Accounting II	3 cr.
ACCT 351	Accounting Systems	3 cr.
ACCT 353	Cost Accounting	3 cr.
ACCT 403	Federal Taxation I	3 cr.

ACCT 451	Auditing Theory and Practices	3 cr.
ACCT 455	Federal Taxation II	3 cr.
ACCT 456	Accounting for Nonprofit Organizations	3 cr.
ACCT 460	Fraud Examination and Prevention	3 cr.
BCIS 485	Enterprise Resource Planning	3 cr.

Of the 12 hours of upper-division Accounting classes required for the minor, a minimum of 6 must be taken at NMSU. At least 12 credit hours must be completed at the NMSU College of Business. To count toward the minor, upper-division transfer courses must have been taken at an institution with AACSB Accounting accreditation.

### MINOR: ENTERPRISE SYSTEMS

To obtain a minor in Enterprise Systems, a student must complete 18 or more credit hours of approved course work. A cumulative grade point average of at least 2.0 over the 18 hours must be earned. At least 12 credits must be completed at NMSU. This minor is not open to majors in the Bachelor of Individualized Studies and the Bachelor of Applied Studies.

### REQUIRED COURSES

ACCT 351	Accounting Systems	3 cr.
BCIS 485	Enterprise Resource Planning	3 cr.
BCIS 482	Management of Information Security	3 cr.
FIN 360	Financial Information Technology	3 cr.
MGT 351	Supply Chain Management	3 cr.
	or	
MGT 344	Production and Operations Management	3 cr.
	or	
MGT 466	Managing Electronic Commerce: A Business Models Perspective	3 cr.

#### Three credits from the following

ACCT 353	Cost Accounting	3 cr.
MGT 345V	Quality and Competitiveness: An International Perspective	3 cr.
MGT 470	Project Management in Organizations	3 cr.
IB 458	Comparative International Management	3 cr.
FIN 475	International Managerial Finance	3 cr.

### MINOR: INFORMATION SYSTEMS

To obtain a minor in Information Systems (IS), a student must complete 18 or more credit hours of approved coursework in IS, of which at least 12 hours are in courses numbered 300 or higher. A cumulative grade point average of at least 2.0 over the 18 hours must be earned. At least 12 credits must be completed at NMSU. This minor is not open to majors in the Bachelor of Individualized Studies and the Bachelor of Applied Studies.

#### Required Courses

BCIS 338	Business Information Systems I	3 cr.
BCIS 350	Information Systems Analysis and Design	3 cr.
BCIS 482	Management of Information Security	3 cr.

#### Nine credits from the following:

ACCT 351	Accounting Systems	3 cr.
BCIS 475	Database Management Systems	3 cr.
BCIS 480	E-Commerce Security	3 cr.
BCIS 485	Enterprise Resource Planning	3 cr.
BCIS 490	Selected Topics	1-3 cr.

## ECONOMICS, APPLIED STATISTICS AND INTERNATIONAL BUSINESS

### Professor, Richard Adkisson, Department Head

**Professors** Adkisson, Carruthers, Daniel, Enomoto, Erickson, Gegax, Gould, Peach, Steiner, VanLeeuwen; **Associate Professors** Blank, Brook, Downes, Lee, McFerrin, Widner; **Assistant Professors** Gard, Geisler, Ricketts; **College Professor**

Schmidt *College Assistant Professor* Bai; *Emeritus Faculty* Ellis, McGuckin, Popp, D.B. Smith, Willman, Clason

phone: (575) 646-2113

website: <http://business.nmsu.edu/academics/economics-ib/>

## DEGREE: BACHELOR OF ARTS IN ECONOMICS

### MAJOR: ECONOMICS

This program is suitable for, among others, students who plan to go onto graduate school in economics, law, business or other areas. It has the advantage of including a large number of general electives. This feature provides great flexibility to the student who, in addition to completing the courses for a major in economics, may wish to take courses from a wide variety of other subjects of his or her own choosing.

Every candidate for this degree must complete the following requirements. In addition, the following courses must be completed with a grade of C- or better: ECON 251G, ECON 252G, A ST 311 (or the equivalent), and MATH 142G (or MATH 191G). Economics majors must earn a minimum cumulative GPA of 2.5 in the 27 credits of departmental requirements.

### GENERAL EDUCATION COMMON CORE

The College of Business abides by the university's New Mexico General Education Common Core requirements as outlined in this catalog. To minimize the number of courses taken, students should first review the General Degree requirements listed below. Students who follow the recommendations below will satisfy the university's general education requirements.

#### Area I: Communications (10 credits)

Complete one course from each category with a grade of C- or better

ENGL 111G	Rhetoric and Composition	4 cr.
ENGL 111GH	Rhetoric and Composition Honors	4 cr.
SPCD 111G	Advanced ESL Composition	4 cr.
	or	
ENGL 111 M	Rhetoric and Composition for International and Multilingual Students	4 cr.

#### One course from the following:

ENGL 203G	Business and Professional Communication	3 cr.
ENGL 211G	Writing in the Humanities and Social Sciences	3 cr.
ENGL 218G	Technical and Scientific Communication	3 cr.
ENGL 311G	Advanced Composition	3 cr.
ENGL 318G	Advanced Technical and Professional Communication	3 cr.

#### One course from the following:

COMM 253G	Public Speaking	3 cr.
COMM 265G	Principles of Human Communication	3 cr.
HON 265G	Principles of Human Communication Honors	3 cr.
AXED 201G	Effective Leadership and Communication in Agricultural Organizations	3 cr. (2+2P)

#### Area II: Mathematics (3 credits)

One course from the following

A ST 251G	Statistics for Business and the Behavioral Sciences	3 cr.
MATH 121G	College Algebra	3 cr.
MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)
MATH 190G	Trigonometry and Precalculus	4 cr. (3+2P)
MATH 191G	Calculus and Analytic Geometry I	4 cr.

*MATH 142G: Students planning to do graduate work in mathematical economics or statistics are urged to take MATH 190G, Trigonometry and Precalculus, MATH 191G and MATH 192G, Mathematics for Engineers and Scientists I and II, rather than MATH 142G.*

#### Area III: Laboratory Sciences (8 credits)

	Complete two courses with labs from the approved New Mexico General Education Common Core List	8 cr.
--	--	-------

#### Area IV: Social and Behavioral Sciences (6-9 credits)

##### One course from the following

ECON 251G	Principles of Macroeconomics	3 cr.
ECON 252G	Principles of Microeconomics	3 cr.
	up to one additional course from the approved list	

#### Area V: Humanities and Fine Arts (6-9 credits)

Select two or three courses from the approved list so that total credits from Areas IV and V equal 15.

#### Foundation and General Program Requirements (33-40 credits, dependent upon mathematics placement)

ACCT 221	Financial Accounting	3 cr.
MATH 120	Intermediate Algebra	3 cr.
MATH 121G	College Algebra	3 cr.
MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)
ECON 251G	Principles of Macroeconomics	3 cr.
ECON 252G	Principles of Microeconomics	3 cr.

*MATH 120: a grade of C or better required to advance to the next level*

*MATH 121G: a grade of C or better is required to advance to the next level*

##### One course from the following:

A ST 251G	Statistics for Business and the Behavioral Sciences	3 cr.
STAT 251G	Statistics for Business and the Behavioral Sciences	3 cr.
A ST 311	Statistical Applications	3 cr.

## REQUIREMENTS

#### Departmental Core Courses (27 credits)

ECON 304	Money and Banking	3 cr.
ECON 371	Intermediate Microeconomic Theory	3 cr.
ECON 372	Intermediate Macroeconomic Theory	3 cr.
ECON 405	Economic Statistics	3 cr.
ECON 457	Mathematical Economics	3 cr.
ECON 489	Senior Economics Seminar	3 cr.

*NOTE: Students must earn a cumulative GPA of 2.5 in courses counted toward the economics major.*

#### Electives in economics, upper-division

Nine additional credits numbered 300 or above, including at least one course from the following to bring the total upper-division credits in major to 27.

ECON 332	Public Finance	3 cr.
ECON 336	Labor Problems	3 cr.
ECON 449	Open Economy Macroeconomics	3 cr.
ECON 450	International Economics	3 cr.

#### Viewing a Wider World (VWW) (6 credits)

A description of the requirement and a listing of approved VWW courses can be found in this catalog under Required Courses.

#### General Electives

Students must complete additional credits to bring total degree credits to a minimum of 120 and upper division credits to 48. The number of general elective credits varies by student.

## DEGREE: BACHELOR OF BUSINESS ADMINISTRATION

### MAJOR: ECONOMICS

This program is especially suitable for students who find economics interesting and who intend, perhaps without additional formal education beyond the Bachelor degree, to take jobs in business or government. This degree prepares you for a wide variety of jobs including those leading eventually to positions of executive responsibility. It is also appropriate for those who may choose to seek a Master of Business Administration degree after graduation.

In addition to completing general education common core, College of Business foundation and business core, Viewing a Wider World requirements, and general electives (see above), every candidate for this major must complete each of

these courses with a grade of C- or better: ECON 251G, ECON 252G, A ST 251G or A ST 311 (or the equivalent) and MATH 142G (or MATH 191G), and earn a minimum cumulative GPA of 2.5 in the following major course requirements.

## REQUIREMENTS

### Major Courses (24 credits)

ECON 304	Money and Banking	3 cr.
ECON 371	Intermediate Microeconomic Theory	3 cr.
ECON 372	Intermediate Macroeconomic Theory	3 cr.
ECON 405	Economic Statistics	3 cr.
ECON 489	Senior Economics Seminar	3 cr.

### Electives in economics, upper-division

at least nine 300 or 400 level economics courses including three credit hours from:

ECON 332	Public Finance	3 cr.
ECON 336	Labor Problems	3 cr.
ECON 401	Managerial Economics	3 cr.
ECON 450	International Economics	3 cr.
ECON 457	Mathematical Economics	3 cr.

## MAJOR: INTERNATIONAL BUSINESS

This program is intended for those who plan to work for government agencies or firms with operations abroad or between the United States and foreign countries. The program prepares you for positions requiring knowledge of international payments, foreign exchange markets, world marketing techniques for products, export and import procedures, and international investments.

In addition to completing the general education common core, College of Business foundation and business core, Viewing a Wider World requirements, and general electives (see above), every candidate for this major must complete these courses with a grade of C- or better: ECON 251G, ECON 252G, A ST 251G or A ST 311 (or the equivalent), and MATH 142G (or MATH 191G), and earn a minimum cumulative GPA of 2.5 in the following major course requirements.

## REQUIREMENTS

### Major Courses (30 credits)

#### International Business Core Courses

I B 351	International Business	3 cr.
I B 450	International Economics	3 cr.
I B 475	International Finance	3 cr.
	or	
I B 449	Open Economy Macroeconomics	3 cr.
I B 489	Senior Seminar in International Business	3 cr.

### One course from the following:

ECON 324V	Developing Nations	3 cr.
ECON 325V	Economic Development of Latin America	3 cr.
I B 398	International Business and Economic Environments	3 cr.
HON 380V	Comparative Economic Systems	3 cr.
	Functional area in business (upper-division courses in a single functional area of business beyond those elsewhere required for the I B major)	15 cr.

*NOTE: At least 12 of the 15 credit hours counted toward the international business core course must be earned at NMSU.*

Functional area in business: At least 9 of the 15 credit hours counted toward the international business functional area must be earned at NMSU.

### Other Requirements for the Major

**Students must earn a cumulative GPA of 2.5 in courses counted toward the I B major (core and functional area)**

**Foreign language:** Students must demonstrate oral and written proficiency at the intermediate mid-level according to ACTFL (American Council on the Teaching of Foreign Languages) proficiency guidelines. ( Process for demonstrating

proficiency to be coordinated with the NMSU Department of Languages and Linguistics. Any costs associated with proficiency demonstration will be paid by the student.)

**International experience requirement:** Students must partake of an international experience equivalent to a semester abroad in a university where the language of instruction is not English. The department will determine appropriateness of international experience. Study abroad programs must be pre-approved by IB advisors and Department Head.

## MINOR: ECONOMICS

A minor in economics consists of 18 or more credit hours of approved course work in economics (ECON), of which at least 12 are numbered 300 or higher, all completed with a grade of C- or higher. At least 12 credits must be completed at NMSU. This minor is not open to majors in the Bachelor of Individualized Studies and the Bachelor of Applied Studies.

Specifically required are ECON 251G and 252G (ECON 201G may be substituted for one of these with the approval of the Head of the Department of Economics). Also required are one course each from ECON 304, or ECON 372, and one from ECON 401 or 371. The remaining 6 credits may be satisfied with any upper-division courses (courses numbered 300 or higher) in economics.

## MINOR: INTERNATIONAL BUSINESS

A minor in international business consists of 18 or more credit hours of approved course work in the International Business core, all completed with a grade of C- or higher. At least 12 credits must be completed at NMSU. This minor is not open to majors in the Bachelor of Individualized Studies and the Bachelor of Applied Studies.

Specifically, minors in International Business must complete I B 351, ECON/I B 450, FIN/I B 475 or ECON 449, I B 489, one class from ECON 324V, ECON 325V, HON 380, or I B 398, plus one other upper-division business course. In addition, I B minors must meet the foreign language proficiency requirement described below. Students must demonstrate oral and written proficiency in a foreign language at the intermediate mid-level according to the ACTFL (American Council on the Teaching of Foreign Languages) proficiency guidelines. (Process for demonstrating proficiency to be coordinated with the NMSU Department of Languages and Linguistics. Any costs associated with proficiency demonstration will be paid by the student.)

## Statistics Courses

The Applied Statistics faculty provides undergraduate service courses in applied statistics for students from all colleges. These courses are presented at an introductory level to acquaint the student with basic statistical concepts. This service instruction extends to intermediate and advanced graduate-level courses.

## Graduate Work

The Department of Economics and International Business offers a graduate program leading to the Master of Science in Applied Statistics. The Department also offers a graduate program leading to a Master of Arts in Economics, a Master of Science in Agricultural Economics and a Doctor of Economic Development. Interested students should consult the Graduate Catalog, which is available from the Graduate School. For more information call (575) 646-2936.

## FINANCE

### Professor, Harikumar Sankaran, Department Head

**Professors** de Boyrie, Fortin, Martin, Oretskin; Query; Sankaran; **Associate Professors** Clarkson; **Assistant Professors** Holt, Rahman; **College Assistant Professor** Groves; McGonigle

phone:(575) 646-3201

website: <http://business.nmsu.edu/academics/finance/>

**DEGREE: BACHELOR OF BUSINESS ADMINISTRATION****MAJOR: FINANCE**

Finance is the management of money and cash flow for business organizations, government and individuals. The study of finance involves examining the theory and techniques of managing money, including analysis and risk management. Finance students learn to apply tools and concepts from mathematics, statistics, economics and accounting to financial decision-making. With this knowledge, finance graduates are in high demand by employers and command some of the highest salaries for college graduates. Depending upon their career goals and interests, finance majors may use the electives in the major to focus their program of study on financial management, financial planning, investments, banking and/or risk management and insurance.

Every candidate for this major must fulfill the following requirements in addition to the general education common core, College of Business foundation and business core, Viewing a Wider World requirements and general electives (see above).

**REQUIREMENTS****Major Courses (24 credits)**

FIN 355	Investments	3 cr.
FIN 360	Financial Information Technology	3 cr.
FIN 385	Analysis of Financial Markets and Institutions	3 cr.
FIN 406	Theory of Financial Decisions	3 cr.
	Finance electives: Four additional, upper division, finance courses numbered 310 or higher	12 cr.

**MINOR: BANKING**

The minor in Banking, available to students in most majors (business and non-business), affords students the opportunity to supplement their major field of study with specialized expertise in the field of banking. Students pursuing this option will be advised by the coordinator of the banking program and will be encouraged to pursue internships and co-op experiences in the banking industry.

This minor is not open to majors in the Bachelor of Individualized Studies and the Bachelor of Applied Studies.

**REQUIREMENTS**

Completion of the courses listed below (including any prerequisites) with a minimum cumulative GPA of 2.0 in these courses. At least twelve of the credits for the minor must be completed at NMSU.

**Required Courses**

ACCT 221	Financial Accounting	3 cr.
FIN 341	Financial Analysis and Markets	3 cr.
FIN 385	Analysis of Financial Markets and Institutions	3 cr.
FIN 480	Management of Financial Institutions	3 cr.

**Two additional upper division courses chosen from the following:**

ACCT 301	Financial Accounting I	3 cr.
BLAW 418	Advanced Business Law Topics	3 cr.
FIN 322	Principles of Insurance	3 cr.
FIN 326	Business Risk Management	3 cr.
FIN 355	Investments	3 cr.
FIN 391	Finance Internship and Cooperative Education I	1-3 cr.
FIN 421	Personal Financial Planning for Professionals	3 cr.

**MINOR: FINANCE**

The minor in Finance, available to students in most majors (business and non-business), affords students the opportunity to select their minor courses to provide a focus on any one of several sub-specialties within the field of Finance. Faculty advisors in the department can assist students in selecting their Finance electives to provide a focus in financial management, financial planning, or investments.

This minor is not open to majors in the Bachelor of Individualized Studies and the Bachelor of Applied Studies.

**REQUIREMENTS**

Completion of the courses listed below (including any prerequisites) with a minimum cumulative GPA of 2.0 in these courses and a minimum cumulative GPA of 2.0 in the FIN courses. At least twelve credits for the minor must be completed at NMSU.

**Required Courses**

ACCT 221	Financial Accounting	3 cr.
FIN 341	Financial Analysis and Markets	3 cr.
	Any three additional, upper division, finance courses numbered 310 or higher	9 cr.
	Any additional upper division business course	3 cr.

**One course from the following:**

ECON 201G	Introduction to Economics	3 cr.
ECON 251G	Principles of Macroeconomics	3 cr.
ECON 252G	Principles of Microeconomics	3 cr.

**MINOR: RISK MANAGEMENT AND INSURANCE**

The minor in Insurance, available to students in most majors (business and non-business), affords students the opportunity to supplement their major field of study with specialized expertise in the field of insurance. Students pursuing this option will be advised by the director of the insurance studies program and will be encouraged to pursue internships and co-op experiences in the insurance industry.

This minor is not open to majors in the Bachelor of Individualized Studies and the Bachelor of Applied Studies.

**REQUIREMENTS**

Completion of the courses listed below (including any prerequisites) with a minimum cumulative GPA of 2.0 in these courses. At least twelve credits for the minor must be completed at NMSU.

**Required Courses**

BLAW 316	Legal Environment of Business	3 cr.
	or	
BLAW 385V	Consumers and the Law	3 cr.
FIN 322	Principles of Insurance	3 cr.
FIN 341	Financial Analysis and Markets	3 cr.
	or	
FIN 303V	Personal Financial Planning and Investing in a Global Economy	3 cr.

**Three upper division finance courses chosen from the following. Please note: students who take FIN 303V cannot use FIN 421 as one of their electives.**

FIN 323	Life/Health/Employee Benefits	3 cr.
FIN 324	Property and Liability Insurance	3 cr.
FIN 326	Business Risk Management	3 cr.
FIN 392	Insurance Internship and Cooperative Education I	1-3 cr.
FIN 421	Personal Financial Planning for Professionals	3 cr.
FIN 498	Independent Study	1-3 cr.

**MANAGEMENT**

**Associate Professor, Carlo Mora-Monge, Interim Department Head**

**Professors** Benson, Bishop, Boje, Daily, Elias, Hoffman, Jun, Rosile; **Associate Professors** Adler, Smith; **Assistant Professors** Flinchbaugh, Clark, Crawford; **College Professor** Macy

phone: (575) 646-1201

website: <http://business.nmsu.edu/departments/mgt/>

**DEGREE: BACHELOR OF BUSINESS ADMINISTRATION****MAJOR: GENERAL BUSINESS**

The major in general business is based on a broad range of course options rather than a narrow focus on a single discipline. Graduates find careers in large and small businesses, in government agencies and in the nonprofit sector. The general business major is well suited to the part-time and working student because it allows the student to select courses that will better meet their individual schedule. The entrepreneurship option is ideal for a student interested in starting or acquiring a small business or entering a family business upon graduation. The curriculum provides a focus on small and new enterprises, thus reflecting the entrepreneurial nature of contemporary business in the U.S.

Every candidate for this major must fulfill the following requirements in addition to the general education common core, College of Business foundation and business core, Viewing a Wider World requirements and general electives (see above). Students will choose one of the three options that follow.

**OPTION: Entrepreneurship****Major Courses (24 credits)**

MGT 332	Human Resources Management	3 cr.
MGT 361	Managing a Startup	3 cr.
MGT 461	New Venture Creation	3 cr.
MGT 448	Business Consulting	3 cr.
	Major requirements (upper division)	12 cr.

**Of the remaining 12 credits for the entrepreneurship option, no more than 9 credits may be taken in any one prefix**

Accounting (ACCT)

Business Administration (B A)

Business Computer Information Systems (BCIS)

Business Law (BLAW)

Economics (ECON)

Finance (FIN)

International Business (I B)

Management (MGT)

Marketing (MKTG)

**OPTION: General Business****Major Courses (24 credits)**

	Major requirements (upper division)	24 cr.
--	-------------------------------------	--------

**No more than 9 credits may be taken in any one prefix**

Accounting (ACCT)

Business Administration (B A)

Business Computer Information Systems (BCIS)

Business Law (BLAW)

Economics (ECON)

Finance (FIN)

International Business (I B)

Management (MGT)

Marketing (MKTG)

**Note:** The general business option is offered through a 2+2 Online Distance Education Degree Completion Program as well. Program information is available on the College of Business website:

<http://business.nmsu.edu/academics/undergraduate/online-programs/>

**OPTION: Tribal Management**

This option is offered to students who complete the tribal management option offered at Southwestern Indian Polytechnic Institute and wish to complete a BBA with a major in general business at NMSU.

**Major Courses (24 credits)**

MGT 391	Management Internship and Cooperative Education I	1-3 cr.
MGT 491	Management Internship and Cooperative Education II	1-3 cr.
	Upper division electives in business	18 cr.

**No more than 9 of the 18 credits may be taken in any one prefix**

Accounting (ACCT)

Business Administration (B A)

Business Computer Information Systems (BCIS)

Business Law (BLAW)

Economics (ECON)

Finance (FIN)

International Business (I B)

Management (MGT)

Marketing (MKTG)

**MAJOR: MANAGEMENT**

The Department of Management invites you to consider a major in management. Do you like to work with people? Need help solving people problems at work? Hope to start your own business? Want to run an environmental project, or a bank, a store, a farm or a government agency? Are you interested in how people from diverse backgrounds work together to achieve common goals? If you answered yes to any of these questions, you should consider a major in management. The mission of the department is to prepare graduates, with a Bachelor of Business Administration, for management careers in a broad spectrum of New Mexico, national and globally oriented businesses. Management graduates work in small and large agricultural, manufacturing, government, transportation, public utility, merchandising, health care, environmental and communications organizations among others.

The study of management offers the opportunity to develop skills in utilizing human, physical and economic resources to achieve organizational objectives. These are important cross-functional skills in today's competitive job market. Students will acquire the skills and knowledge to develop their potential and to lead others in a common mission. Management majors may choose from program options in human resource management, managerial leadership, project and supply chain management or small business management and entrepreneurship.

Every candidate for this major must fulfill the following requirements in addition to the general education common core, College of Business foundation and the business core, Viewing a Wider World requirements and general electives (see above). Students will choose one or more of the four options that follow.

**OPTION: Human Resource Management****Major Courses (24 credits)**

MGT 332	Human Resources Management	3 cr.
MGT 451	Selection, Placement, and Performance Evaluation	3 cr.
MGT 460	Compensation Management	3 cr.
MGT 458	Comparative International Management	3 cr.
	or	
MGT 465	Contemporary Issues in Human Resources Management	3 cr.
	Electives in management, upper division	12 cr.

**OPTION: Managerial Leadership****Major Courses (24 credits)**

MGT 347	Management Functions and Processes	3 cr.
MGT 453	Leadership and Motivation	3 cr.
MGT 454	Work Teams in Organizations	3 cr.
	Electives in management, upper division	15 cr.

**OPTION: Project and Supply Chain Management****Major Courses (24 credits)**

MGT 345V	Quality and Competitiveness: An International Perspective	3 cr.
MGT 351	Supply Chain Management	3 cr.
MGT 466	Managing Electronic Commerce: A Business Models Perspective	3 cr.
MGT 470	Project Management in Organizations	3 cr.
	Electives in management, upper division	12 cr.

**OPTION: Small Business Management and Entrepreneurship****Major Courses (24 credits)**

MGT 332	Human Resources Management	3 cr.
MGT 361	Managing a Startup	3 cr.
MGT 461	New Venture Creation	3 cr.
MGT 448	Busniss Consulting	3 cr.
	Electives in management, upper division	12 cr.

**MINOR: MANAGEMENT**

The management minor requires 18 upper division credits in management. Business majors must take any six upper-division management or BUSA courses (3 credits each). (Note: BUSA 365 totals 3 management credits for purposes of the management minor). The management minor for non-business majors consists of: one course from MGT 309 or MGT 315V (not both); plus five other upper division management courses (one 3-credit upper division course in the College of Business may substitute for one of the required five management courses). At least 12 credits for the minor must be completed at NMSU.

This minor is not open to majors in the Bachelor of Individualized Studies and the Bachelor of Applied Studies.

To obtain a Management minor, a grade of C- or better must be attained in the courses required.

**MINOR: SUSTAINABILITY****REQUIREMENTS****Requirements List**

Students must complete 18 credits for the minor, nine credits of which must be upper division courses, and at least 12 credits of which must be completed at NMSU. A 2.0 GPA or better is required in the courses completed in fulfillment of the minor. This minor is not open to majors in the Bachelor of Individualized Studies and the Bachelor of Applied Studies.

E S 110G	Introductory Environmental Science	4 cr. (3+2P)
PHLS 305V	Global Environmental Health Issues	3 cr.
HON 305V	Global Environment	3 cr.
HORT 100G	Introductory Plant Science	4 cr. (3+2P)
HORT 315	Crop Physiology	3 cr.
HRTM 430	Hospitality Facilities Management	3 cr.
HRTM 450	Special Topics	1-4 cr.
HRTM 492	Special Problems	1-4 cr.
MGT 375V	Global Environmental Assessment and Management	3 cr.
MGT 388V	Leadership and Society	3 cr.
MGT 448	Busniss Consulting	3 cr.
MGT 449	Strategic Management	3 cr.
MGT 458	Comparative International Management	3 cr.
MGT 465	Contemporary Issues in Human Resources Management	3 cr.
MGT 490	Selected Topics	1-18 cr.
MPH 550	Environmental Public Health Issues	3 cr.

**MARKETING****Professor, Nancy Oretskin, Interim Department Head**

**Professors** Hyman, Peterson; **Associate Professors** Huhmann, Jasso, Payne;

**Assistant Professors** Leonhardt, Niculescu; **College Assistant Professors:**

Blaugrund, Holguin

phone: (575) 646-3341

website: <http://business.nmsu.edu/academics/marketing/>

**PGA Golf Management Program**

**Director** Gavin; **Program Specialist** Salmon; **Program Coordinator** Stetina

phone: (575) 646-2814

website: <http://business.nmsu.edu/academics/pgagm/>

**DEGREE: BACHELOR OF BUSINESS ADMINISTRATION  
MAJOR-MARKETING****OPTION: Marketing****Major Courses (24 credits)**

MKTG 310	Marketing Research	3 cr.
MKTG 489	Strategy and Policy	3 cr.
	Electives in Marketing, upper division	18 cr.

Note: The marketing major is offered through a Online Distance Education Degree Completion Program as well. Program information is available on the College of Business website: <http://business.nmsu.edu/academics/undergraduate/online-programs/>

**OPTION: PGA Golf Management****Major Courses (33 credits)**

MKTG 180	PGA Golf Management Freshman Orientation	3 cr.
MKTG 181	Level 1, PGA's PGM Education Program (Part 1)	3 cr.
MKTG 280	Level 1, PGA's PGM Education Program (Part 2)	3 cr.
MKTG 281	Level 1, PGA's PGM Education Program (Part 3)	1.5 cr.
MKTG 310	Marketing Research	3 cr.
MKTG 313	Retail Management	3 cr.
MKTG 380	Level 2, PGA's PGM Education Program (Part 1)	1.5 cr.
MKTG 381	Level 2, PGA's PGM Education Program (Part 2)	1.5 cr.
MKTG 480	Level 3, PGA's PGM Education Program (Part 1)	1.5 cr.
MKTG 481	Level 2, PGA's PGM Education Program (Part 2)/ Final Experience	3 cr.
	Elective in Marketing, upper division	9 cr.

Note: Students must apply separately to the PGA Golf Management Program for acceptance. Acceptance is limited to the fall of every year.

**Other PGA Golf Management Requirements (7 credits)**

HORT 377	Introduction to Turfgrass Management	4 cr. (3+3P)
HRTM 420	Club Management and Marketing	3 cr.
HRTM 450	Special Topics	1-4 cr.

**MINOR: ADVERTISING**

Requirements: 18 or more credit hours in an approved plan of study. The minor includes:

1. MKTG 303, Principles of Marketing; MKTG 311V, Consumer Behavior; MKTG 314, Advertising Strategy; and MKTG 449, Promotion Management.
2. Six additional course credits from any College of Business prefix (including MKTG). Marketing-related courses outside the College of Business may be substituted with approval of the department head of Marketing. A list of commonly approved courses is available at the department office.
3. All courses must be upper-division (300 level or above) and must be approved by the Marketing department head.
4. A cumulative grade point average of 2.0 for the 18 credits must be earned.
5. As soon as you consider a minor in Marketing, visit the Department of Marketing, Business Complex, room 209.
6. At least 12 credits for the minor must be completed at NMSU.
7. This minor is not open to majors in the Bachelor of Individualized Studies and the Bachelor of Applied Studies.

**MINOR: MARKETING**

Requirements: 18 or more credit hours in an approved plan of study. The minor includes:

1. Twelve credit hours of MKTG courses (HRTM 301 Hospitality, Restaurant and Tourism Marketing may be substituted here).
2. Six additional credits of coursework from any College of Business prefix (including MKTG). Marketing-related courses outside the College of



Business may be substituted with approval of the department head of Marketing. A list of commonly approved courses is available at the department office.

3. All courses must be upper-division (300 level or above) and must be approved by the Marketing department head.
4. A cumulative grade point average of 2.0 for the 18 credits must be earned.
5. As soon as you consider a minor in Marketing, visit the Department of Marketing, Business Complex, room 209.
6. At least twelve credits for the minor must be completed at NMSU.
7. This minor is not open to majors in the Bachelor of Individualized Studies and the Bachelor of Applied Studies.

#### **MINOR: SPORTS MARKETING**

Requirements: 18 or more credit hours in an approved plan of study. The minor includes:

1. MKTG 303, Principles of Marketing; BLAW 313, Sports Law; and MKTG 354, Sports Marketing.
2. Three additional credits of MKTG courses.
3. Six additional credits of coursework from any College of Business prefix (including MKTG). Marketing-related courses outside the College of Business may be substituted with approval of the department head of Marketing. A list of commonly approved courses is available at the department office.
4. All courses must be upper-division (300 level or above) and must be approved by the Marketing department head.
5. A cumulative grade point average of 2.0 for the 18 credits must be earned.
6. As soon as you consider a minor in Sports Marketing, visit the Department of Marketing, Business Complex, room 209.
7. At least twelve credits for the minor must be completed at NMSU.
8. This minor is not open to majors in the Bachelor of Individualized Studies and the Bachelor of Applied Studies.

# COLLEGE OF EDUCATION

**Dean • Donald Pope-Davis**

**Associate Dean • Enedina Vazquez**

**Interim Associate Dean for Research • Robert Wood**

**Assistant Dean for Budget and Planning • Gladys De Necochea**

**Director of Education Research and Budget • Juanita Hannan**

**Undergraduate Advisement Center Coordinator • Margo M. Trevino-Torres**

**Undergraduate Advisement Center Advisors • Jeff Hackney and Deborah Gouldsmith**

**Bachelor of Arts in Dance**

**Bachelor of Science in Athletic Training**

**Bachelor of Science in Education**-Majors in Elementary Education; Secondary Education with endorsements in Business Education; Foreign Languages (French Education; German; Spanish; Science; Language Arts; Math Education; Social Studies; Teaching Physical Education; Special Education; Disorders; Counseling and Community Psychology

**Bachelor of Science in Kinesiology**

## Accreditation

The university's teacher preparation program, which involves several colleges and which is directed by the College of Education, was accredited in 1962 by the National Council for the Accreditation of Teacher Education. Also in the College of Education the Communication Disorders master's program in Speech-Language Pathology is accredited by the American Speech-Language-Hearing Association (ASHA), and the undergraduate Athletic Training Degree in Human Performance, Dance and Recreation is accredited by the Commission on Accreditation of Athletic Training Education (CAATE). The Physical Education Program is approved by the National Association for Sports and Physical Education. The undergraduate and graduate programs that prepare individuals for licensure to work in public and private schools in New Mexico have been approved by the New Mexico State Board of Education.

The College of Education provides undergraduate students with a broad general education and professional teacher preparation.

## General Requirements

1. Entering freshman with an ACT score of 17 or lower will be invited to take a study skills class to ensure a successful college experience.
2. Complete at least 132 acceptable credits, including a minimum of 48 credits in courses numbered 300 or above with a cumulative GPA of 2.5 or above.
3. Satisfy the general education requirements. Detailed programs are available in the College of Education Advisement Center. General education requirements will be individually planned for those students with an ACT composite standard score of 25 (85th percentile) or a 1020 SAT score (84.1 percentile).
4. Students in teacher preparation programs must pass the New Mexico Teacher Assessments Basic Skills test prior to Admission to education courses numbered 300 and above.
5. Students in teacher preparation programs must be officially admitted to the Teacher Education Program. See requirements under Admission to the Teacher Education program and Competitive Admission Process.
6. Students must be officially approved for student teaching during his/her senior year. Prior to student teaching, complete teaching field requirements, and pass the Content Knowledge of the New Mexico Teacher Assessments test.
7. Students must complete all professional education courses and all courses in their teaching field or major with a grade of C- or better.
8. All students, including transfer students, must complete the last 30 semester credits required for the baccalaureate degree on the New Mexico State University campus. The four-year Servicemen's

Opportunity College Program students are not exempt from this regulation.

9. Each student must possess the academic ability, character, and disposition suitable for teaching. A student who, in the professional judgment of the faculty and staff, does not possess these qualifications may be examined by a Selective Review Committee. The committee may recommend any of a variety of actions, ranging from remedial procedures to withdrawal from the College.
10. All majors require a minimum 2.5 cumulative GPA to graduate, except Communication Disorders, which requires a 3.0 cumulative GPA.
11. Students with a bachelor's degree seeking teacher licensure must meet all admission criteria for the Teacher Education Program and be admitted to the Graduate School.

In addition, if faculty at any time determine that a student is weak in a particular skill, the College of Education may require remedial procedures in areas such as mathematics, composition, speaking or other skills needed for success in public school teaching.

The above requirements are established for those seeking a teaching license. Other programs in the college such as Athletic Training, Physical Education and Communication Disorders have specific requirements. Check in the advisement office or appropriate departments for program information.

## Competitive Admission Process for Teacher Education Program

Applicants who successfully complete the minimum requirements for admission will be reviewed by the Teacher Education Program admission committee. The admission committee will base acceptance decisions on the applicant's academic qualifications, written communication, faculty recommendations and the student's portfolio.

Even though students declare their majors when they enter New Mexico State University, teacher candidates are not officially admitted to the Teacher Education Program until they formally apply and meet the following requirements:

1. A cumulative grade-point average of at least 2.5
2. Must complete 55 credit hours
3. Complete appropriate program prerequisites. See College of Education Advisement Center for specific program prerequisites.
4. Demonstration of competence in reading, mathematics, and composition by passing the Basic Skills component of the New Mexico Teacher Assessments test.
5. Students seeking admission to TEP must purchase TK20 Assessment Tool.
6. Submit a portfolio for admission to the Teacher Education Program. The portfolio will be reviewed by faculty. Admission to TEP is contingent on faculty approval. See the COE Advisement Center for further clarification.

Applicants should be aware that admission to the Teacher Education Program is competitive and is based upon available faculty resources. Posted GPA and basic skills test scores are minimums which are necessary to be considered for admission by the Teacher Education Program committee and do not ensure admittance into programs. Applicants are encouraged to develop a strong student portfolio, achieve the highest GPA possible, and present the portfolio in a professional manner.

Students who are not admitted may not take designated professional education courses numbered above 299. Students with a bachelor's degree seeking teacher licensure must meet all admission criteria for the Teacher Education Program and be admitted to the Graduate School.

## Suggested Program of Study

Requirements of a general nature and for each endorsement are available in the advisement center of the college. It is imperative that students, especially those new to the campus, report frequently to the advisement center to have their programs carefully and continually monitored in line with newly developing requirements.

All students henceforth will pursue a baccalaureate program leading to a Level I Teaching License. All students must work with an academic advisor to ensure a complete program of studies for their specific degree.

### College of Education Course Fees

A fee may be assessed for most College of Education courses, both undergraduate and graduate. The fee will average \$30 per course. Funds generated by this fee will be used for expanding and improving field experience programs, internships and practicums and to better comply with federal, state and accrediting body standards.

### Transferring Early Childhood Education Courses

The following early childhood education courses have been identified as transferable from NMSU to other public two-year and four-year institutions in New Mexico. The equivalent course at other institutions can be identified using the common course number which appears in parentheses below. Similarly, students from other institutions can use the common course number to identify early childhood education courses that can be transferred to NMSU.

ECED 115 Child Growth, Development, and Learning (1113)  
 ECED 125 Health, Safety and Nutrition (1122)  
 ECED 135 Family and Community Collaboration (1133)  
 ECED 245 Early Childhood Education Professionalism (2152)  
 ECED 215 Curriculum Development and Implementation I (2163)  
 ECED 220 Early Childhood Education Practicum  
 ECED 230 Early Childhood Education Practicum II  
 ECED 265 Guiding Young Children (2183)  
 ECED 235 Introduction to Reading (READ 2113)  
 DANC 204/DANC 304 Dance Sport I & II  
 DANC 205/DANC 305 Dance Ensemble I & II  
 SP M 271 Anatomy & Physiology I

### General Education Requirements

1. Twelve to thirteen credits in English (language arts)
2. Twelve credits in history, including American history and western civilization
3. Six credits in mathematics/ nine credits for Elementary Education students and Early Childhood Education.
4. Six credits from among the following social sciences: government, economics, sociology, anthropology and geography
5. Twelve credits in science from among the following sciences: biology, chemistry, physics, geology and astronomy
6. Six credits in fine arts.

*NOTE: General Education requirements were under revision at the time of publication. Students must check with the Education Advisement Center for current requirements and lists of specific courses that meet these requirements.*

### Minors

The college offers minors in counseling and educational psychology, exercise science, early childhood and dance. Those interested in the counseling area, with a view to eventually enter this professional specialty should contact the Department of Counseling and Educational Psychology for more information.

### Transfer Students

Transfer students will have their transcripts evaluated by the Registrar's Office and must meet all basic skills requirements, as well as be admitted to the Teacher Education Program through the formal application procedures. (See Admission to the Teacher Education Program below.)

### Students with Degrees Seeking Certification Only

All students who already have a bachelor's degree and who are seeking licensure must be admitted through a graduate licensing program. Details are available in the advisement center.

### Time Limit on Undergraduate Education Courses

Any education course more than seven years old taken at NMSU or at another institution will not be counted toward the student's undergraduate program. A student may meet with the appropriate department to have the courses time limit

reviewed. The department head and/or faculty may recommend accepting a course that is seven years old with approval from the Dean's office. Any course not approved must be repeated by the student.

### Withdrawing Students

The College of Education reserves the right to withdraw students who are registered in 300-level or above education classes who are not admitted to the Teacher Education Program.

### Admission to Student Teaching

To be admitted to student teaching a student must:

1. Submit complete formal application to the College of Education Advisement Center by March 9 for spring and by October 9 for fall a year prior to student teaching.
2. Maintain a cumulative grade-point average of at least 2.5 prior to beginning student teaching.
3. Complete the teaching field requirements and pass the Basic Skills and Content Knowledge tests of the New Mexico Teacher Assessments.
4. Complete all requirements to student teaching (details available from the advisement center).
5. Students must complete all professional education courses and all courses in the student's teaching field with a grade of C- or better.
6. Admission to Student Teaching is contingent upon faculty approval.

Students who do not meet all College of Education requirements for admission to student teaching will not be allowed to begin their student teaching until those requirements are met.

Student teachers can only be placed within an 80-mile radius of the campus in state.

### Student Teaching Expectations

During the senior year, students must keep their last semester free from other responsibilities so that they can fully devote their time to their student teaching responsibilities. Students are expected to follow the public school calendar rather than the university calendar. Student teachers should expect to meet all requirements of the school and school district in which they are working.

### Licensure Requirements

In the event that state teacher licensure requirements change, students preparing for licensure to teach should keep abreast of the licensure requirements of the State Department of Education. Copies of the rules and regulations governing licensure are available for students in the Advisement Office and the Office of the Dean of the College of Education. College of Education requirements meet or exceed the state licensure requirements. Whenever state licensure requirements are less than College of Education requirements, students must meet the College of Education requirements to receive a degree from or be recommended for licensure by NMSU. The College of Education reserves the right to change its requirements at any time in order to comply with changes in the regulations governing licensure.

Applying for teacher licensure is the responsibility of the student. The New Mexico Department of Education grants licensure.

The State of New Mexico requires that all candidates for licensure take and pass the state license examination: NMTA Competency and in addition, for elementary education majors the NES: Essential Components of Elementary Reading Instruction. Upon completion of the degree and planned programs in the teaching fields, students are eligible for teacher licensure upon successfully completing the state license examination. The tests are administered annually and information is available through Testing Services.

### Graduate Work

The College of Education offers curricula leading to the degrees of Master of Arts, Master of Arts in Teaching, Specialist in Education, Doctor of Education and Doctor of Philosophy in Education.

Those interested in pursuing graduate degrees in education should consult the Graduate Catalog for full information. A copy may be procured by writing the dean of the Graduate School.

# COUNSELING AND EDUCATIONAL PSYCHOLOGY

**Associate Professor, Gladys DeNecochea, Interim Department Head**

**Professors** Adams, Pope-Davis, E. Vázquez, L. Vázquez, Waldo; **Associate Professors** Arroyos, Dickson, Grayshield; **Assistant Professors** Chun, Lopez, Hitter, Torres-Fernandez; **College Professors** Blazina; **College Assistant Professors** Harper  
**phone: (575) 646-2121**  
**website: <http://cep.nmsu.edu>**

## DEGREE: BACHELOR OF SCIENCE

### MAJOR: COUNSELING AND COMMUNITY PSYCHOLOGY

The BS in Counseling and Community Psychology (CCP) prepares students to work at the bachelor's level with a focus on: case management, interpersonal skills, understanding human behavior, multicultural awareness, awareness of mental health issues and licensure as a substance abuse counselor. The Counseling and Community Psychology undergraduate major prepares students for graduate school in order to become practitioners in the field of psychology with an additional focus on research and graduate psychology practice opportunities.

### DEGREE REQUIREMENTS

**General Education courses (39 credit hours)**

**Core Courses for BS in CPP are as follows (51 credits)**

C EP 210	Educational Psychology	3 cr.
C EP 215	The Preschool Child	3 cr.
C EP 240	Adolescence in School Settings	3 cr.
C EP 298	Exploration of Counseling & Community Psychology	3 cr.
C EP 300V	Human Relations Training	3 cr.
C EP 320	Sex Roles in Education	3 cr.
C EP 420	Introduction of Mindfulness Practice	3 cr.
C EP 451V	Introduction to Counseling	3 cr.
C EP 455	Addictions Prevention and Recovery	3 cr.
C EP 461	Family Guidance	3 cr.
C EP 495	Psychology, Multiculturalism and Counseling	3 cr.
C EP 498	Internship in Counseling & Community Psychology	1-6 cr.
C J 416	Global Perspectives on Youth and Drug Use	3 cr.
FCS 383	Parenting and Child Guidance	3 cr.
PHIL 223G	Ethics	3 cr.
FCSC 400	Research Methods in Family and Consumer Sciences	3 cr.
	or	
PSY 310	Experimental Methods	4 cr. (2+4P)

General Elective to meet 120 minimum credit hours for the Bachelor degree (minimum of 24 credits required). General electives are selected from required electives options.

*Minimum Credits for Degree= 120 credits*

*Minimum Upper Division Required (300+)=48 credits*

### MINOR: COUNSELING AND EDUCATIONAL PSYCHOLOGY

A minor in counseling and educational psychology is available to the student receiving a bachelor's degree from another department in the university. The minor in counseling and educational psychology is designed to be useful to the undergraduate who is preparing to enter one of the helping professions such as psychology, education, social work, criminal justice or nursing. A total of 18 credits is required to obtain the CEP minor, of which, at least 9 credits must be at 300 level or above. Contact the CEP office for more information on the minor application process.

The Department of Counseling and Educational Psychology offers programs leading to the degrees of Master of Science, Specialist in Education and Doctor of Philosophy. Students must be admitted by the department into a graduate program to earn a degree in clinical mental health counseling, school psychology, educational diagnostics or counseling psychology. Students interested in earning graduate degrees should consult the Graduate School Catalog for requirements and contact the department for information on admissions.

### REQUIREMENTS

**Any selection of C EP electives listed below that total 18 credits, with at least 9 credits of upper division (300 and above)**

C EP 110G	Human Growth and Behavior	3 cr.
C EP 210	Educational Psychology	3 cr.
C EP 215	The Preschool Child	3 cr.
C EP 240	Adolescence in School Settings	3 cr.
C EP 298	Exploration of Counseling & Community Psychology	3 cr.
C EP 300V	Human Relations Training	3 cr.
C EP 320	Sex Roles in Education	3 cr.
C EP 420	Introduction of Mindfulness Practice	3 cr.
C EP 451V	Introduction to Counseling	3 cr.
C EP 455	Addictions Prevention and Recovery	3 cr.
C EP 461	Family Guidance	3 cr.
C EP 495	Psychology, Multiculturalism and Counseling	3 cr.
C EP 499	Independent Study	1-6 cr.

## CURRICULUM AND INSTRUCTION

**Associate Professor, Jeanette Haynes Writer, Department Head**

**Directors:** B. Araujo, *Elementary Education*; H. Oesterreich, *Secondary Education*; B. Cahill, *Early Childhood*; D. Rutledge *Associate Department Head/Graduate Studies*

**Professors** Baptiste, Chávez Chávez, O'Donnell, Oesterreich, Torres, Wiburg; **Associate Professors** Araujo, Cahill, Charles-Huerta, Haynes Writer, A. Hernandez, Koomi Kim, Orelus, Reyes, Rutledge; **Assistant Professors**, Fahrenbruck, Flores Carmona, Ciblis, Florez Uribe, Freire, C. Hernandez, Koeun Kim, Parra, Woodley; **College Instructor** Lucero, Valenzuela  
**phone: (575) 646-4820**  
**website: <http://education.nmsu.edu/ci>**

### DEGREE: BACHELOR OF SCIENCE IN EDUCATION

#### PROFESSIONAL EDUCATION COURSES

All students will take a course in developmental psychology. Field experiences will be interwoven throughout most courses. All students, during their program will complete at least three Extended Field Experiences.

#### REQUIRED OF ALL STUDENTS SEEKING ELEMENTARY, SECONDARY LICENSURE OR EARLY CHILDHOOD

##### Requirements List

C EP 210	Educational Psychology	3 cr.
EDLT 368	Integrating Technology with Teaching	3 cr.
EDUC 181	Field Experience I	1 cr.
EDUC 315	Multicultural Education	3 cr. (2+2P)
ELA 250	Introduction to Education	2 cr.
SPED 350	Introduction to Special Education in a Diverse Society	3 cr.
	Student Teaching Seminar	3 cr.

*C EP 210, EDUC 181, and EMD 250: Early Childhood majors don't take the identified courses*

**MAJOR: EARLY CHILDHOOD****DEGREE REQUIREMENTS****Professional Education Courses Required**

ECED 115	Child Growth, Development, and Learning	3 cr.
ECED 125	Health, Safety, and Nutrition	2 cr.
ECED 135	Family and Community Collaboration	3 cr.
ECED 215	Curriculum Development Through Play	3 cr.
ECED 220	Early Childhood Education Practicum I	2 cr.
ECED 225	Curriculum Development and Implementation II	3 cr.
ECED 230	Early Childhood Education Practicum II	2 cr.
ECED 235	Introduction to Language, Literacy and Reading	3 cr.
ECED 245	Professionalism	2 cr.
ECED 255	Assessment of Children and Evaluation of Programs	3 cr.
ECED 265	Guiding Young Children	3 cr.
ECED 315	Research in Child, Growth, Development and Learning	3 cr.
ECED 335	Family, Language and Cultural	3 cr.
ECED 440	Teaching and Learning Math and Science	4 cr. (2+4P)
ECED 455	Teaching and Learning Social Studies, Fine Arts and Movement	3 cr. (2+2P)
RDG 350	Teaching and Learning Reading and Writing	3 cr. (2+2P)
SPED 450	Working with Young Children with Special Needs, Ages 3-8	3 cr.
SPED 451	Assessment of Young Children, Birth-Eight	3 cr.

**MAJOR: ELEMENTARY EDUCATION**

General education and professional education are similar for all degree programs in the College of Education. Students should meet with an advisor to plan appropriate general education courses for an elementary education major.

**REQUIREMENTS****Professional Education Courses Required**

EDUC 450	Methods of Teaching Early Childhood Education	3 cr.
EDUC 451	Methods of Teaching Elementary School Science	3 cr. (2+2P)
EDUC 452	Methods of Teaching Elementary School Mathematics	3 cr. (2+2P)
EDUC 453	Methods of Teaching Elementary School Language Arts	3 cr. (2+2P)
EDUC 454	Methods of Teaching Elementary School Social Studies	3 cr. (2+2P)
RDG 360	Elementary School Literacy I	3 cr. (2+2P)
RDG 361	Elementary School Literacy II	3 cr. (2+2P)
SPED 360	Elementary Curriculum, Methods, and Materials for Special Education in a Diverse Society	3 cr.

**TEACHING FIELD: Language Arts Elementary (24 credits)**

COMM 253G	Public Speaking	3 cr.
	or	
COMM 265G	Principles of Human Communication	3 cr.
ENGL 211G	Writing in the Humanities and Social Sciences	3 cr.
	or	
ENGL 311G	Advanced Composition	3 cr.
ENGL 363	Literature for Children and Young Adults	3 cr.
RDG 360	Elementary School Literacy I	3 cr. (2+2P)
RDG 361	Elementary School Literacy II	3 cr. (2+2P)
	Language Arts electives (ENGL, RDG, THTR,	9 cr.

COMM, or LING)

**TEACHING FIELD: Mathematics Elementary (24 credits)**

Students with consent of an advisor and the mathematics department may take higher level math classes.

**Core Courses**

MATH 111	Fundamentals of Elementary Mathematics I	3 cr.
MATH 112G	Fundamentals of Elementary Math II	3 cr.
MATH 215	Fundamentals of Elementary Mathematics III	3 cr.

**Choose 15 credits from the following:**

EDUC 452	Methods of Teaching Elementary School Mathematics	3 cr. (2+2P)
MATH 120	Intermediate Algebra	3 cr.
MATH 121G	College Algebra	3 cr.
MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)
STAT 251G	Statistics for Business and the Behavioral Sciences	3 cr.

**TEACHING FIELD: Science Elementary (24 credits)**

	BIOL elective	3 cr.
	CHEM elective	3 cr.
	GEOL or GEOG elective	3 cr.
	PHYS elective	3 cr.
	Twelve credits in science from the general education requirements on degree plan	12 cr.

**TEACHING FIELD: Social Studies Elementary (24 credits)**

	ANTH elective	3 cr.
	ECON elective	3 cr.
	GEOG elective	3 cr.
HIST 101G	Roots of Modern Europe	3 cr.
HIST 102G	Modern Europe	3 cr.
HIST 201G	Introduction to Early American History	3 cr.
	or	
HIST 202G	Introduction to Recent American History	3 cr.
HIST 368	Teaching History	3 cr.
	SOC/HIST elective	3 cr.

**Elementary Education Endorsement Areas (24 credits)**

Elementary Education majors are required to complete a teaching field (endorsement area) in an academic discipline. A list of concentration areas is available in the Education Advisement Center.

**Bilingual/TESOL Endorsement**

Students interested in a bilingual or TESOL endorsement should contact the advisement office. These endorsements can now be included in an undergraduate degree program without significant additional hours required.

**Foreign Language Requirements**

All elementary education majors are required to take six to eight credits of Spanish or obtain certification of a working knowledge of a Native American language.

**MAJOR: SECONDARY EDUCATION**

General education and professional education requirements are similar for all degree programs in the College of Education. Students should meet with an advisor to plan appropriate general education courses for a secondary education major. In addition, students must complete a broad teaching field. Further information on the following teaching fields is available from the Education Advisement Center.

**TEACHING FIELD: Business Education (36 credits)****Required Courses**

ACCT 222	Management Accounting	3 cr.
ACCT 221	Financial Accounting	3 cr.

AXED 445	Developing Excellent Programs in Career and Technical Education	3 cr.
BCIS 338	Business Information Systems I	3 cr.
BLAW 316	Legal Environment of Business	3 cr.
BOT 203	Office Equipment and Procedures I	3 cr. (2+2P)
BUSA 111	Business in a Global Society	3 cr.
ECON 251G	Principles of Macroeconomics	3 cr.
ECON 252G	Principles of Microeconomics	3 cr.
I B 351	International Business	3 cr.
MGT 309	Human Behavior in Organizations	3 cr.
MKTG 303	Principles of Marketing	3 cr.
	300+ Business Elective	3 cr.

**Two courses from the following**

I B 351	International Business	3 cr.
FIN 303V	Personal Financial Planning and Investing in a Global Economy	3 cr.
MGT 309	Human Behavior in Organizations	3 cr.
MKTG 303	Principles of Marketing	3 cr.

**TEACHING FIELD: French Education (30-35 credits)****Required Courses**

Due to previous experience, students may be able to start beyond the elementary or intermediate levels. Elective credits in French will be substituted to make a minimum in the field of 30 credits.

FREN 111	Elementary French I	4 cr.
FREN 112	Elementary French II	4 cr.
FREN 211	Intermediate French I	3 cr.
FREN 212	Intermediate French II	3 cr.
FREN 325	Intermediate Conversation	3 cr.
FREN 352	French Phonetics	3 cr.
FREN 378	Studies in Francophone Cultures	3 cr.
	FREN 300 or above elective	6 cr.

**TEACHING FIELD: German Education (30-35 credits)****Required Courses**

Due to previous experience, students may be able to start beyond the elementary or intermediate levels. Elective credits in German will be substituted to make a minimum in the field of 30 credits.

GER 111	Elementary German I	4 cr.
GER 112	Elementary German II	4 cr.
GER 211	Intermediate German I	3 cr.
GER 212	Intermediate German II	3 cr.
GER 313	Intermediate Composition and Grammar	3 cr.
GER 325	German Conversation I	3 cr.

**Additional German Education**

15 credits of upper division German, 300 level and above.

**TEACHING FIELD: Language Arts (51 credits)**

Students must complete all of the core courses and one of the subject areas.

**Core Courses**

COMM 253G	Public Speaking	3 cr.
	or	
COMM 265G	Principles of Human Communication	3 cr.
COMM 384	Interpersonal Communication	3 cr.
COMM 376	Communication and Culture	3 cr.

**One course from the following:**

ENGL 211G	Writing in the Humanities and Social Sciences	3 cr.
ENGL 311G	Advanced Composition	3 cr.
ENGL 251	Survey of American Literature I	3 cr.
ENGL 252	Survey of American Literature II	3 cr.
ENGL 271	Survey of English Literature I	3 cr.
ENGL 272	Survey of English Literature II	3 cr.

**Choose from the following:**

ENGL 325V	Contemporary International Literature	3 cr.
ENGL 408	Shakespeare I	3 cr.
	or	
ENGL 409	Shakespeare II	3 cr.
ENGL 416	Approaches to Literature	3 cr.
ENGL 451	Practicum in the Grammar of American English	3 cr.
ENGL 463	Advanced Study in English Literature	3 cr.
	or	
ENGL 469	Advanced Study in American Literature	3 cr.
ENGL 470	Approaches to Composition	3 cr.
	ENGL **see list in advising office	3 cr.
LING 200G	Introduction to Language	3 cr.
JOUR 105G	Media and Society	3 cr.
THTR 360	Creative Drama	3 cr. (2+2P)

**One course from the following:**

ENGL 327V	Shakespeare around the Globe	3 cr.
ENGL 339V	Chicana/o Literature	3 cr.
ENGL 341V	American Indian Literature	3 cr.
ENGL 380V	Women Writers	3 cr.
ENGL 394V	Southwestern Literature	3 cr.

**One course from the following:**

ENGL 220G	Introduction to Creative Writing	3 cr.
ENGL 304	Creative Writing: Prose	3 cr.
ENGL 306	Creative Writing: Poetry	3 cr.
ENGL 308	Creative Writing: Playwriting	3 cr.
ENGL 310	Critical Writing	3 cr.

**Choose one of the following areas****Communication Studies****Two courses from the following:**

COMM 351	Persuasion Theory and Practice	3 cr.
COMM 353	Advanced Public Speaking	3 cr.
COMM 370	Organizational Communication	3 cr.
COMM 450	Technologies of Human Communication	3 cr.
COMM 465	Nonverbal Communication	3 cr.
COMM 470	Leadership Communication	3 cr.

**English****Two courses from the following:**

ENGL 421	Advanced Study in a Literary Period or Movement	3 cr.
ENGL 422	Advanced Study in a Literary Form or Genre	3 cr.
ENGL 423	Advanced Study in a Major Author	3 cr.
ENGL 424	Advanced Study in a Major Text	3 cr.

**Journalism and Mass Communication**

JOUR 110	Introduction to Mass Media Writing	3 cr. (2+2P)
JOUR 210	Newswriting for Print and Internet	3 cr. (2+2P)

**Theatre Arts**

THTR 105	Acting for Non-Majors	3 cr.
THTR 130	The Art of Theatre	3 cr.
THTR 384	Stage Management	3 cr.

**TEACHING FIELD: Math Education (39 credits)****Required Courses**

C S 172	Computer Science I	4 cr. (3+2P)
MATH 191G	Calculus and Analytic Geometry I	4 cr.

MATH 192G	Calculus and Analytic Geometry II	4 cr.
MATH 279	Introduction to Higher Mathematics	3 cr.
MATH 280	Introduction to Linear Algebra	3 cr.
MATH 291G	Calculus and Analytic Geometry III	3 cr.
MATH 331	Introduction to Modern Algebra	3 cr.
MATH 332	Introduction to Analysis	3 cr.
MATH 459	Survey of Geometry	3 cr.
STAT 371	Statistics for Engineers and Scientists I	3 cr.
	Math elective 275+	3 cr.
	Math elective 375+	3 cr.

**TEACHING FIELD: Physical Education (K-12) (48 credits)****Required Courses**

PE P 185	Introduction and Foundations	3 cr.
PE P 208	Fitness for Health and Sport	3 cr.
PE P 210	Theory and Technique of Aquatics	2 cr.
PE P 315	Elementary School Physical Education	3 cr. (2+2P)
PE P 319	Lifetime Activities	2 cr.
PE P 323	Racquet Sports	2 cr.
PE P 363	Theory and Technique of Lifelong Outdoor Leisure Activities	2 cr.
PE P 392	Theory and Technique of Sports and Games	2 cr.
PE P 393	Theory and Technique of Dance and Rhythms	2 cr.
PE P 394	Designing Student Centered Afterschool Physical Activity Clubs	2 cr.
PE P 455	Adapted Physical Education	3 cr.
PE P 466	Methods of Teaching Secondary Physical Education	6 cr.
SP M 271	Anatomy & Physiology I	3 cr.
SP M 271 L	Anatomy and Physiology Laboratory	1 cr.
SP M 305	Applied Biomechanics	3 cr.
SP M 308	Exercise Physiology	3 cr. (2+2P)
SP M 341	Motor Development	3 cr.
SP M 342	Motor Learning	3 cr.

**TEACHING FIELD: Science (48-61 credits)**

Students must complete all of the core courses and one of the four composite areas.

**Core Courses (31)**

ASTR 105G	The Planets	4 cr. (3+2P)
	or	
ASTR 110G	Introduction to Astronomy	4 cr. (3+2P)
BIOL 111G	Natural History of Life	3 cr.
BIOL 111GL	Natural History of Life Laboratory	1 cr. (3P)
BIOL 313	Structure and Function of Plants	3 cr. (2+3P)
	or	
BIOL 322	Zoology	3 cr. (2+3P)
CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)
GEOL 111G	Survey of Geology	4 cr. (3+3P)
PHYS 208	Physics by Inquiry I	4 cr. (3+3P)
	and	

	or	
PHYS 211G	General Physics I	3 cr.
	and	
PHYS 211GL	General Physics I Laboratory	1 cr.
	and	
PHYS 212G	General Physics II	3 cr.
	and	
PHYS 212GL	General Physics II Laboratory	1 cr.

*Physics teachers should follow the physics composite in lieu of PHYS 211G and PHYS 212.*

**Composite Areas (complete one of the following areas)****Life Sciences (17 credits)**

BIOL 301	Principles of Ecology	3 cr.
BIOL 305	Principles of Genetics	3 cr.
BIOL 311	General Microbiology	3 cr.
BIOL 311 L	General Microbiology Laboratory	2 cr. (4P)
BIOL 313	Structure and Function of Plants	3 cr. (2+3P)
	or	
BIOL 322	Zoology	3 cr. (2+3P)
BIOL 467	Evolution	3 cr.
MATH 120	Intermediate Algebra	3 cr.

**Earth Sciences (18 credits)**

GEOG 357	Climatology	3 cr.
GEOG 281	Map Use: Reading, Analysis and Interpretation	3 cr. (2+3P)
GEOL 295	Environmental Geology	3 cr.
GEOL 360	General Geochemistry	3 cr.
GEOL 305V	Fossils and the Evolution of Life	3 cr.
GEOL 310	Mineralogy	3 cr. (2+3P)
GEOL 315V	The Geology of National Parks	3 cr.
GEOL 335V	Earthquakes, Volcanoes, Hurricanes, and Floods: The Role of Natural Hazards in Civ Past and Present	3 cr.
GEOL 353	Geomorphology	3 cr.

**Chemistry (18 credits)**

BCHE 341	Survey of Biochemistry	4 cr. (3+3P)
CHEM 211	Organic Chemistry	4 cr. (3+3P)
CHEM 371	Analytical Chemistry	4 cr. (2+6P)
CHEM 356	Descriptive Inorganic Chemistry	3 cr.
CHEM 431	Physical Chemistry	3 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.

**Physics (30 credits)**

(Physics courses listed below should be taken instead of core physics courses)

MATH 191G	Calculus and Analytic Geometry I	4 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.
MATH 291G	Calculus and Analytic Geometry III	3 cr.
PHYS 214	Electricity and Magnetism	3 cr.
PHYS 214 L	Electricity and Magnetism Laboratory	1 cr. (3P)
PHYS 215G	Engineering Physics I	3 cr.
PHYS 215GL	Engineering Physics I Laboratory	1 cr. (3P)
PHYS 216G	Engineering Physics II	3 cr.
PHYS 216GL	Engineering Physics II Laboratory	1 cr. (3P)
PHYS 217	Heat, Light, and Sound	3 cr.

PHYS 217 L	Experimental Heat, Light and Sound	1 cr. (3P)
PHYS 315	Modern Physics	3 cr.
PHYS 315 L	Experimental Modern Physics	3 cr. (1+6P)

**TEACHING FIELD: Social Studies (54-60 credits)**

Students must complete all of the Distributive Core and one of the seven concentration areas.

**Distributive Core (36 hours)**

ECON 251G	Principles of Macroeconomics	3 cr.
	or	
ECON 252G	Principles of Microeconomics	3 cr.
GEOG 112G	World Regional Geography	3 cr.
GOVT 100G	American National Government	3 cr.
GOVT 360	International Relations	3 cr.
HIST 101G	Roots of Modern Europe	3 cr.
	or	
	*Written Communications Elective	3 cr.
HIST 102G	Modern Europe	3 cr.
HIST 201G	Introduction to Early American History	3 cr.
HIST 202G	Introduction to Recent American History	3 cr.
HIST 261	New Mexico History	3 cr.
	or	
HIST 386	New Mexico History	3 cr.
HIST 368	Teaching History	3 cr.
SOC 101G	Introductory Sociology	3 cr.

**One course from the following**

ANTH 201G	Introduction to Anthropology	3 cr.
ANTH 202G	Introduction to Archaeology and Physical Anthropology	3 cr.
ANTH 203G	Introduction to Language and Cultural Anthropology	3 cr.

**Concentration Areas****Geography (21 hours)**

GEOG 120G	Culture and Environment	3 cr.
GEOG 257	Introduction to Weather Science	4 cr. (3+3P)
	or	
GEOG 357	Climatology	3 cr.
GEOG 281	Map Use: Reading, Analysis and Interpretation	3 cr. (2+3P)

**Two course from the following**

GEOG 361V	Economic Geography	3 cr.
GEOG 363V	Cultural Geography	3 cr.
GEOG 365V	Urban Geography	3 cr.
	or	
GEOG 467	Transportation Geography	3 cr.

**Two course from the following**

GEOG 325V	New Mexico and the American West	3 cr.
GEOG 326	U.S. National Parks	3 cr.
GEOG 328V	Geography of Latin America	3 cr.
GEOG 331V	Europe	3 cr.

**Government (24 hours)****One course from the following**

GOVT 110G	Introduction to Political Science	3 cr.
GOVT 150G	American Political Issues	3 cr.

GOVT 160G	International Political Issues	3 cr.
-----------	--------------------------------	-------

**One course in four of five areas (12 credits)**

- (1) GOVT 320's, 420's 430's;
  - (2) GOVT 340's or 440's, 650's;
  - (3) GOVT 370's or 470's;
  - (4) GOVT 380's or 480's;
  - (5) GOVT 390's or 490's
- GOVT electives (300 or above) (9)

**History (18 hours)**

	HIST elective, U.S. history (300 or above)	6 cr.
	HIST elective, world history (300 or above)	6 cr.
	HIST elective (300 or above)	6 cr.

**Economics (21 hours)**

ECON 304	Money and Banking	3 cr.
ECON 371	Intermediate Microeconomic Theory	3 cr.
ECON 372	Intermediate Macroeconomic Theory	3 cr.
	ECON Elect 300+ (9 credits total)	9 cr.
MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)

**One course from the following**

ACCT 221	Financial Accounting	3 cr.
ACCT 351	Accounting Systems	3 cr.
STAT 251G	Statistics for Business and the Behavioral Sciences	3 cr.
A ST 311	Statistical Applications	3 cr.

**Sociology (24 credits)**

SOC 351	Sociological Theory	3 cr.
SOC 352	Social Research: Methods	3 cr.
SOC 371	Race and Ethnic Relations	3 cr.
SOC 381	Individual and Society	3 cr.
SOC 392	Juvenile Delinquency	3 cr.
	SOC electives (300 or above)	9 cr.

**Anthropology (24 credits)**

ANTH 301	Cultural Anthropology	3 cr.
ANTH 315	Introduction to Archaeology	3 cr.
ANTH 320	Anthropological Linguistics	3 cr.
ANTH 350	Anthropological Theory	3 cr.
ANTH 355	Physical Anthropology	3 cr.
	ANTH elective (300 or above)	9 cr.

**Sociology/Anthropology (24 credits)**

ANTH 301	Cultural Anthropology	3 cr.
ANTH 315	Introduction to Archaeology	3 cr.
ANTH 320	Anthropological Linguistics	3 cr.
ANTH 355	Physical Anthropology	3 cr.
SOC 351	Sociological Theory	3 cr.
SOC 352	Social Research: Methods	3 cr.
SOC 371	Race and Ethnic Relations	3 cr.
SOC 381	Individual and Society	3 cr.

**TEACHING FIELD: Spanish Education (30-35 credits)****Required Courses**

Due to previous experience, students may be able to start beyond the elementary or intermediate levels. Native speakers of Spanish may not be eligible for some sections. Please check the course descriptions for details. Elective credits will be substituted to make a minimum in the field of 30 credits.

SPAN 111	Elementary Spanish I	4 cr.
SPAN 112	Elementary Spanish II	4 cr.
	or	
SPAN 113	Spanish for Heritage Learners I	3 cr.
SPAN 211	Intermediate Spanish I	3 cr.
	or	



SPAN 213	Spanish for Heritage Learners II	3 cr.
SPAN 212	Intermediate Spanish II	3 cr.
	or	
SPAN 214	Spanish for Heritage Learners III	3 cr.
SPAN 313	Spanish Grammar	3 cr.
	or	
SPAN 312	Grammar for Heritage/Native Speakers of Spanish	3 cr.
SPAN 314	Spanish Composition	3 cr.
	or	
SPAN 315	Composition for Heritage/Native Speakers of Spanish	3 cr.
SPAN 325	Advanced Conversation	3 cr.
	or	
SPAN 327	Spanish in the Community	3 cr.
SPAN 340	Introduction to Spanish Linguistics	3 cr.
SPAN 350	Introduction to Chicano Studies	3 cr.
SPAN 380	Introduction to Hispanic Literature	3 cr.

**One course from the following**

SPAN 385	Introduction to Chicano/US-Mexican Literature	3 cr.
SPAN 388	Contemporary Hispanic Literature	3 cr.

**MINOR: EARLY CHILDHOOD EDUCATION**

The primary function of the undergraduate programs in the Department of Curriculum and Instruction is the preparation of licensed teachers for early-childhood settings and elementary and secondary schools. This process includes a broad general education, professional education and teaching specializations.

## EDUCATIONAL LEADERSHIP AND ADMINISTRATION

**Associate Professor, Mary Prentice, Department Head**

**Associate Professors** Christman, Ivory, Osanloo; **Assistant Professors** Guillaume, Kew, Williams Pichon; **College Associate Professors** Hannan, Humada-Ludeke; **College Instructor** Rodríguez-Strawn; **Emeritus Professors** Armendáriz, Domínguez, González, Townley  
**phone: (575) 646-3825**  
**website: <http://ela.nmsu.edu/>**

The mission of the Department of Educational Leadership and Administration at New Mexico State University is to prepare and graduate capable, skillful and dynamic educational leaders for a diverse society. Through use of theory and practice we aim to develop change agents and role models for socially-just educational systems.

**EDUCATIONAL LEADERSHIP AND ADMINISTRATION****COURSE OFFERINGS**

**At the undergraduate level, ELA offers the following courses:**

ELA 101	Freshman Orientation	1 cr.
ELA 250	Introduction to Education	2 cr.
ELA 350V	Introduction to Educational Leadership in a Global Society	3 cr.
ELA 398	Special Topics in Education	1-3 cr.
ELA 411	Foundation for School Library Specialists	3 cr.
ELA 412	Administration of the School Library	3 cr.
ELA 413	Curriculum Role of the School Library Specialist	3 cr.
ELA 414	Collection Management and Development in	3 cr.

	School Libraries	
ELA 450	Principles of Education Law and Policy	3 cr.
ELA 455	Principles of Education Budgeting and Finance	3 cr.

**MINOR: EDUCATIONAL LEADERSHIP AND ADMINISTRATION**

A minor in educational leadership and administration is available to a student receiving a bachelor's degree from another department in the university. The minor in educational leadership and administration is designed to be useful to the undergraduate who is preparing to work as a teacher or staff member in educational organizations such as primary schools, community colleges and universities.

**REQUIREMENTS (18 CREDITS)****Required Courses**

ELA 215	Multicultural Leadership in Education	3 cr.
ELA 255	Leadership and Change in Education	3 cr.
ELA 342	Current Issues In Educational Leadership	3 cr.
ELA 398	Special Topics in Education	1-3 cr.
ELA 450	Principles of Education Law and Policy	3 cr.
ELA 455	Principles of Education Budgeting and Finance	3 cr.

## KINESIOLOGY AND DANCE

**Professor, Robert Wood, Academic Department Head**

**Professors** Berning, Knapp, Oliver; **Associate Professor** Gear, Gilpin, Post; **Assistant Professors** Cole, Fabre, Keeley, Lee, O'Connell; **Instructors** Aranda, Gavit, Meyer

**phone: (575) 646-2216**

**website: <https://kind.nmsu.edu/kin/>**

The Department of Kinesiology and Dance provides students with the education necessary to pursue careers in allied health sciences (medicine, physician's assistant, physical therapy, occupational therapy, etc.), athletic training, physical education, dance and dance education and for a variety of careers in the fitness and wellness industry. Details of the four different degree programs; athletic training, dance, kinesiology and physical education are provided below.

The department also offers minors in dance and exercise science.

**DEGREE: BACHELOR OF ARTS IN DANCE**

The Bachelor of Arts (BA) in Dance provides three concentration areas in which to pursue a dance degree. Undergraduate students can choose to focus their studies in Contemporary Dance, DanceSport or Spanish Dance. All students are required to take core dance courses as well as courses from their concentration area. This provides a variety of cross training that will benefit all dancers to be well rounded professional dancers, competitors and teachers. The B.A. also provides students with an appropriate background for the pursuit of advanced degrees in teaching, performance, choreography and other related fields.

**MAJOR: DANCE****CORE COURSES**

**All dance majors are required to take the following 26 credits from the core dance courses:**

9 credits of technique classes outside their area of concentration.

	9 credits of technique classes outside their area of concentration	9 cr.
--	--	-------

**17 credits in the following courses:**

DANC 151	Master Works	1 cr.
DANC 200	Dance Pedagogy: Educational Theory	1 cr.
DANC 203	Dance Production I	1 cr.
DANC 275	Dance Studio Management	3 cr.
DANC 280	Improvisation I	1 cr.
DANC 303	Dance Production II	1 cr.

DANC 451V	World Dance	3 cr.
DANC 465	Senior Culminating Experience	1-6 cr.
SP M 271	Anatomy & Physiology I	3 cr.
SP M 271 L	Anatomy and Physiology Laboratory	1 cr.

## DANCE CONCENTRATIONS

### Contemporary Dance

Contemporary Dance is the study of ballet, modern, jazz, and tap dance. Students are trained in dance technique, dance education (teaching) and dance production. This concentration prepares dancers for a professional performance and/or teaching career.

#### 52 credits from the following courses

DANC 127	Tap Dance I	1 cr.
DANC 202	Dance Ensemble	1 cr.
DANC 205	Contemporary Dance Ensemble I	1 cr.
DANC 223	Ballet Technique II	2 cr.
DANC 224	Jazz Technique II	2 cr.
DANC 226	Modern Dance Technique II	2 cr.
DANC 227	Tap Dance II	1 cr.
DANC 289	Principles of Choreography I	2 cr.
DANC 300	Dance Pedagogy: Creative Movement	3 cr.
DANC 305	Contemporary Dance Ensemble II	1 cr.
DANC 323	Ballet Technique III	3 cr.
DANC 324	Jazz Technique III	3 cr.
DANC 326	Modern Dance III	3 cr.
DANC 365	Dance Pedagogy: Dance in Education	2 cr.
DANC 380	Improvisation II	1 cr.
DANC 389	Principles of Choreography II	2 cr.
DANC 413	Dance Practicum II	1 cr.
DANC 423	Ballet Technique IV	3 cr.
DANC 424	Jazz Dance Technique IV	3 cr.
DANC 426	Modern Dance Technique IV	3 cr.
DANC 466	Dance Pedagogy: Dance Technique	3 cr.

### DanceSport

DanceSport is the study of Ballroom, Latin, Swing and Night Club dance. Students are trained in dance technique, dance education (teaching) and dance production. This concentration prepares dancers for a professional performance, competition and/or teaching career.

#### 52 credits from the following courses

DANC 204	Dance Sport I	1 cr.
DANC 209	Argentine Tango II	1 cr.
DANC 218	West Coast Swing II	2 cr.
DANC 221	Country Western Dance	2 cr.
DANC 222	Bronze American Rhythm	2 cr. (1+2P)
DANC 225	Bronze American Smooth	2 cr. (1+2P)
DANC 232	Bronze International Latin	2 cr.
DANC 235	Bronze International Standard	2 cr.
DANC 269	DanceSport Choreography I	2 cr.
DANC 304	Dance Sport II	1 cr.
DANC 322	Silver American Rhythm	3 cr. (2+2P)
DANC 325	Silver American Smooth	3 cr. (2+2P)
DANC 332	Silver International Latin	3 cr.
DANC 335	Silver International Standard	3 cr.
DANC 342	DanceSport Pedagogy: Rhythm	3 cr.
DANC 345	DanceSport Pedagogy: Smooth	3 cr.
DANC 369	DanceSport Choreography II	2 cr.
DANC 412	DanceSport Practicum	1 cr.
DANC 422	Gold American Rhythm	3 cr. (2+2P)
DANC 425	Gold American Smooth	3 cr. (2+2P)

DANC 432	Gold International Latin	3 cr.
DANC 435	Gold International Standard	3 cr.
DANC 442	DanceSport Pedagogy: Latin	3 cr.
DANC 445	DanceSport Pedagogy: Standard	3 cr.
DANC 447	DanceSport Certification Preparation	3 cr.

### Spanish Dance

Spanish Dance is the study of Flamenco and Classical Spanish dance. Students are trained in dance technique, dance education (teaching) and dance production. This concentration prepares dancers for a professional performance and/or teaching career.

#### 52 credits from the following courses

DANC 206	Spanish Dance Ensembles I	1 cr.
DANC 210	Classical Spanish II	2 cr. (1+3P)
DANC 223	Ballet Technique II	2 cr.
DANC 226	Modern Dance Technique II	2 cr.
DANC 229	Flamenco II	2 cr.
DANC 279	Flamenco Choreography I	2 cr.
DANC 301	Flamenco Pedagogy I	3 cr.
DANC 306	Spanish Dance Ensemble II	1 cr.
DANC 310	Classical Spanish Dance III	3 cr.
DANC 329	Flamenco III	3 cr.
DANC 339	Flamenco Structure and Improvisation	3 cr.
DANC 379	Flamenco Choreography II	2 cr.
DANC 401	Flamenco Pedagogy II	3 cr.
DANC 411	Flamenco Practicum	1 cr.
DANC 462	Flamenco Dance History	3 cr.

## DEGREE: BACHELOR OF SCIENCE IN ATHLETIC TRAINING MAJOR ATHLETIC TRAINING

The New Mexico State University (NMSU) Athletic Training Bachelors Degree Program is accredited by the Commission on Accreditation of Athletic Training Education (CAATE), and has a competitive application process. The program provides a challenging didactic and comprehensive clinical educational experience, as well as, incorporates the values of a supportive academic and clinical community in order to prepare future leaders in athletic training.

Students who complete the degree requirements earn a Bachelor of Science in Athletic Training and are eligible to sit for the Board of Certification (BOC) examination. Students who pass the BOC exam are referred to as Certified Athletic Trainers (AT).

Please see the program webpage, <https://kind.nmsu.edu/training/>, for up-to-date information concerning all aspects of the Athletic Training Program (ATP).

### Application Procedures for Traditional Undergraduate Students

A limited number of applicants will be admitted to the professional phase of the Athletic Training major. A maximum of 20 students will be admitted to the program each year. Application to the Athletic Training Program takes place during the spring semester. A second round of admissions may occur in the summer for students completing pre-requisite coursework during one of the summer terms if space is available. Interested students must meet with the Program Director prior to applying for admissions to the ATP.

Application to the Athletic Training Program requires:

1. A cumulative GPA of 2.75 or higher
2. A prerequisite GPA of 3.00 or higher
3. The following courses have specific grade requirements and are used to calculate the prerequisite GPA
  - a. SP M 190 with a grade of B or better
  - b. SP M 191 with a grade of B or better
  - c. SP M 271 with a grade of C- or better
  - d. SP M 272 with a grade of B or better
4. The following courses need to be in progress or completed at the time your application is submitted:
  - a. ENGL 111G
  - b. MATH 121G/142G/190G/191G/192G/291G

5. Submission of the following:
  - a. Program application form
  - b. Professional resume
  - c. An unofficial NMSU transcript
  - d. Submission of official transcripts of any college courses taken at a college/university other than NMSU.
  - e. Proof of current Emergency Cardiac Care (ECC) certification.
  - f. Three letters of recommendation.
  - g. Copy of physical examination completed by a licensed healthcare professional (MD/DO/PA/NP).
  - h. Copy of vaccination verification showing completion of the following:\*\*
    - i. MMR (2 doses administered 4-8 week apart or serologic test positive for MMR antibody)
    - ii. Varicella (2 doses administered 4-8 weeks apart or serologic test positive for Varicella antibody)
    - iii. Tetanus-Diphtheria-Pertussis (Tdap) 1 dose within the past 10 years
    - iiii. Hepatitis B. (3 doses administered over a period of 4-6 months)
    - iiiii. Annual TB screening

\*\* Applicants that cannot provide proof of vaccination due to religious or conscientious objection to vaccinations must meet with the Program Director.

1. A signed copy of the programs technical standards for admission form.
2. 500 word minimum essay addressing the question "Why athletic training is the correct major and career path for you".
3. Completion of 60 hours of clinical observation under the supervision of an Athletic Trainer.

### Transfer Student Policy

Transfer students who meet the Application Requirements may be considered for admission into the Athletic Training Program provided there is space available. The admission of transfer students will include a careful evaluation of the student's cumulative GPA and prerequisite coursework. The Program Director will make all decisions related to the acceptance of transfer courses required for the major. Transfer students should contact the Program Director regarding program requirements and any questions regarding transfer courses.

### DEGREE REQUIREMENTS

#### Athletic Training Required Courses (73 credits)

HNDS 251	Human Nutrition	3 cr.
SP M 190	Introduction to Athletic Training	3 cr.
SP M 191	Medical Terminology	3 cr.
SP M 250	Emergency Response in Sports Medicine	2 cr.
SP M 271	Anatomy & Physiology I	3 cr.
SP M 271 L	Anatomy and Physiology Laboratory	1 cr.
SP M 272	Clinical Practicum I	2 cr.
SP M 273	Clinical Practicum II	3 cr.
SP M 307	Pathophysiology and Human Function(s)	3 cr.
SP M 308	Exercise Physiology	3 cr. (2+2P)
SP M 310	Orthopedic Examination, Evaluation and Diagnosis of Lower Extremity Injuries	4 cr.
SP M 320 L	Palpation and Anatomical Kinesiology Laboratory	3 cr.
SP M 371	Anatomy and Physiology II	3 cr.
SP M 371 L	Anatomy and Physiology II Lab	1 cr.
SP M 372	Clinical Practicum III	3 cr.
SP M 373	Clinical Practicum IV	3 cr.
SP M 375	Therapeutic Exercise	3 cr.
SP M 410	Orthopedic Examination, Evaluation and Diagnosis of Upper Extremity Injuries	4 cr.
SP M 411	Pharmacology in Athletic Training	2 cr.
SP M 415	Therapeutic Modalities	4 cr.
SP M 420	Orthopedic Examination, Evaluation and	3 cr.

	Diagnosis of Core, Spine and Head Injuries	
SP M 422	Clinical Practicum V	3 cr.
SP M 423	Clinical Practicum VI	3 cr.
SP M 424	Clinical Practicum VII	3 cr.
SP M 425	Organization and Administration in Athletic Training	3 cr.

#### Three credits from any of the following:

STAT 251G	Statistics for Business and the Behavioral Sciences	3 cr.
STAT 271G	Statistics for Psychological Sciences	3 cr.
A ST 311	Statistical Applications	3 cr.
	or	
SP M 412	Inferential Statistics in Sport and Exercise Science	3 cr.

#### Athletic Training Elective (Minimum 5 credits)

Electives must be chosen from the list below or approved by the AT Program Director

SP M 303	Health and Exercise Psychology	3 cr.
SP M 304	Psychology of Sport	3 cr.
SP M 305	Applied Biomechanics	3 cr.
SP M 305 L	Applied Biomechanics Laboratory	1 cr.
SP M 309	Neurophysiology and Human Function	3 cr.
SP M 330	Exercise Testing and Prescription	4 cr.
SP M 341	Motor Development	3 cr.
SP M 342	Motor Learning	3 cr.
SP M 409	Clinical Biomechanics	3 cr.
SP M 409 L	Clinical Biomechanics Laboratory	1 cr.
SP M 451	Advanced Exercise Physiology	3 cr.
SP M 456	Exercise for Special Populations	3 cr.
SP M 458	Physical Dimensions of Aging	3 cr.
SP M 460	Principles of Strength and Conditioning	3 cr.
SP M 460 L	Principles of Strength and Conditioning Laboratory	1 cr. (2P)
SP M 465	Ethics and Legal Issues in Athletic Training	3 cr.
SP M 499	Advanced Athletic Training I	1-3 cr.

Students interested in majoring in Athletic Training are encouraged to meet with the Athletic Training Academic Advisor prior to enrolling in SP M 272.

### DEGREE: BACHELOR OF SCIENCE IN EDUCATION

#### MAJOR: PHYSICAL EDUCATION

Information about Physical Education as a teaching field and potential employment opportunities may be obtained at the Department of Kinesiology and Dance in the Activity Center 204, phone 646-2215.

#### TEACHING FIELD: Physical Education

#### PROGRAM REQUIREMENTS

The K-12 physical education teaching degree program prepares students for public or private school employment. Teaching program requirements are available in the departmental office and in the College of Education Advisement Center.

*Note: Prior to graduation students are required to complete a comprehensive exit exam.*

#### K-12 Teaching Preparation (43 credits)

PE P 185	Introduction and Foundations	3 cr.
PE P 208	Fitness for Health and Sport	3 cr.
PE P 315	Elementary School Physical Education	3 cr. (2+2P)
PE P 319	Lifetime Activities	2 cr.
PE P 323	Racquet Sports	2 cr.
PE P 363	Theory and Technique of Lifelong Outdoor Leisure Activities	2 cr.
PE P 392	Theory and Technique of Sports and Games	2 cr.
PE P 393	Theory and Technique of Dance and Rhythms	2 cr.
PE P 394	Designing Student Centered Afterschool	2 cr.

	Physical Activity Clubs	
PE P 455	Adapted Physical Education	3 cr.
PE P 466	Methods of Teaching Secondary Physical Education	6 cr.
SP M 271	Anatomy & Physiology I	3 cr.
SP M 271 L	Anatomy and Physiology Laboratory	1 cr.
SP M 341	Motor Development	3 cr.
SP M 342	Motor Learning	3 cr.
SP M 324	Introduction to Exercise Science: Exercise Physiology and Biomechanics	3 cr.

(For specific general education course requirements it is mandatory that the department or advisement center be consulted.)

### DEGREE: BACHELOR OF SCIENCE IN KINESIOLOGY

The Bachelor of Science in Kinesiology degree program consists of 40 credit hours of core coursework ({1} Clinical Track or {2} Exercise Science Track) or 41 credit hours core coursework ({3} Performance Psychology Track) plus additional coursework in one of the specific mentioned tracks. These three different tracks provide students diverse fitness and wellness career options within the public, private and/or corporate sectors. Alternately, students may wish to pursue graduate studies in a variety of areas such as business, exercise and sport sciences (e.g. exercise physiology, biomechanics), or medically related fields (e.g. medicine, physical and occupational therapy, cardiopulmonary rehabilitation, etc.).

For specific general education course requirements it is essential that the department or advisement center be consulted.

Information about Kinesiology and potential employment opportunities may be obtained at the Department of Kinesiology and Dance in the Activity Center 204, phone 646-2215.

### MAJOR: KINESIOLOGY

Students are required to complete 120 total semester hours for the Kinesiology degree. Additionally, students completing requirements for this degree will be ultimately responsible to ensure that they have completed 48 upper division credits (300 and 400 level courses). Kinesiology students must maintain a 2.75 GPA in order to enroll in upper division SP M and PE P courses.

### REQUIREMENTS

#### Kinesiology Core (40 credits - Clinical Track & Exercise Science Track and 41 credits- Performance Psychology Track)

PE P 185	Introduction and Foundations	3 cr.
PE P 208	Fitness for Health and Sport	3 cr.
PE P 319	Lifetime Activities	2 cr.
SP M 271	Anatomy & Physiology I	3 cr.
SP M 271 L	Anatomy and Physiology Laboratory	1 cr.
SP M 308	Exercise Physiology	3 cr. (2+2P)
SP M 342	Motor Learning	3 cr.
SP M 371	Anatomy and Physiology II	3 cr.
SP M 371 L	Anatomy and Physiology II Lab	1 cr.
SP M 445	Internship	6 or 12 cr. (6 or 12P)

#### Three credits from the following:

A ST 251G	Statistics for Business and the Behavioral Sciences	3 cr.
A ST 311	Statistical Applications	3 cr.
SP M 412	Inferential Statistics in Sport and Exercise Science	3 cr.
STAT 251G	Statistics for Business and the Behavioral Sciences	3 cr.
STAT 271G	Statistics for Psychological Sciences	3 cr.

#### Three credits from the following:

SP M 303	Health and Exercise Psychology	3 cr.
SP M 304	Psychology of Sport	3 cr.

Additional coursework for individual kinesiology tracks are listed below. The various tracks require 13-20 credit hours of electives (see advisor for details).

### TRACK: Clinical Exercise Science

#### Required Courses (19 credit hours)

SP M 320 L	Palpation and Anatomical Kinesiology Laboratory	3 cr.
SP M 330	Exercise Testing and Prescription	4 cr.
SP M 409	Clinical Biomechanics	3 cr.
SP M 409 L	Clinical Biomechanics Laboratory	1 cr.
SP M 456	Exercise for Special Populations	3 cr.

#### Six credits from the following:

SP M 307	Pathophysiology and Human Function(s)	3 cr.
SP M 309	Neurophysiology and Human Function	3 cr.
SP M 451	Advanced Exercise Physiology	3 cr.
SP M 458	Physical Dimensions of Aging	3 cr.

### TRACK: Exercise Science Track

#### Required Courses (18 credits)

SP M 305	Applied Biomechanics	3 cr.
SP M 305 L	Applied Biomechanics Laboratory	1 cr.
SP M 330	Exercise Testing and Prescription	4 cr.
SP M 451	Advanced Exercise Physiology	3 cr.
SP M 456	Exercise for Special Populations	3 cr.
SP M 460	Principles of Strength and Conditioning	3 cr.
SP M 460 L	Principles of Strength and Conditioning Laboratory	1 cr. (2P)

### TRACK: Performance Psychology: Minor in Psychology

#### Required Courses (24 credits)

Choose four credits from the following (Lecture and Lab)-these courses are part of the Kinesiology Core for Performance Psychology which totals 41 credits

Performance Psychology Students have a choice between:

SP M 305	Applied Biomechanics	3 cr.
SP M 305 L	Applied Biomechanics Laboratory	1 cr.
SP M 409	Clinical Biomechanics	3 cr.
SP M 409 L	Clinical Biomechanics Laboratory	1 cr.

#### Three credits from the following (not counted in core requirements):

SP M 303	Health and Exercise Psychology	3 cr.
SP M 304	Psychology of Sport	3 cr.

**Psychology Minor (18 credit hours):** Student must complete official Psychology Minor requiring 18 credit hours in PSY. Courses used for PSY minor cannot be used for credit as electives.

*Note: Official minor documentation must be completed with the Department of Psychology.*

### MINOR: DANCE

The dance program also offers a minor in dance that consists of a total of 18 credit hours. Dance minors can choose from a variety of dance technique classes, as well as, dance education and dance production classes.

### REQUIREMENTS

#### All minors must take the following courses:

DANC 203	Dance Production I	1 cr.
DANC 280	Improvisation I	1 cr.

#### Elective Courses (16 credits)

16 credits (6 credits at upper division) from the following courses:

DANC 151	Master Works	1 cr.
DANC 200	Dance Pedagogy: Educational Theory	1 cr.
DANC 204	Dance Sport I	1 cr.
DANC 205	Contemporary Dance Ensemble I	1 cr.
DANC 206	Spanish Dance Ensembles I	1 cr.
DANC 209	Argentine Tango II	1 cr.
DANC 210	Classical Spanish II	2 cr. (1+3P)
DANC 218	West Coast Swing II	2 cr.
DANC 220	Ballet Folklorico II	2 cr.

		(1+3P)
DANC 221	Country Western Dance	2 cr.
DANC 222	Bronze American Rhythm	2 cr. (1+2P)
DANC 223	Ballet Technique II	2 cr.
DANC 224	Jazz Technique II	2 cr.
DANC 225	Bronze American Smooth	2 cr. (1+2P)
DANC 226	Modern Dance Technique II	2 cr.
DANC 227	Tap Dance II	1 cr.
DANC 229	Flamenco II	2 cr.
DANC 232	Bronze International Latin	2 cr.
DANC 235	Bronze International Standard	2 cr.
DANC 269	DanceSport Choreography I	2 cr.
DANC 275	Dance Studio Management	3 cr.
DANC 279	Flamenco Choreography I	2 cr.
DANC 289	Principles of Choreography I	2 cr.
DANC 300	Dance Pedagogy: Creative Movement	3 cr.
DANC 301	Flamenco Pedagogy I	3 cr.
DANC 304	Dance Sport II	1 cr.
DANC 305	Contemporary Dance Ensemble II	1 cr.
DANC 306	Spanish Dance Ensemble II	1 cr.
DANC 310	Classical Spanish Dance III	3 cr.
DANC 322	Silver American Rhythm	3 cr. (2+2P)
DANC 323	Ballet Technique III	3 cr.
DANC 324	Jazz Technique III	3 cr.
DANC 325	Silver American Smooth	3 cr. (2+2P)
DANC 326	Modern Dance III	3 cr.
DANC 329	Flamenco III	3 cr.
DANC 332	Silver International Latin	3 cr.
DANC 335	Silver International Standard	3 cr.
DANC 339	Flamenco Structure and Improvisation	3 cr.
DANC 342	DanceSport Pedagogy: Rhythm	3 cr.
DANC 345	DanceSport Pedagogy: Smooth	3 cr.
DANC 365	Dance Pedagogy: Dance in Education	2 cr.
DANC 380	Improvisation II	1 cr.
DANC 389	Principles of Choreography II	2 cr.
DANC 422	Gold American Rhythm	3 cr. (2+2P)
DANC 423	Ballet Technique IV	3 cr.
DANC 424	Jazz Dance Technique IV	3 cr.
DANC 425	Gold American Smooth	3 cr. (2+2P)
DANC 426	Modern Dance Technique IV	3 cr.
DANC 432	Gold International Latin	3 cr.
DANC 435	Gold International Standard	3 cr.
DANC 466	Dance Pedagogy: Dance Technique	3 cr.

**MINOR: EXERCISE SCIENCE****REQUIREMENTS****Required Courses (minimum of 18-19 credits)**

PE P 208	Fitness for Health and Sport	3 cr.
SP M 308	Exercise Physiology	3 cr. (2+2P)
SP M 330	Exercise Testing and Prescription	4 cr.

**Eight credits from the following**

PE P 319	Lifetime Activities	2 cr.
SP M 305	Applied Biomechanics	3 cr.
SP M 451	Advanced Exercise Physiology	3 cr.
SP M 460	Principles of Strength and Conditioning	3 cr.
SP M 460 L	Principles of Strength and Conditioning Laboratory	1 cr. (2P)

*Note: Official minor documentation must be completed with the Department of Kinesiology and Dance*

## SPECIAL EDUCATION/COMMUNICATION DISORDERS

**Associate Professor, Marlene Salas-Provance, Department Head**

**Associate Professors** Chinn, Rhein, Salas, Salas-Provance, White; **Assistant Professors** Bae, Chai, Lehnert-Lehouillier, Medina, Mishra, Ramdoss, Spencer, Valdez; **College Assistant Professor** Estalla, Keeley, Mason, Trammel-Yeboah; **Emeritus Professors** Farmer, Gallegos, Poel

**phone:** (575) 646-24020

**website:** <http://education.nmsu.edu/spedcd/>

Special Education Course Descriptions

Communication Disorders Course Descriptions

The Department of Special Education/Communication Disorders offers two undergraduate programs that prepare professionals to work with exceptional populations in school, community, hospital and residential settings. The Special Education program prepares students to provide appropriate educational services to individuals with disabilities. The Communication Disorders program provides training for students interested in speech-language pathology or audiology.

### DEGREE: BACHELOR OF SCIENCE IN EDUCATION MAJOR: COMMUNICATION DISORDERS

The Communication Disorders curriculum provides specialized preparation for students who plan to enter a graduate program to become speech-language pathologists or audiologists. Students supplement their academic study of typical communication development, communication disorders and clinical management with observation of the clinical experience in the department's Edgar R. Garrett Speech and Hearing Center. To begin the clinical management and procedures sequence (C D 321, C D 322, C D 323) a student must have a minimum 3.0 GPA. Students must maintain a B or better in all courses from C D 301 and beyond, to remain in the program.

The undergraduate program provides approximately one-half of the academic requirements needed for certification by the American Speech-Language-Hearing Association and licensure by the New Mexico State Department of Education. Certification and licensure at state and national levels requires completion of the master's degree. Details regarding certification are available from the Department of Special Education/Communication Disorders.

Professional employment opportunities for speech-language pathologists and audiologists are numerous within settings such as school systems, community clinics, medical centers, hospitals, private practice, residential programs and schools for individuals with disabilities.

**REQUIREMENTS****Program Requirements**

Required coursework (132 credits; minimum 48 upper-division credits)

**General Requirements**

See the "General Requirements (p. 131)" in the College of Education section. A list of specific general education courses is available at the Education Advisement Center in O' Donnell Hall, Room 101.

**Communication Disorders (63 credits)**

C D 221	Introduction to Communication Disorders	3 cr.
C D 301	Language Acquisition	3 cr.
C D 321	Clinical Methods	3 cr.
C D 322	Anatomy and Physiology of Speech Mechanisms	3 cr.
C D 323	Phonetics	3 cr.
C D 324	Introduction to Speech Science	3 cr.

C D 325	Language Disorders	3 cr.
C D 326	Clinical Procedures	3 cr.
C D 374	American Sign Language I	3 cr.
C D 375	American Sign Language II	3 cr.
C D 421	Speech Disorders	3 cr.
C D 422	Audiology	3 cr.
C D 423	Neural Bases of Communication Disorders	3 cr.
C D 424	Aural Rehabilitation	3 cr.
C EP 110G	Human Growth and Behavior	3 cr.
C EP 451V	Introduction to Counseling	3 cr.
SPED 350	Introduction to Special Education in a Diverse Society	3 cr.
	Electives	9 cr.

Electives: Selected from the list of recommendations from the C D program  
C D 221 and C D 301: Courses recommended for students who plan to enter a graduate program in education of the deaf/hard of hearing.

### Graduate Program (53 credits)

Students entering the graduate program with an undergraduate major in Communication Disorders can expect to complete the program in two years and be awarded a Masters of Arts in Communication Disorders and specialization in Speech-Language Pathology. Graduate programs for students without a communication disorders background are generally one year longer. Enrollment in graduate courses in Communication Disorders is limited to persons who have been accepted into the graduate program in communication disorders. To complete a course of study, each student is expected to meet the program's academic and clinical competency criteria as well as the recommendation of state and national certifying bodies for educational licensure and clinical certification.

The master's degree program in Speech-Language Pathology at New Mexico State University is accredited by the Council on Academic Accreditation of the American Speech-Language-Hearing Association. Admission requirements and procedures, which are available upon request, are listed in the *Graduate Catalog*.

### MAJOR: SPECIAL EDUCATION

The undergraduate program is designed to prepare students for licensure in special education. Students receive training in a broad based curriculum appropriate for teaching and other career options related to special education and developmental disabilities. In addition to special education coursework, students complete an academic teaching field and may elect to pursue coursework in a variety of focal areas including early childhood special education, developmental disabilities, or counseling and educational psychology. Dual licensure in special and regular education (elementary or secondary) may be obtained.

General education requirements are similar for all degree programs in the College of Education. Students should meet with an advisor to plan appropriate general education courses for a special education major. Students may get a dual license in special education and elementary education or in special education and secondary education.

### REQUIREMENTS

#### Professional Education Courses (34 credits)

SPED 350	Introduction to Special Education in a Diverse Society	3 cr.
SPED 360	Elementary Curriculum, Methods, and Materials for Special Education in a Diverse Society	3 cr.
SPED 406	High Incidence Disabilities in a Diverse Society	3 cr.
SPED 407	Low Incidence Disabilities in a Diverse Society	3 cr.
SPED 459	Classroom Management for Diverse Learners	3 cr.
SPED 463	Introduction to Assessment of Diverse Exceptional Learners	3 cr.
SPED 470	Life Span Development and Transition in a Diverse Society	3 cr.
SPED 481	Practicum in Education, Equity and Cultural Diversity	2-6 cr.
SPED 482	Student Teaching SPED	1-12 cr.

### OPTIONS:

All special education students must choose one of the following options:

#### Dual License in Elementary Education (50 credits)

	Complete the Language Arts Teaching Field or Requirements for Elementary Education majors	24 cr.
	Complete the Elementary Education Major Requirements	18 cr.
C D 365	Language Acquisition for Educators	3 cr.
EDUC 489	Topics	1-3 cr.
RDG 371	Instruction for Special Reading Needs	3 cr.

#### Dual License in Secondary Education (48 credits)

	Complete first teaching field requirements in one area 36 (minimum)	
C D 365	Language Acquisition for Educators	3 cr.
EDUC 489	Topics	1-3 cr.
RDG 371	Instruction for Special Reading Needs	3 cr.

#### Take course appropriate for teaching field

#### One course from the following

EDUC 460	Teaching Language Arts at the Middle and High School Level	3 cr. (2+2P)
EDUC 461	Teaching Social Studies at the Middle and High School Level	3 cr. (2+2P)
EDUC 462	Teaching Mathematics at the Middle and High School Level	3 cr. (2+2P)
EDUC 463	Teaching Science at the Middle and High School Level	3 cr. (2+2P)
EDUC 464	Teaching Foreign Language at the Middle and High School Level	3 cr. (2+2P)
EDUC 467	Teaching Business Education at the Middle and High School Level	3 cr. (2+2P)

#### Special Education and Focal Areas (Early Childhood-Special Education, Developmental Disabilities, or Counseling and Educational Psychology) (48 credits)

For detailed coursework, see the Advisement Center.

#### Complete a second teaching field 24 (min.)

C D 365	Language Acquisition for Educators	3 cr.
RDG 371	Instruction for Special Reading Needs	3 cr.
	Additional coursework in one area of ECED-SPED, C D, or C EP. (See an advisor for details.)	24 cr.

### General Requirements

See "General Requirements" in the "College of Education" section. Students must be admitted to the Teacher Education Program as a condition for enrolling in courses that lead to licensure.

# COLLEGE OF ENGINEERING

---

**Interim Dean • Steven Stochaj**

**Associate Dean (Academic Programs) • Sonya Cooper, P.E.**

**Associate Dean/Director of Engineering Research Center • Martha Mitchell, P.E.**

**Associate Dean (Outreach) • Patricia Sullivan**

**Scholarship and Career Development Coordinator • Monica Lopez**

**Communications and Special Events coordinator • Linda Fresques**

**Student Programs Coordinator • Elizabeth Howard**

## Bachelor of Information and Communication Technology

**Bachelor of Science in Engineering** - Aerospace Engineering; Chemical Engineering; Civil Engineering; Electrical Engineering; Engineering Physics; Engineering Technology; Industrial Engineering; Mechanical Engineering; Surveying Engineering

The College of Engineering comprises six departments: Chemical Engineering; Civil Engineering; Electrical and Computer Engineering; Engineering Technology and Surveying Engineering; Industrial Engineering; Mechanical and Aerospace Engineering.

## Accreditation

ABET (formerly the Accreditation Board for Engineering and Technology), established in 1933 and composed of representatives from technical societies, assures professional standards by periodic evaluations of the programs in the College of Engineering. (ABET may be contacted at <http://www.abet.org>)

Continuous accreditation by the Engineering Accreditation Commission (EAC) of ABET has been in force since 1938 for civil, electrical, and mechanical engineering, 1967 for chemical engineering, 1971 for industrial engineering, 2001 for surveying engineering and 2005 for engineering physics.

The electronics and computer, civil, and mechanical engineering technology baccalaureate degree programs have been accredited by the Technology Accreditation Commission (TAC) of ABET since 1988.

The college is a member of the American Society for Engineering Education (ASEE).

## Mission of the College of Engineering

The College of Engineering will uphold the land grant mission of NMSU through nationally recognized programs in education, research and professional & public service.

With respect to our undergraduate programs, we will accomplish our mission by focusing on the following goals:

1. To be nationally and internationally recognized for academic & research programs in Engineering & Engineering Technology.
2. Provide world-class engineers & engineering technologists for industrial, government, and academic constituents of the College of Engineering
3. To be the University of Choice for undergraduate engineering & engineering technology education in the region
4. To serve as an engine for economic development in New Mexico through the advancement of engineering and technology

Furthermore, graduates receiving baccalaureate degrees will demonstrate:

- an ability to apply knowledge of mathematics, science and engineering;
- an ability to design and conduct experiments, as well as to analyze and interpret data;
- an ability to design a system, component or process to meet desired needs;
- an ability to function on multi-disciplinary teams;
- an ability to identify, formulate, and solve engineering problems;
- an understanding of professional and ethical responsibility;
- an ability to communicate effectively;

- the broad education necessary to understand the impact of engineering solutions in a global and societal context;
- a recognition of the need for, and an ability to engage in life-long learning;
- a knowledge of contemporary issues; and
- an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

## Graduate Degrees

Graduate study is available in the Aerospace Engineering, Chemical Engineering, Civil Engineering, Electrical Engineering, Environmental Engineering, Industrial Engineering and Mechanical Engineering. See the *Graduate Catalog* for details.

## Student Advisement

Students coming into the College of Engineering are encouraged to declare a major and be advised in that department. At their discretion, students may change majors any time in the course of their study by notifying the associate dean. However, a change in major may result in a delay in graduation.

Students uncertain about choosing a major may list themselves as undeclared in the College of Engineering and be advised by the associate dean. Undeclared students will be asked to choose a major after two semesters in the college. Students must have a declared major in order to graduate.

At the discretion of the associate dean, students who do not demonstrate satisfactory progress may be required to leave the College of Engineering.

## General Education

With the exception of math and science, the College accepts all coursework approved for inclusion in the New Mexico General Education Common Core. Calculus I, General Chemistry I and Engineering Physics I are required to satisfy areas II and III of the common core.

## S/U Coursework

The College requires most degree requirements to be taken with traditional grading. Students may take selected humanities and social science courses under the S/U option. Other exceptions are specifically noted in the program descriptions later in this catalog.

## Math Placement

Entering freshmen are placed into an appropriate math course based upon the results of the Math Placement Exam administered regularly by the NMSU mathematics department. Students with Advanced Placement or transfer credit for mathematics will be placed accordingly. Math placement may be altered at the discretion of the associate dean.

## Minors

Minors are available from most departments within the College of Engineering and are outlined in the individual program descriptions later in this catalog.

## Cooperative Education

After two semesters of satisfactory academic work (2.5 GPA), an engineering student may go on a work phase with one of the many companies or governmental agencies with which the university has co-op agreements. The experience obtained through alternating periods of academic and fieldwork greatly contributes to the preparation of a student for professional life. Work phases are considered to be a vital part of the educational process, and students are counseled in the selection of co-op positions that will lead to progressive learning experiences. Earnings while on work phase provide a source of financial assistance to meet educational expenses.

A significant number of undergraduate engineering students are in the cooperative education program. Students may, with the approval of their department head, earn credit while participating in a co-op work phase. Co-op credits do not normally count toward the degree requirements but do show on the transcript.

### General Academic Requirements

For regular admission to the University and the College of Engineering, incoming freshman and transfer applicants must meet the University's qualifications for regular admission as stated in the undergraduate catalog in effect at the time of application. Students admitted to the College of Engineering will be classified by the college as a Pre-[major] until the standard requirements described below for admission to the program major are met.

Pre-[major] students will be admitted into their respective programs once they have met the following criteria:

- Earn a minimum grade of C- in all of the following courses:
- CHEM 111/115 (engineering) or CHEM 110 (engineering technology);
- SPCD 111/ENGL 111 M or ENGL 111;
- ENGR 100;
- MATH 191 (engineering) or MATH 235 (engineering technology);
- PHYS 213/215 (engineering) or PHYS 211 (engineering technology).

Any of the above courses with earned AP credit (minimum score of 3) is exempt from the list. Transfer students may meet this criteria with determined passing credit of equivalent courses. PRE [major] students will be advised by their EG [major] department.

NMSU College of Engineering reserves the right to independently test any student's English proficiency upon arrival, including those who have earned scores satisfying minimum admission criteria. If the demonstrated level of English proficiency is not sufficient for academic success as determined by the Center for English Language Programs, support classes may be required to improve proficiency.

Students must earn a minimum cumulative GPA of 2.0 before enrolling in engineering courses numbered 300 or above.

Students must earn a grade of C- or better in all engineering, technology, math and science courses (including associated prerequisite courses) required for the degree and also courses taken to satisfy the general education requirements for Area I-Communications, Area II-Mathematics/Algebra, and Area III-Laboratory Science. If a grade lower than C- is earned in any of these courses, the student is required to retake the course immediately during the next semester it is offered. An undergraduate student may attempt an engineering, math, or physical science course no more than three times to earn a passing grade of C- or better. Anytime a student earns less than a C-, a meeting with the appropriate Engineering academic advisor is required to develop a plan for addressing this issue. If the student fails to pass any of these courses after three attempts, then the student will not be able to continue as an Engineering major and will be counseled on other degree options.

### Engineering Transfer Policy

Policy for engineering majors enrolling in courses at other institutions to meet College of Engineering Departmental Core Requirements<sup>1</sup>.

1. NMSU Policy Manual Chapter 6, section 89, paragraph A. "The decision to award a student credit for work completed at another institution rests with the faculty."
2. NMSU main campus engineering majors may take core classes at other institutions of higher education to meet NMSU College of Engineering Departmental Core if the NMSU core course cannot accommodate any more eligible students.
3. The following conditions and restrictions apply to any course not taken on the NMSU main campus.
  - The department must approve the course prior to enrollment (student to provide course syllabus and any other documentation to department head).
  - The course must be a class in a program that is accredited by an accreditation commission of ABET, Inc. and cannot be graded S/U
  - The course must be substantially the same as the equivalent NMSU class and the student must have satisfied all NMSU prerequisite requirements.
  - The student shall provide a corresponding course syllabus and any other documentation required.

- If NMSU prerequisite requirements are not satisfied, credit will be denied regardless of a passing grade for the course at the other institution.
4. In addition to 3 above, the following conditions apply to any on-line course not taken from the NMSU main campus.
    - Scheduled exams, if any, shall be proctored<sup>2</sup>.
    - If NMSU prerequisite requirements are not satisfied, credit will be denied regardless of a passing grade for the course at the other institution.

<sup>1</sup>Core requirements are defined as required departmental, discipline-related, courses within the major.

<sup>2</sup>The student may choose to have NMSU proctor Exams (<http://distance.nmsu.edu/faculty/requiring-a-proctored-exam/>)

**For more information about transferring to New Mexico State University from another accredited institution, visit the NMSU Transfer Center.**

### Requirements for Graduation

The minimum requirements for undergraduate degrees are:

1. Satisfaction of the university requirements as previously outlined in the Regulations section of this catalog.
2. Satisfaction of the college requirements as outlined under General Academic Requirements, above.
3. Satisfaction of the departmental rules and course requirements as outlined in the individual program descriptions later in this catalog.

*NOTE: In order to maintain quality, remain current, and satisfy changes in accreditation criteria, requirements which have been published may be changed. Any such changes will be announced and will not be retroactive. Always consult an academic advisor before registering for classes.*

## CHEMICAL & MATERIALS ENGINEERING

**Professor, David A. Rockstraw, Department Head**

**Professor, Martha C. Mitchell, Associate Department Head**

**Professors Mitchell\***, Rockstraw\*, **Associate Professors** Andersen, Houston, Luo; **Assistant Professors** Brewer, Foudazi, Manz; **Emeritus Professors** Bhada, Ghassemi, Johnson, Long, Patton

\* Registered Professional Engineer

**phone: (575) 646-1214**

**website: <http://chme.nmsu.edu/>**

### DEGREE: BACHELOR OF SCIENCE IN CHEMICAL ENGINEERING

Chemical engineers solve problems by combining the fundamentals of physical science (chemistry and physics) and life science (biology, microbiology, biochemistry) with the principles of engineering analysis, mathematics, and economics. The curriculum of study leading to the BSCE continuously builds on prerequisite knowledge. The capstone course requires completion of a series of seven prerequisite courses, each having its own prerequisites. In this manner, the BSCE produces graduates with highly developed problem-solving capabilities, strong communication and interpersonal skills, and an ability to seek out and assimilate knowledge beyond the classroom. Graduates apply these competencies to solve problems across a wide range of industries in the private and public sectors.

The work of a chemical engineer typically leads to the development of processes that convert raw materials (chemicals) into more useful or valuable products. Chemical engineers are pioneers of modern materials and associated processes that are essential to the fields of: nanotechnology; fuel cells; computer chip manufacture; environmental restoration and pollution prevention; biomedical, biotechnology and bioengineering; pharmaceutical manufacturing; food production; transportation (automotive and aerospace); advanced materials; petrochemical and refining; chemical synthesis and production; and power & energy (including the nuclear industry). Graduates are also well-prepared to



continue the study of law, medicine or advanced engineering topics at the graduate level.

**Mission:** The New Mexico State University Chemical & Materials Engineering Department strives to prepare Chemical Engineering Bachelor of Science graduates to successfully and safely practice the chemical engineering profession, to engage in life-long personal and professional development, and to contribute to the betterment of their community and society.

**Educational Objectives:** The Chemical & Materials Engineering Department at New Mexico State University strives to produce graduates of the undergraduate curriculum who will:

1. apply their problem-solving and communication skills to chemical engineering industries, government research labs, academia and related fields;
2. implement safety practices in their work;
3. be on a path to management or research leadership; and
4. continually seek to further their education through continuing education and professional development.

These Program Educational Objectives (PEOs), which are modified based on input from our constituencies, are consistent with the missions of NMSU, the College of Engineering and the Department of Chemical & Materials Engineering.

### MAJOR: CHEMICAL ENGINEERING

The BS Chemical Engineering program is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.

### REQUIREMENTS (TOTAL CREDITS 128)

In addition to satisfying the requirements of New Mexico State University and the College of Engineering, CHME majors must pass departmental courses with a grade of C- or better.

Students must have completed CHME 201 prior to taking any 400-level CHME elective courses.

Degree requirements can also be found summarized in flow diagrams found on the CHME website (<http://chme.nmsu.edu/academics/undergrad/chme-flow-diagram-archive/>).

#### General Education (40 credits)

#### State of New Mexico Common Core (37 credits)

##### Area I: Communications (10 credits)

ENGL 111G	Rhetoric and Composition	4 cr.
ENGL 218G	Technical and Scientific Communication	3 cr.
COMM 265G	Principles of Human Communication	3 cr.

##### Area II: Mathematics (4 credits)

MATH 191G	Calculus and Analytic Geometry I	4 cr.
-----------	----------------------------------	-------

##### Area III: Natural Science (8 credits)

CHEM 115	Principles of Chemistry I	4 cr. (3+3P)
CHEM 116	Principles of Chemistry II	4 cr. (3+3P)

##### Area IV: Social and Behavioral Sciences (6-9 credits)

	*Economics, Political Science, Psychology, Sociology, and Anthropology electives	6-9 cr.
--	--	---------

\*see the required courses section of the catalog for a full list of courses.

##### Area V: Humanities and Fine Arts (6-9 credits)

	History, Philosophy, Literature, Art, Music, Dance, Theater, or Foreign Language electives	6-9 cr.
--	--	---------

\*see the required courses section of the catalog for a full list of courses.

##### Viewing a Wider World Elective (3 credits)

	*9-credit hour rule (see Required courses for details)	
--	--	--

\*see the required courses section of the catalog for a full list of courses.

### PROGRAM SPECIFIC REQUIREMENTS (88 CREDITS)

#### Mathematics (10 credits)

MATH 192G	Calculus and Analytic Geometry II	4 cr.
MATH 291G	Calculus and Analytic Geometry III	3 cr.
STAT 371	Statistics for Engineers and Scientists I	3 cr.

#### Natural Science (22 credits)

BIOL 211G	Cellular and Organismal Biology	3 cr.
CHEM 313	Organic Chemistry I	3 cr.
CHEM 314	Organic Chemistry II	3 cr.
CHEM 315	Organic Chemistry Laboratory	2 cr. (6P)
CHEM 433	Physical Chemistry I	3 cr.
PHYS 215G	Engineering Physics I	3 cr.
PHYS 215GL	Engineering Physics I Laboratory	1 cr. (3P)
PHYS 216G	Engineering Physics II	3 cr.
PHYS 216GL	Engineering Physics II Laboratory	1 cr. (3P)

#### Engineering (3 credits)

ENGR 100	Introduction to Engineering	3 cr. (2+3P)
----------	-----------------------------	-----------------

#### Chemical Engineering Common Core (53 credits)

CHME 102	Material Balances	3 cr.
CHME 201	Energy Balances	3 cr.
CHME 301	Chemical Engineering Thermodynamics I	3 cr.
CHME 302	Chemical Engineering Thermodynamics II	2 cr.
CHME 302 L	Thermodynamic Models of Physical Properties	1 cr. (3P)
CHME 305	Transport Operations I: Fluid Flow	3 cr.
CHME 306	Transport Operations II: Heat and Mass Transfer	4 cr.
CHME 307	Transport Operations III: Staged Operations	3 cr.
CHME 323 L	Transport Operations and Instrumental Laboratory I	1 cr. (3P)
CHME 324 L	Transport Operations and Instrumentation Laboratory II	1 cr. (3P)
CHME 352 L	Simulation of Unit Operations	1 cr. (3P)
CHME 361	Engineering Materials	3 cr.
CHME 392	Numerical Methods in Engineering	3 cr.
CHME 412	Process Dynamics and Control	3 cr.
CHME 423 L	Unit Operations Laboratory I	1 cr. (3P)
CHME 424 L	Process Control Laboratory	1 cr. (3P)
CHME 441	Chemical Kinetics and Reactor Engineering	3 cr.
CHME 448	Industrial Safety	3 cr.
CHME 452	Chemical Process Design & Economic Evaluation	3 cr.
CHME 452 L	Chemical Process Simulation	1(3P)
CHME 455	Chemical Plant Design	3 cr.
CHME 455 L	Chemical Plant Simulation	1(3P)
	Natural Science or Engineering Elective (see advisor)	3 cr.

### MINOR: BIOMEDICAL ENGINEERING

#### REQUIREMENTS (24 CREDITS)

The Biomedical Engineering minor at New Mexico State University is part of a pre-medicine education program that addresses the growing demand for doctors, dentists, surgeons and biomedical researchers with a strong understanding of a broad cross-section of STEM subjects. This minor of study is designed for students seeking a strong pre-med background (for both MCAT prep and program entry prereq completion) or who may be targeting a graduate degree in biomedical engineering. A student must pass 24 credits of courses with a grade C- or better. The minor includes 21 credit hours of required courses, and 3 credit

hours of elective courses. No courses may be taken S/U. All prerequisites for the classes must be met or consent of the instructor obtained before enrolling in class.

#### Required courses

CHME 305	Transport Operations I: Fluid Flow	3 cr.
CHME 481	Biomedical Engineering and Engineering Healthcare	3 cr.
BIOL 211G	Cellular and Organismal Biology	3 cr.
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr. (3P)
BIOL 353	Pre-Professional Human Anatomy	4 cr.
BIOL 353 L	Pre-Professional Human Anatomy Laboratory	1 cr. (3P)
BIOL 354	Physiology of Humans	3 cr.
BIOL 354 L	Laboratory of Human Physiology	1 cr. (3P)
BCHE 395	Biochemistry I	3 cr.
	Elective	3 cr.

Elective courses are to be chosen from the menu of courses available on the Biomedical Engineering Minor page of Chemical and Materials Engineering website.

### MINOR: ENVIRONMENTAL MANAGEMENT

#### REQUIREMENTS (18 CREDITS)

The environmental management minor is an interdisciplinary program administered by WERC: A Consortium for Environmental Education and Technology Development, located in Foreman Hall, suite 300. A student must pass 18 credits from a list available on the Chemical Engineering website with a grade C- or better. The minor requires two courses from defined groupings, and the balance elective courses approved by the WERC director. No courses may be taken S/U. All prerequisites for the classes must be met or consent of the instructor obtained before enrolling in class.

### MINOR: MATERIALS ENGINEERING

#### REQUIREMENTS (18 CREDITS)

The Materials Engineering minor at New Mexico State University is part of a materials education program that addresses the growing demand for engineers and scientists with understanding of the wide range of materials, their properties and means of characterization. A student must pass 18 credits of courses with a grade C- or better. The minor elective courses are chosen from list available on the Chemical and Materials Engineering website (<http://chme.nmsu.edu/academics/minors/materials-engineering/>). No courses may be taken S/U. All prerequisites for the classes must be met or consent of the instructor obtained before enrolling in class.

#### Required courses (18 credits)

CHME 361	Engineering Materials	3 cr.
	Electives (15)	15 cr.

### MINOR: NUCLEAR CHEMICAL ENGINEERING

#### REQUIREMENTS (18 CREDITS)

The Nuclear Chemical Engineering minor at New Mexico State University is part of a nuclear education program that addresses the growing demand for engineers and scientists with background in the nuclear industry. A student must pass 18 credits of elective courses with a grade C- or better. The courses are upper division courses. Three elective courses must be selected from the list maintained on the CHME website (<http://chme.nmsu.edu/academics/minors/nuclear-chemeng/>). No courses may be taken S/U. All prerequisites for the classes must be met or consent of the instructor obtained before enrolling in class.

#### Required Courses

CHME 470	Introduction to Nuclear Energy	3 cr.
CHME 471	Health Physics	3 cr.
CHME 476	Nuclear Fuel Cycles	3 cr.
	Electives	9 cr.

### MINOR: PRE-LAW IN INTELLECTUAL PROPERTY

#### REQUIREMENTS

The Pre-Law Intellectual Property minor at New Mexico State University is part of a pre-law education program that addresses the growing demand for lawyers with a strong understanding of a broad cross-section of STEM subjects. A student must pass 19 credits of courses with a grade C- or better chosen from menus available on the Chemical and Materials Engineering website. No courses may be taken S/U. All prerequisites for the classes must be met or consent of the instructor obtained before enrolling in class.

#### Required Courses

CHME 449	Intellectual Property for Engineers and Scientists	3 cr.
COMM 351	Persuasion Theory and Practice	3 cr.
BLAW 316	Legal Environment of Business	3 cr.
ENGL 311G	Advanced Composition	3 cr.
GOVT 308	Prepping for Law School Admissions Test	1 cr.
GOVT 100G	American National Government	3 cr.
PHIL 100G	Philosophy, Law and Ethics	3 cr.

## CIVIL ENGINEERING

**Professor, David V. Jauregui\***, Department Head

**Professor, J. Phillip King\***, Associate Department Head

**Professors** Idriss\*, Jacquez\* (dean of College of Engineering), Jauregui\*, Khandan, Samani\*; **Associate Professors** Bandini\*, Bawazir, Newtonson\*, Papelis; **Assistant Professors** Cortes, Ray, Weldon, Xu

\*Registered Professional Engineer

phone:(575)646-3801

website: <http://ce.nmsu.edu/>

The curriculum in civil engineering is designed to provide a broad background and is so arranged that students may, in their senior year, specialize in one or more of the options listed or work in one or more areas of civil engineering. Students may elect to obtain more than one option in civil engineering.

The mission of the Civil Engineering Department is to offer a high quality and accredited degree that prepares our graduates for professional licensure leading to successful civil engineering careers in industry and government or for success at the graduate level. Toward this end, the Civil Engineering Department will recruit and maintain a diverse, highly skilled faculty.

### DEGREE: BACHELOR OF SCIENCE IN CIVIL ENGINEERING MAJOR: CIVIL ENGINEERING

#### Civil Engineering Program Educational Objectives

In support of the mission, the Civil Engineering Department adopts the following program educational objectives:

1. Prepare our graduates to achieve professional engineering licensure and productivity in a design office setting.
2. Prepare our graduates to be future leaders as public employees and private consultants in civil engineering fields.
3. Have 25% of our graduates pursue and complete a graduate level degree.
4. Maintain and further develop a high quality accredited civil engineering program that is competitive with comparable programs in the southwest and throughout the nation.

In addition, the Engineering Accreditation Commission of ABET, Inc., in conjunction with the American Society of Civil Engineers, requires that baccalaureate degree graduates in civil engineering will be able to:

- a. Graduates will have acquired sound technical (math, science, and engineering) competency deemed necessary for a professional engineering career.
- b. Graduates will have the ability to design and conduct civil engineering experiments and analyze and interpret the resulting data.

c. Graduates will have the ability to design a system, component, or process in more than one civil engineering context to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, constructability, and sustainability.

d. Graduates will have the ability to function on multi-disciplinary teams.

e. Graduates will have the ability to identify, formulate, and solve engineering problems by applying knowledge of four technical areas appropriate to civil engineering.

f. Graduates will have an understanding of professional and ethical responsibility, especially as it relates to health and safety, and the importance of professional licensure.

g. Graduates will have acquired the professional (oral, written, cooperative and communication) skills necessary for a professional engineering career.

h. Graduates will have an understanding of the impacts of engineering solutions in a global and societal context necessary for career advancement.

i. Graduates will recognize the need for, and have acquired, self-learning and life-long learning skills essential for professional growth after graduation.

j. Graduates will have knowledge of contemporary issues.

k. Graduates will have a strong technical foundation and training in the use of modern tools necessary for engineering design and problem solving in real-world situations.

The ABET Criteria, in conjunction with the American Society of Civil Engineers also requires that civil engineering curriculums include in-depth instruction allowing students to accomplish the integration of systems using appropriate analytical, computational and experimental practices. They also require that faculty teaching in civil engineering departments show evidence of understanding professional practice and maintain currency in their respective professional areas. Program faculty must have responsibility and sufficient authority to define, revise, implement, and achieve program objectives.

## REQUIREMENTS (135 CREDITS)

In addition to the university requirements for graduation, a student must have a 2.0 grade-point average in all departmental courses.

All prerequisites and corequisites must be taken as required. If a student takes a class and a corequisite for that class at the same time and does not achieve a grade of C- or better in the corequisite, the student may take no further classes for which the course or the corequisite are prerequisite. A student who completes a class three times without achieving a grade of C- or better will be dismissed from the Civil Engineering program, and not allowed to take any Civil Engineering courses from the department.

### General Education (43 credits)

#### State of New Mexico Common Core (43 credits)

#### Area I: Communications (10 credits)

ENGL 111G	Rhetoric and Composition	4 cr.
	*Written Communications Elective	3 cr.
	*Oral Communications Elective	3 cr.

*\*\*see the required courses section of the catalog for a full list of courses. Written Communications Elective: ENG 218 is strongly recommended; Oral Communications Elective: COMM 265 is strongly recommended*

#### Area II: Mathematics (4 credits)

MATH 191G	Calculus and Analytic Geometry I	4 cr.
-----------	----------------------------------	-------

#### Area III: Natural Science (Select 8 credits)

CHEM 111G	General Chemistry I	4 cr. (3+3P)
PHYS 215G	Engineering Physics I	3 cr.
PHYS 215GL	Engineering Physics I Laboratory	1 cr. (3P)

#### Area IV: Social and Behavioral Sciences (Select 6-9 credits)

Students must complete 15 total credits from Area IV and V, with at least six credits from each area, including ECON 251 or ECON 252 as an Area IV course.

	*Economics, Political Science, Psychology, Sociology and Anthropology electives	3-6 cr.
--	---	---------

*\*see the required courses section of the catalog for a full list of courses.*

#### Area V: Humanities and Fine Arts (Select 6-9 credits)

Students must complete 15 total credits from Area IV and V, with at least six credits from each area, including ECON 251 or ECON 252 as an Area IV course.

	History, Philosophy, Literature, Art, Music, Dance, or Theater electives	6-9 cr.
--	--	---------

*\*see the required courses section of the catalog for a full list of courses.*

#### Institution Specific General Education (6 credits)

	Viewing a Wider World Electives	6 cr.
--	---------------------------------	-------

*\*see the required courses section of the catalog for a full list of courses.*

## PROGRAM SPECIFIC REQUIREMENTS 96 CREDITS

### Mathematics (13 credits)

MATH 192G	Calculus and Analytic Geometry II	4 cr.
MATH 291G	Calculus and Analytic Geometry III	3 cr.
MATH 392	Introduction to Ordinary Differential Equations	3 cr.
STAT 371	Statistics for Engineers and Scientists I	3 cr.

### Natural Science (8 credits)

GEOL 111G	Survey of Geology	4 cr. (3+3P)
PHYS 216G	Engineering Physics II	3 cr.
PHYS 216GL	Engineering Physics II Laboratory	1 cr. (3P)

### Economics (3 credits counted under General Education Area IV)

ECON 251G	Principles of Macroeconomics	3 cr.
	or	
ECON 252G	Principles of Microeconomics	3 cr.

### Technical (12 credits)

ENGR 100	Introduction to Engineering	3 cr. (2+3P)
E E 201	Electric Circuit Analysis	3 cr.
	or	
M E 240	Thermodynamics	3 cr.
M E 234	Mechanics-Dynamics	3 cr.
SUR 222	Plane Surveying	3 cr. (2+3P)

### Civil Engineering (58 credits)

C E 151	Introduction to Civil Engineering	3 cr.
C E 231	Introduction to Fluid Mechanics	3 cr. (2+3P)
C E 233	Mechanics-Statics	3 cr.
C E 256	Environmental Engineering and Science	3 cr.
C E 256 L	Environmental Science Laboratory	1 cr. (1P)
C E 301	Mechanics of Materials	3 cr.
C E 311	Civil Engineering Materials	3 cr. (2+3P)
C E 315	Structural Analysis	4 cr. (3+3P)
C E 331	Hydraulic Engineering	3 cr.
C E 356	Fundamentals of Environmental Engineering	3 cr.
C E 357	Soil Mechanics	3 cr. (2+3P)
C E 382	Hydraulic Systems Design	3 cr.
C E 445	Reinforced Concrete Design	3 cr.
C E 457	Foundation Design	3 cr. (2+3P)

C E 471	Transportation Engineering	3 cr.
C E 477	Engineering Economics and Construction Management	3 cr.
C E 481	Civil Engineering Capstone Design	3 cr.
	Civil Engineering Option Electives	6 cr.

**Capstone Course**

C E 481	Civil Engineering Capstone Design	3 cr.
---------	-----------------------------------	-------

C E 481: students are required to take three credits as a capstone design course

**OPTION: Environmental****Required Courses (9 credits)**

ENVE 455	Solid and Hazardous Waste Systems Design	3 cr.
	or	
C E 483	Surface Water Hydrology	3 cr.
ENVE 462	Sampling and Analysis of Environmental Contaminants	3 cr. (1+6P)
	or	
A EN 459	Design of Water Wells/Pumping Systems	3 cr.
	or	
C E 452	Geohydrology	3-4 cr. (3+1P)

**OPTION: General****Required Elective Courses (9 credits)**

	Design electives selected from Environmental, Structural, Water Resources, or Geotechnical Options	6 cr.
--	--	-------

**OPTION: Geotechnical****Required Elective Courses (6 credits)****Two courses from the following**

C E 452	Geohydrology	3-4 cr. (3+1P)
C E 459	Geomechanics and Rock Engineering	3 cr. (2+3P)
C E 479	Pavement Analysis and Design	3 cr.
C E 470	Design of Municipal and Hazardous Waste Landfills	3 cr.

**OPTION: Structural****Required Elective Courses (9 credits)**

C E 444	Elements of Steel Design	3 cr.
---------	--------------------------	-------

**One course from the following**

C E 454	Wood Design	3 cr.
C E 455	Masonry Design	3 cr.

**OPTION: Water Resources****Required Elective Courses (9 credits)**

C E 483	Surface Water Hydrology	3 cr.
	or	
A EN 475	Soil and Water Conservation	3 cr.
C E 452	Geohydrology	3-4 cr. (3+1P)
	or	
A EN 459	Design of Water Wells/Pumping Systems	3 cr.

**RECOMMENDED FRESHMAN YEAR****Course Sequence (35 credits)**

C E 151	Introduction to Civil Engineering	3 cr.
CHEM 111G	General Chemistry I	4 cr. (3+3P)
ENGR 100	Introduction to Engineering	3 cr. (2+3P)
ENGL 111G	Rhetoric and Composition	4 cr.

GEOL 111G	Survey of Geology	4 cr. (3+3P)
MATH 191G	Calculus and Analytic Geometry I	4 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.
PHYS 215G	Engineering Physics I	3 cr.
PHYS 215GL	Engineering Physics I Laboratory	1 cr. (3P)
	General Education Common Core	6 cr.

**MINOR: AGRICULTURAL ENGINEERING****REQUIREMENTS (18 CREDITS)****Soil Science****Three credits from the following**

SOIL 472	Soil Morphology and Classification	4 cr. (2+2P)
SOIL 476	Soil Microbiology	3 cr.
SOIL 477	Environmental Soil Physics	3 cr.
SOIL 479	Environmental Soil Chemistry	3 cr.

**Plant and Animal Science****Three credits from the following**

ANSC 351V	Agricultural Animals of the World	3 cr.
HORT 365	Principles of Crop Production	4 cr. (3+3P)

**Institutions/Economics****Three credits from the following:**

AG E 210G	Survey of Food and Agricultural Issues	3 cr.
AG E 315V	World Agriculture and Food Problems	3 cr.
AG E 337V	Natural Resource Economics	3 cr.
AG E 384V	Water Resource Economics	3 cr.

**Irrigation****Three credits from the following:**

A EN 478	Irrigation and Drainage Engineering	3 cr. (2+3P)
A EN 498	Special Topics	1-3 cr.

**Engineering Specialty****Three credits from the following:**

A EN 475	Soil and Water Conservation	3 cr.
----------	-----------------------------	-------

**Design****Three credits from the following:**

A EN 459	Design of Water Wells/Pumping Systems	3 cr.
----------	---------------------------------------	-------

## ELECTRICAL AND COMPUTER ENGINEERING

**The Klipsch School of Electrical and Computer Engineering**

**Professor, Satish Ranade, Department Head**

**Associate Professor, Robert Paz, Associate Department Head**

**Professor, Steve Stochaj, Associate Department Head**

**Professors** Borah, Creusere, DeLeon, Ng, Oklobdzija, Ramirez-Angulo, Ranade, Stochaj, Voelz; **Associate Professors**, Brahma, Cho, Cook, Dawood, Furth, Huang, Paz, Petersen, Prasad; **Assistant Professors** Boucheron, Brahma, Cho, Dawood, Kliever, Liu; **College Assistant Professors** Boehmer, Wei Tang; **Emeritus Professors** Carden, Flachs, Giles, Sheila Horan, Stephen Horan, Johnson\*, Jordan, Kersting, Ludeman, Merrill, Reinfelds, Smolleck\*, Steelman\*, Taylor

**phone: (575) 646-3115**

**website: <http://ece.nmsu.edu/>**

*\*Registered Professional Engineer (NM)*

The undergraduate program of the Klipsch School is accredited by the Engineering Accreditation Commission of ABET, Inc., and stresses the development of analytical tools and physical concepts required to prepare students for immediate employment or graduate study. The program is flexible, allowing students to choose elective coursework in the areas of communications, computer engineering, control systems, electric energy systems, electromagnetics and microwave engineering, micro-electronics, photonics, signal processing and space systems.

**DEGREE: BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING**  
**MAJOR: ELECTRICAL ENGINEERING**

**Electrical Engineering Program Educational Objectives**

The Klipsch School is dedicated to providing a quality, hands-on, educational experience for our students. Below are the program educational objectives (PEOs) that describe the expected accomplishments of graduate during their first few years after graduation.

1. Our graduates will obtain relevant, productive employment in the private sector, government and/or pursue an advanced degree.
2. Our graduates will be using their engineering foundation to innovate solutions to the problems of the real world.

**REQUIREMENTS (120 CREDITS)**

**General Education (43 credits)**

**State of New Mexico Common Core (37 credits)**

**Area I: Communications (10 credits)**

ENGL 111G	Rhetoric and Composition	4 cr.
	*Written Communications Elective	3 cr.
	*Oral Communications Elective	3 cr.

*\*see the required courses section of the catalog for a full list of courses.*

**Area II: Mathematics (4 credits)**

MATH 191G	Calculus and Analytic Geometry I	4 cr.
-----------	----------------------------------	-------

**Area III: Natural Science (8 credits)**

CHEM 111G	General Chemistry I	4 cr. (3+3P)
PHYS 215G	Engineering Physics I	3 cr.
PHYS 215GL	Engineering Physics I Laboratory	1 cr. (3P)

**Area IV: Social and Behavioral Sciences (6 or 9 credits)**

Additionally, it is strongly recommended that students select the following elective course:

	*Economics, Political Science, Psychology, Sociology, and Anthropology electives	6-9 cr.
--	--	---------

*\*see the required courses section of the catalog for a full list of courses.*

**Area V: Humanities and Fine Arts (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least 6 credits from each area.

	History, Philosophy, Literature, Art, Music, Dance, Theater, or Foreign Language electives	6-9 cr.
--	--	---------

*\*see the required courses section of the catalog for a full list of courses.*

**Institution Specific General Education (6 credits)**

	Viewing a Wider World Electives	6 cr.
--	---------------------------------	-------

*\*see the required courses section of the catalog for a full list of courses.*

**PROGRAM SPECIFIC REQUIREMENTS (77 CREDITS)**

**Mathematics (14 credits)**

E E 210	Introduction to Linear Algebra, Probability and Statistics	4 cr. (3+3P)
E E 310	Multivariate and Vector Calculus	3 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.
MATH 392	Introduction to Ordinary Differential Equations	3 cr.

**Natural Science (4 credits)**

PHYS 216G	Engineering Physics II	3 cr.
-----------	------------------------	-------

PHYS 216GL	Engineering Physics II Laboratory	1 cr. (3P)
------------	-----------------------------------	---------------

**STEM (6 credits)**

	STEM Elective (6 credits)	6 cr.
--	---------------------------	-------

*STEM Elective: Any course at the 300 level or above from ENGR, BIOL, CHEM, C S, MATH, ASTR and PHYS.*

**Electrical and Computer Engineering (53 credits)**

ENGR 100	Introduction to Engineering	3 cr. (2+3P)
E E 100	Introduction to Electrical Engineering	4 cr. (3+3P)
E E 120	Embedded Systems I	4 cr. (3+3P)
E E 220	Introduction to Computer Architecture and Organization	4 cr. (3+3P)
E E 230	AC Circuit Analysis and Power Systems	4 cr. (3+3P)
E E 300	Cornerstone Design	2 cr. (6P)
E E 312	Signals and Systems I	3 cr.
E E 314	Signals and Systems II	4 cr. (3+3P)
E E 351	Applied Electromagnetics	4 cr. (3+3P)
E E 380	Semiconductor Devices and Electronics	4 cr. (3+3P)
E E 410	Capstone	3 cr. (2+3P)
	E E Concentration Courses (11 credits)	11 cr.

E E Electives: Lists of approved electives can be formed in ECE main office

**Object-Oriented Programming**

**Three credits from one of the following:**

C S 177	C++ Programming	3 cr. (2+2P)
C S 187	Java Programming	3 cr. (2+2P)
C S 271	Object Oriented Programming	4 cr. (3+2P)

**Viewing a Wider World Electives:**

It is strongly recommended that students select the following elective course:

PHIL 323V	Engineering Ethics	3 cr.
-----------	--------------------	-------

**THE FRESHMAN YEAR**

Incoming freshmen are expected to be eligible for MATH 191G. A typical first year of study for E E students includes the following 31 credits:

**Fall Semester (15 credits)**

E E 100	Introduction to Electrical Engineering	4 cr. (3+3P)
ENGR 100	Introduction to Engineering	3 cr. (2+3P)
ENGL 111G	Rhetoric and Composition	4 cr.
MATH 191G	Calculus and Analytic Geometry I	4 cr.

**Spring Semester (15 credits)**

CHEM 111G	General Chemistry I	4 cr. (3+3P)
E E 110	The Science and Engineering of How Things Work	4 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.
	General Education Requirements from either Area I, IV, V or VVV	3 cr.

*MATH 191G: Eligibility for MATH 191G must be established with AP Calculus credit or by taking the Math Placement Exam, administered by the Math Learning Center*

## Interest Areas and Elective Courses in Electrical Engineering

Through the proper choice of math, science and engineering electives in the junior and senior years, it is possible for the student to specialize in an area of interest. In the electrical engineering program at NMSU, these areas include:

### 1. Signals and Systems consisting of:

#### a. *Communications and Telemetry*

Students study space communication systems, wireless systems or telemetry. Elective courses include: E E 496, Communications Systems, and E E 497, Digital Communications Systems I.

#### b. *Digital Signal Processing*

Digital signal processing (DSP) uses digital systems to measure, classify, filter and/or compress real-world signals. These signals may come from a wide- range of sources: music, images, seismic data, brain waves, or speech, for example. Elective courses include: E E 395, Introduction to Digital Signal Processing and E E 446, Digital Image Processing.

### 2. Computer Engineering consisting of:

#### a. *Computer Systems*

Courses in computer engineering offer the student an opportunity to obtain in- depth knowledge of digital systems and practical experience in the design, operation, and programming of digital computers. Students wishing to specialize in this area may choose to complete the designated minor in Computer Engineering. Elective courses include: E E 363, Computer Systems Architecture, E E 469, Communications Networks and EE443 Mobile Application Development.

#### b. *Micro-Electronics*

Students study discrete analog circuits as well as the design, simulation, layout, and verification of complex digital and analog integrated circuits. Elective courses include: E E 425, Introduction to Semiconductor Devices, E E 480, Introduction to VLSI, E E 482, Electronics II, E E 485, Analog VLSI Design, and E E 486, Digital VLSI.

#### c. *Space Systems Engineering*

Work in this area prepares the student for employment opportunities in the aerospace industry. Students are introduced to the complexities of a space systems life cycle and the disciplines required to design, integrate, and operate large systems. Elective courses include: E E 460, Space System Mission Design.

### 3. Power and Control consisting of:

#### a. *Control Systems*

Work in the systems area provides the student with a background in modeling, analysis, design, simulation, and control of complex systems. These systems may be associated with robotics, aerospace, transportation, power systems or natural resources. Elective courses include: E E 475, Automatic Control Systems and E E 476, Computer Control Systems.

#### b. *Electric Energy System*

Courses in this area acquaint students with the design, analysis, and operation of electrical power systems. Topics include high voltage transmission lines, distribution systems, rotating machines and digital computer analysis of the steady state operation and short circuit conditions of a power system. Elective courses include: E E 431, Power Systems II, E E 432, Power Electronics, E E 493, Power Systems III, and E E 494, Distribution Systems.

### 4. Electromagnetics and Photonics consisting of:

#### a. *Electromagnetics and Microwave Engineering*

Students study electromagnetic fields, wave propagation, antennas, waveguides and transmission lines. Elective courses include: E E 449, Smart antennas, E E 452, Introduction to Radar, E E 453, Microwave Engineering and E E 454, Antennas and Radiation.

#### b. *Photonics*

Students may concentrate in the fields of fiber optics, lasers, optical communications, imaging and optical signal processing. Elective courses include: E E 470, Physical Optics, E E 473, Introduction to Optics, E E 477, Fiber Optics Communication Systems, E E 478, Optical Sources, Detectors, and Radiometry and E E 479, Lasers and Applications.

## Related Areas of Study

Electrical and computer engineering students wishing to broaden their educational experience may elect to earn additional bachelor's degrees in

- Engineering Physics or Physics
- Mathematics
- Computer Science

Klipsch School students may also choose to earn a minor in one or more of the following fields:

- Computer Engineering
- Physics
- Mathematics
- Computer Science

Students must consult with an academic advisor in the offering department for specific requirements related to additional degrees and minors.

## BS/MS Program

This program option is designed to provide a means for ECE undergraduates to obtain both a BSEE and a MSEE degree with 154 credit hours of coursework (normally: BSEE = 130 hours, MSEE = 30 hours; total =160 hours). Students electing this option will follow the existing undergraduate curriculum for the first seven semesters. In the final undergraduate semester, two graduate courses (>500 level) will be taken in lieu of two E E electives. The student receives a BSEE degree at this point. A MSEE program can be completed in three additional semesters. Students must obtain prior approval of the department before starting this program option.

## Transfer Credit

Credit earned at other institutions is generally accepted; however the following restrictions apply to transfer credits:

- Engineering credit must be earned at an ABET accredited school.
- Physics must be calculus based.
- If the NMSU requirement includes a lab, the transfer credit must include a lab.
- A grade of C-, or better, must have been earned.
- The E E Elective and Capstone courses may not be transferred.
- The upper division E E core classes can only receive transfer credit after review and approval of the course area faculty.

## MINOR: COMPUTER ENGINEERING

### REQUIREMENTS (26-27 CREDITS)

#### Required Courses

MATH 191G	Calculus and Analytic Geometry I	4 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.

#### Lower Division (16 credits)

all may be transferred

C S 271	Object Oriented Programming	4 cr. (3+2P)
E E 161	Computer Aided Problem Solving	4 cr. (3+3P)
	or	
C S 172	Computer Science I	4 cr. (3+2P)
E E 162	Digital Circuit Design	4 cr. (3+3P)
E E 260	Embedded Systems	4 cr. (3+3P)
	or	
C S 273	Machine Programming and Organization	4 cr. (3+2P)

**Upper Division (10 credits)**

no transfer credits accepted

C S 371	Software Development	4 cr. (3+2P)
C S 473	Architectural Concepts I or	3 cr.
E E 363	Computer Systems Architecture	4 cr. (3+3P)
C S 484	Computer Networks I or	3 cr.
E E 469	Communications Networks	3 cr. (2+3P)

**MINOR: ELECTRICAL ENGINEERING****REQUIREMENTS (25-26 CREDITS)**

The Electrical Engineering minor is not available to students majoring in Electrical Engineering.

**Prerequisites (19 credits)**

all may be transferred

CHEM 111G	General Chemistry I	4 cr. (3+3P)
MATH 191G	Calculus and Analytic Geometry I	4 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.
MATH 392	Introduction to Ordinary Differential Equations	3 cr.
PHYS 215G	Engineering Physics I	3 cr.
PHYS 216G	Engineering Physics II	3 cr.

**Lower Division (15-16 credits)**

all may be transferred

E E 161	Computer Aided Problem Solving	4 cr. (3+3P)
E E 162	Digital Circuit Design	4 cr. (3+3P)
E E 201	Electric Circuit Analysis or	3 cr.
E E 280	DC and AC Circuits	4 cr. (3+3P)
E E 210	Introduction to Linear Algebra, Probability and Statistics	4 cr. (3+3P)

**Upper Division (10 credits)**

no transfer credit accepted

E E 312	Signals and Systems I	3 cr.
E E 380	Semiconductor Devices and Electronics	4 cr. (3+3P)
	E E Elective	3 cr.

List of approved electives can be found in ECE main office. Certain electives may require additional pre-requisites.

**ENGINEERING PHYSICS****Physics Department, College of Arts and Sciences****Professor**, Stefan Zollner, Department Head**Professor**, Heinz Nakotte, Engineering Physics Program Head

phone: (575) 646-3831

website: <http://engineeringphysics.nmsu.edu/>

The Engineering Physics program is offered jointly by the Department of Physics and the College of Engineering. The faculty is drawn from the Departments of Physics, Chemical and Materials Engineering, Electrical and Computer Engineering, and Mechanical & Aerospace Engineering.

**DEGREE: BACHELOR OF SCIENCE IN ENGINEERING PHYSICS  
MAJOR: ENGINEERING PHYSICS**

A strong grasp of underlying physical principles behind the development of new technologies is necessary to keep up with new developments in a high-tech world. The Bachelor of Science (BS) in Engineering Physics program is designed to provide quality education to students for immediate employment with technical jobs in private industries (especially high-tech industries), research laboratories and public sectors. The program trains students with a combination of engineering knowledge, physics principles, mathematical background, problem-solving strategies and effective communication skills. The BS in Engineering Physics also provides an excellent preparation for graduate studies in either physics or an engineering discipline.

The BS in Engineering Physics confers an engineering credential. Students in the program complete an engineering core curriculum, as well as a rigorous course of study in physics and mathematics. A strong laboratory component prepares students in experimental techniques and technology using state-of-the-art equipment.

The goals of the program are:

1. to give students a strong education in the fundamentals of physics, engineering, applied mathematics and computation;
2. to develop skill in real-world problem solving starting from fundamental physical principles;
3. to improve communication skills; and
4. to develop ability to work in a team.

The student must choose one of four concentrations in Aerospace Engineering, Chemical Engineering, Electrical Engineering, or Mechanical Engineering. The requirements are listed below. Students must earn a C- or better in all required courses.

**CONCENTRATION: Aerospace****General Education****State of New Mexico Common Core (37 credits)****Area I: Communications (10 credits)**

ENGL 111G	Rhetoric and Composition	4 cr.
	*Written Communications Elective	3 cr.
	*Oral Communications Elective	3 cr.

\*see the required courses section of the catalog for a full list of courses.

**Area II: Mathematics (4 credits)**

MATH 191G	Calculus and Analytic Geometry I	4 cr.
-----------	----------------------------------	-------

**Area III: Natural Science (8 credits)**

PHYS 213	Mechanics	3 cr.
PHYS 213 L	Experimental Mechanics	1 cr. (3P)
PHYS 214	Electricity and Magnetism	3 cr.
PHYS 214 L	Electricity and Magnetism Laboratory	1 cr. (3P)

**Area IV: Social and Behavioral Sciences (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	*Economics, Political Science, Psychology, Sociology, and Anthropology electives	6-9 cr.
--	--	---------

\*see the required courses section of the catalog for a full list of courses.

**Area V: Humanities and Fine Arts (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	History, Philosophy, Literature, Art, Music, Dance, Theater, or Foreign Language electives	6-9 cr.
--	--	---------

\*see the required courses section of the catalog for a full list of courses.

**Institution Specific General Education (3 or 6 credits)**

	Viewing a Wider World Elective	3-6 cr.
--	--------------------------------	---------

\*see the required courses section of the catalog for a full list of courses. See Alternatives for Meeting VWW requirements (nine-credit rule).

**Program Specific Requirements (89 credits)****Mathematics (10 credits)**

MATH 192G	Calculus and Analytic Geometry II	4 cr.
MATH 291G	Calculus and Analytic Geometry III	3 cr.
MATH 392	Introduction to Ordinary Differential Equations	3 cr.

**Natural Science (4 credits)**

CHEM 111G	General Chemistry I	4 cr. (3+3P)
-----------	---------------------	-----------------

**Electives (3 credits)**

	Technical Elective	3 cr.
--	--------------------	-------

A list of approved technical electives is available from Engineering Physics Advisors.

**Physics (25 credits)**

PHYS 217	Heat, Light, and Sound	3 cr.
PHYS 217 L	Experimental Heat, Light and Sound	1 cr. (3P)
PHYS 315	Modern Physics	3 cr.
PHYS 315 L	Experimental Modern Physics	3 cr. (1+6P)
PHYS 395	Intermediate Mathematical Methods of Physics	3 cr.
PHYS 454	Intermediate Modern Physics I	3 cr.
PHYS 455	Intermediate Modern Physics II	3 cr.
PHYS 461	Intermediate Electricity and Magnetism I	3 cr.
PHYS 462	Intermediate Electricity and Magnetism II	3 cr.

**Engineering (47 credits)**

A E 339	Aerodynamics I	3 cr.
A E 362	Orbital Mechanics	3 cr.
A E 363	Aerospace Structures	3 cr.
A E 364	Flight Dynamics and Controls	3 cr.
A E 419	Propulsion	3 cr.
A E 424	Aerospace Systems Engineering	3 cr.
A E 428	Aerospace Capstone Design	3 cr. (3+2P)
A E 439	Aerodynamics II	3 cr.
A E 447	Aerofluids Laboratory	3 cr. (2+3P)
C E 233	Mechanics-Statics	3 cr.
C E 301	Mechanics of Materials	3 cr.
ENGR 100	Introduction to Engineering	3 cr. (2+3P)
M E 159	Graphical Communication and Design	2 cr. (1+3P)
M E 234	Mechanics-Dynamics	3 cr.
M E 240	Thermodynamics	3 cr.
M E 345	Experimental Methods I	3 cr. (2+3P)

**CONCENTRATION: Chemical****General Education****State of New Mexico Common Core (37 credits)****Area I: Communications (10 credits)**

ENGL 111G	Rhetoric and Composition	4 cr.
	*Written Communications Elective	3 cr.
	*Oral Communications Elective	3 cr.

\*see the required courses section of the catalog for a full list of courses.

**Area II: Mathematics (4 credits)**

MATH 191G	Calculus and Analytic Geometry I	4 cr.
-----------	----------------------------------	-------

**Area III: Natural Science (8 credits)**

PHYS 213	Mechanics	3 cr.
----------	-----------	-------

PHYS 213 L	Experimental Mechanics	1 cr. (3P)
PHYS 214	Electricity and Magnetism	3 cr.
PHYS 214 L	Electricity and Magnetism Laboratory	1 cr. (3P)

**Area IV: Social and Behavioral Sciences (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	*Economics, Political Science, Psychology, Sociology, and Anthropology electives	6-9 cr.
--	--	---------

\*see the required courses section of the catalog for a full list of courses.

**Area V: Humanities and Fine Arts (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	History, Philosophy, Literature, Art, Music, Dance, Theater, or Foreign Language electives	6-9 cr.
--	--	---------

\*see the required courses section of the catalog for a full list of courses.

**Institution Specific General Education (3 or 6 credits)**

	Viewing a Wider World Elective	3-6 cr.
--	--------------------------------	---------

\*see the required courses section of the catalog for a full list of courses. See Alternatives for Meeting VWW requirements (nine-credit rule).

**Program Specific Requirements (87 credits)****Mathematics (10 credits)**

MATH 192G	Calculus and Analytic Geometry II	4 cr.
MATH 291G	Calculus and Analytic Geometry III	3 cr.
MATH 392	Introduction to Ordinary Differential Equations	3 cr.

**Natural Science (11 credits)**

CHEM 115	Principles of Chemistry I	4 cr. (3+3P)
CHEM 116	Principles of Chemistry II	4 cr. (3+3P)
CHEM 313	Organic Chemistry I	3 cr.

A list of approved technical electives is available from Engineering Physics Advisors.

**Electives (3 credits)**

	Technical Elective	3 cr.
--	--------------------	-------

**Physics (31 credits)**

PHYS 217	Heat, Light, and Sound	3 cr.
PHYS 217 L	Experimental Heat, Light and Sound	1 cr. (3P)
PHYS 315	Modern Physics	3 cr.
PHYS 315 L	Experimental Modern Physics	3 cr. (1+6P)
PHYS 395	Intermediate Mathematical Methods of Physics	3 cr.
PHYS 451	Intermediate Mechanics I	3 cr.
PHYS 454	Intermediate Modern Physics I	3 cr.
PHYS 455	Intermediate Modern Physics II	3 cr.
PHYS 461	Intermediate Electricity and Magnetism I	3 cr.
PHYS 462	Intermediate Electricity and Magnetism II	3 cr.
PHYS 475	Advanced Physics Laboratory	1-3 cr.

NOTE: Students must complete three credits of PHYS 475.

**Engineering (32 credits)**

CHME 102	Material Balances	3 cr.
CHME 201	Energy Balances	3 cr.
CHME 301	Chemical Engineering Thermodynamics I	3 cr.
CHME 302	Chemical Engineering Thermodynamics II	2 cr.
CHME 302 L	Thermodynamic Models of Physical Properties	1 cr. (3P)
CHME 305	Transport Operations I: Fluid Flow	3 cr.
CHME 306	Transport Operations II: Heat and Mass Transfer	4 cr.
CHME 307	Transport Operations III: Staged Operations	3 cr.



CHME 352 L	Simulation of Unit Operations	1 cr. (3P)
CHME 361	Engineering Materials	3 cr.
CHME 441	Chemical Kinetics and Reactor Engineering	3 cr.
ENGR 100	Introduction to Engineering	3 cr. (2+3P)

**CONCENTRATION: Electrical****General Education****State of New Mexico Common Core (37 credits)****Area I: Communications (10 credits)**

ENGL 111G	Rhetoric and Composition	4 cr.
	*Written Communications Elective	3 cr.
	*Oral Communications Elective	3 cr.

\*see the required courses section of the catalog for a full list of courses

**Area II: Mathematics (4 credits)**

MATH 191G	Calculus and Analytic Geometry I	4 cr.
-----------	----------------------------------	-------

**Area III: Natural Science (8 credits)**

PHYS 213	Mechanics	3 cr.
PHYS 213 L	Experimental Mechanics	1 cr. (3P)
PHYS 214	Electricity and Magnetism	3 cr.
PHYS 214 L	Electricity and Magnetism Laboratory	1 cr. (3P)

**Area IV: Social and Behavioral Sciences (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	*Economics, Political Science, Psychology, Sociology, and Anthropology electives	6-9 cr.
--	--	---------

\*see the required courses section of the catalog for a full list of courses

**Area V: Humanities and Fine Arts (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	History, Philosophy, Literature, Art, Music, Dance, Theater, or Foreign Language electives	6-9 cr.
--	--	---------

\*see the required courses section of the catalog for a full list of courses

**Institution Specific General Education (3 or 6 credits)**

	Viewing a Wider World Elective	3-6 cr.
--	--------------------------------	---------

\*see the required courses section of the catalog for a full list of courses. See Alternatives for Meeting WWW requirements (nine-credit rule).

**Program Specific Requirements (87-88 credits)****Mathematics (10 credits)**

MATH 192G	Calculus and Analytic Geometry II	4 cr.
MATH 291G	Calculus and Analytic Geometry III	3 cr.
MATH 392	Introduction to Ordinary Differential Equations	3 cr.

**Natural Science (4 credits)**

CHEM 111G	General Chemistry I	4 cr. (3+3P)
-----------	---------------------	-----------------

**Electives (9-10 credits)**

	Technical Elective and either	3 cr.
PHYS 461	Intermediate Electricity and Magnetism I and	3 cr.
PHYS 462	Intermediate Electricity and Magnetism II or	3 cr.
E E 310	Multivariate and Vector Calculus and	3 cr.
E E 351	Applied Electromagnetics	4 cr. (3+3P)

Technical elective: A list of approved technical electives is available from Engineering Physics Advisors.

**Physics (28 credits)**

PHYS 217	Heat, Light, and Sound	3 cr.
PHYS 217 L	Experimental Heat, Light and Sound	1 cr. (3P)
PHYS 315	Modern Physics	3 cr.
PHYS 315 L	Experimental Modern Physics	3 cr. (1+6P)
PHYS 395	Intermediate Mathematical Methods of Physics	3 cr.
PHYS 451	Intermediate Mechanics I	3 cr.
PHYS 454	Intermediate Modern Physics I	3 cr.
PHYS 455	Intermediate Modern Physics II	3 cr.
PHYS 475	Advanced Physics Laboratory	1-3 cr.
PHYS 480	Thermodynamics	3 cr.

NOTE: Students must complete three credits of PHYS 475.

**Engineering (36 credits)**

E E 161	Computer Aided Problem Solving	4 cr. (3+3P)
E E 162	Digital Circuit Design	4 cr. (3+3P)
E E 210	Introduction to Linear Algebra, Probability and Statistics	4 cr. (3+3P)
E E 260	Embedded Systems	4 cr. (3+3P)
E E 280	DC and AC Circuits	4 cr. (3+3P)
E E 312	Signals and Systems I	3 cr.
E E 380	Semiconductor Devices and Electronics	4 cr. (3+3P)
E E 418	Capstone Design I	3 cr. (1+6P)
E E 419	Capstone Design II	3 cr. (1+6P)
ENGR 100	Introduction to Engineering	3 cr. (2+3P)

**CONCENTRATION: Mechanical****General Education****State of New Mexico Common Core (37 credits)****Area I: Communications (10 credits)**

ENGL 111G	Rhetoric and Composition	4 cr.
	*Written Communications Elective	3 cr.
	*Oral Communications Elective	3 cr.

\*see the required courses section of the catalog for a full list of courses

**Area II: Mathematics (4 credits)**

MATH 191G	Calculus and Analytic Geometry I	4 cr.
-----------	----------------------------------	-------

**Area III: Natural Science (8 credits)**

PHYS 213	Mechanics	3 cr.
PHYS 213 L	Experimental Mechanics	1 cr. (3P)
PHYS 214	Electricity and Magnetism	3 cr.
PHYS 214 L	Electricity and Magnetism Laboratory	1 cr. (3P)

**Area IV: Social and Behavioral Sciences (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	*Economics, Political Science, Psychology, Sociology, and Anthropology electives	6-9 cr.
--	--	---------

\*see the required courses section of the catalog for a full list of courses

**Area V: Humanities and Fine Arts (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	History, Philosophy, Literature, Art, Music, Dance, Theater, or Foreign Language electives	6-9 cr.
--	--	---------

\*see the required courses section of the catalog for a full list of courses

**Institution Specific General Education (3 or 6 credits)**

	Viewing a Wider World Elective	3-6 cr.
--	--------------------------------	---------

\*see the required courses section of the catalog for a full list of courses. See Alternatives for Meeting VWW requirements (nine-credit rule).

**Program Specific Requirements (87 credits)****Mathematics (10 credits)**

MATH 192G	Calculus and Analytic Geometry II	4 cr.
MATH 291G	Calculus and Analytic Geometry III	3 cr.
MATH 392	Introduction to Ordinary Differential Equations	3 cr.

**Natural Science (4 credits)**

CHEM 111G	General Chemistry I	4 cr. (3+3P)
-----------	---------------------	-----------------

**Electives (6 credits)**

PHYS 451	Intermediate Mechanics I	3 cr.
	or	
M E 333	Intermediate Dynamics	3 cr.
	Technical Elective	3 cr.

**Physics (25 credits)**

PHYS 217	Heat, Light, and Sound	3 cr.
PHYS 217 L	Experimental Heat, Light and Sound	1 cr. (3P)
PHYS 315	Modern Physics	3 cr.
PHYS 315 L	Experimental Modern Physics	3 cr. (1+6P)
PHYS 395	Intermediate Mathematical Methods of Physics	3 cr.
PHYS 454	Intermediate Modern Physics I	3 cr.
PHYS 455	Intermediate Modern Physics II	3 cr.
PHYS 461	Intermediate Electricity and Magnetism I	3 cr.
PHYS 462	Intermediate Electricity and Magnetism II	3 cr.

**Engineering (42 credits)**

C E 233	Mechanics-Statics	3 cr.
C E 301	Mechanics of Materials	3 cr.
ENGR 100	Introduction to Engineering	3 cr. (2+3P)
M E 159	Graphical Communication and Design	2 cr. (1+3P)
M E 234	Mechanics-Dynamics	3 cr.
M E 240	Thermodynamics	3 cr.
M E 261	Mechanical Engineering Problem Solving	3 cr. (2+3P)
M E 326	Mechanical Design	3 cr.
M E 328	Engineering Analysis I	3 cr.
M E 338	Fluid Mechanics	3 cr.
M E 341	Heat Transfer	3 cr.
M E 425	Design of Machine Elements	3 cr.
M E 426	Design Project Laboratory I	3 cr. (6P)
M E 427	Design Project Laboratory II	3 cr. (6P)

## ENGINEERING TECHNOLOGY AND SURVEYING ENGINEERING

**Professor, Thomas Jenkins, department head**

**Professor, Lynn Kelly, associate department head**

**Associate Professor, Craig Ricketts, associate department head**

**Professors** Beasley, Cooper\*, Frank+, Hyde, Jenkins, Jiang\*, Kelly, Stevens\*;  
**Associate Professors** Ricketts, Sassenfeld, Wurm+; **Assistant Professors** Elaksher, Gamillo, Morrell, Nogales; **Emeritus Faculty** Alexander, Burkholder\*+, Cameron, Rico, Reilly+.

\*Registered Professional Engineer (NM)

+Licensed Professional Surveyor (NM)

phone: (575) 646-2236

website: <http://etse.nmsu.edu/>

Education opportunities offered by the Department of Engineering Technology and Survey Engineering (ETSE) place an emphasis on the practical application of engineering principles and methods, under the motto of "linking theory and application". ETSE graduates often go on to earn advanced degrees, but many typically begin careers upon graduation and can select from employment opportunities in a wide variety of fields, depending on their chosen degree. Within the College of Engineering, fully accredited four-year Bachelor of Science (BS) degrees are offered by this department in Engineering Technology program areas of Electronics and Computer (ET EC), Information (ET I), Mechanical (ET M), and Civil (ET C); as well as in Surveying Engineering (SE). A non-accredited Bachelor's degree is also offered via a two-year degree completion program which gives students having an Associate's degree the option to complete an Information and Communication Technology (ICT) BS degree completely on-line via a distance education format. The department also offers associate degree programs in the following Engineering Technology fields: Civil, Information, Electronics and Computer and Mechanical. There are also opportunities for students to concentrate in a particular area within their major or earn a Minor to complement their BS degree.

The mission of the ETSE Department is to offer students a quality education that "links theory and application" within the engineering technology programs and emphasizes engineering fundamentals in the SE program; toward providing students enhanced career choices and opportunities. The department's goals supporting this mission are: (1) to provide educational and social environments that promote and facilitate student learning; (2) to graduate students who are competent and sought after by industry; (3) to have a highly respected and visible department; and (4) to foster the development of the department.

Students transferring to NMSU may receive transfer credits or class waivers depending on completed courses and institutions. Articulation agreements exist for many New Mexico Community Colleges and represent a consensus framework for transfer of academic credit. The department requires that at least 21 credits specifically in the transfer student's program must be earned at the Las Cruces campus of NMSU – except for the ICT program. General degree requirements of the College of Engineering and the University apply to students in the ETSE Department.

**Requirements Related to Transfer of Academic Credit**

Students transferring to NMSU may receive transfer credit depending on completed courses and source institutions. Articulation agreements exist for many New Mexico Community Colleges and represent a framework for transfer of academic credit. General degree requirements of the college of engineering and the university also apply to ETSE department majors.

The following conditions and restrictions apply to any course in an ABET accredited major that is not to be completed on the NMSU main campus by a student already having official degree seeking status within the department.

The department head must approve the course prior to enrollment and the course must be offered by an ABET accredited program (exceptions may be made when existing articulation agreements with NMSU are relevant). In all cases, a corresponding course syllabus and any other supporting documentation are to be submitted, together with the student's written request, before the course will be considered for transfer credit approval.

To qualify for approval, the technical content and rigor must also be substantially the same as the equivalent NMSU course and the student must have satisfied all relevant university prerequisite requirements. If program co- and prerequisite requirements are not met, transfer credit will not be approved.

No credit for on-line courses of another institution may be substituted to meet departmental core curriculum requirements.

**Academic Performance Requirements**

In addition to university and college of engineering specific requirements, as outlined in the General Information and college of engineering sections, departmental majors are expected to maintain a status of academic good standing and to complete degree requirements in a timely manner.

Courses in engineering, technology, math and science (and their respective pre- and corequisites) must be completed with a minimum grade of C- to be counted toward the fulfillment of degree requirements. This also includes all courses in the NM General Education Common Core Areas I, II, and III. If a grade lower than C- is earned in one of the above noted courses, the student will be required to retake that course during the first subsequent semester in which it is offered.

An ETSE student may attempt to complete core curriculum courses no more than three times for outcomes involving D or F letter grades. After this specified number of attempts without a passing grade of C- or better, the student will be prohibited from enrolling in any course offered within the college of engineering for a minimum period of one year; after which they may appeal to the college and department for re-admission into the program. Any credit earned outside the college during a period of academic suspension will not qualify for subsequent transfer credit toward core course degree requirements. Refer to the section of the catalog for university academic probation policies.

**Requirements for Graduation**

The completion of ETSE undergraduate degrees are contingent upon fulfillment of (1) university requirements as outlined in relevant sections of this catalog, (2) policy expectations as outlined under college General Requirements, and (3) departmental requirements, as outlined above and within the individual program descriptions of this catalog.

**DEGREE: BACHELOR OF INFORMATION AND COMMUNICATION TECHNOLOGY****MAJOR: INFORMATION AND COMMUNICATION TECHNOLOGY****REQUIREMENTS (128 CREDITS)****Preparatory (80 credits)**

As a completion program, entering students are expected to have completed two years of college-level work and satisfied the following requirements. Those who have not must do so.

**General Education (43 credits)****State of New Mexico Common Core (35 credits)****Area I: Communications (10 credits)**

	English Composition	4 cr.
	*Written Communications Elective	3 cr.
	*Oral Communications Elective	3 cr.

*\*see the required courses section of the catalog for a full list of courses.*

**Area II: Mathematics (3 credits)**

	College Algebra	3 cr.
--	-----------------	-------

**Area III: Laboratory Science (8 credits)**

	Laboratory Science Electives	8 cr.
--	------------------------------	-------

*\*see the required courses section of the catalog for a full list of courses.*

**Area IV: Social and Behavioral Sciences (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	Anthropology, Economics, Political Science, Psychology, and Sociology electives	6-9 cr.
--	---	---------

*\*see the required courses section of the catalog for a full list of courses.*

**Area V: Humanities and Fine Arts (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	History, Philosophy, Literature, Art, Music, Dance, Theater, and Religion electives	6-9 cr.
--	---	---------

*\*see the required courses section of the catalog for a full list of courses.*

**Miscellaneous (6 credits)**

	Object Oriented Programming	3 cr.
	Computation and Presentation Software or Microsoft Office	3 cr.
	PC Maintenance	3 cr.

**Electives (36 credits)**

	(Typically content courses from an A S or AAS)	36 cr.
--	--	--------

**Program Specific Requirements (48 credits)****Institution Specific General Education (6 credits)**

	Viewing a Wider World Electives	6 cr.
--	---------------------------------	-------

*\*see the required courses section of the catalog for a full list of courses.*

**Information and Communication Technology (42 Credits)**

ICT 320	Applications Software for Technologists	3 cr.
ICT 339	Introduction to Digital Forensics and Incident Response	3 cr.
ICT 360	Operating Systems for ICT	3 cr.
ICT 362	Software Technology II	3 cr.
ICT 364	Windows Server Administration	3 cr.
ICT 377	Computer Networking I	3 cr.
ICT 435	Senior Project	3 cr.
ICT 450	Ethical Hacking	3 cr.
ICT 457	Introduction to Information Security Technology	3 cr.
ICT 458	Database Design and Applications	3 cr.
ICT 460	Web Technologies and Multimedia	3 cr.
ICT 462	Remote Access Operating Systems with Linux/Unix	3 cr.
ICT 463	Computer Systems Administration	3 cr.
ICT 477	Computer Networking II	3 cr.

**Information and Communication Technology**

Information and Communication Technology is a distance education degree completion program. The program focuses on the knowledge and experience that is required to design, implement and manage a variety of information systems.

The curriculum includes the study of computer hardware, application and operating systems software, system integration, database design and management, networking and network security. Graduates of the program can expect to enter the workforce with titles that include Information Technologist, Systems or Network Administrator, Project Manager, Database Administrator and Computer Support Specialist.

The program is designed to be an educational path to the baccalaureate degree for graduates of computer and technology-related associate degree programs from community colleges or other two-year institutions. It is also a viable degree path for students who have completed the freshmen and sophomore years of computer or technology-related programs at four-year institutions including New Mexico State University.

The ICT program is a distance education program and does not require any on-campus visits. Students who are successful in distance education programs typically are self-motivated, do not rely heavily on face-to-face instruction, work independently, and can remain on schedule. Students must have familiarity with, and access to:

- a high speed Internet connection
- a sound card, and
- a microphone.

This program was not designed to be an engineering or engineering technology program, although there is significant overlap with one of the engineering technology programs (ET I) offered by the department. Thus, the Information and Communication Technology Program differs from all other baccalaureate programs offered by departments in the College of Engineering in that it is **not** accredited by ABET Inc., the accrediting entity for academic programs in engineering and technology. However, the ICT program is accredited under New Mexico State University's umbrella accreditation by the Higher Learning Commission of the North Central Association of Colleges and Schools.

**DEGREE: BACHELOR OF SCIENCE IN ENGINEERING TECHNOLOGY****MAJOR: ENGINEERING TECHNOLOGY - CIVIL**

Accredited by the Engineering Technology Accreditation Commission of the ABET, Inc.

**REQUIREMENTS (128 CREDITS)****General Education (43 Credits)****State of New Mexico Common Core (37 credits)****Area I: Communications (10 credits)**

ENGL 111G	Rhetoric and Composition	4 cr.
	*Written Communications Elective	3 cr.
	*Oral Communications Elective	3 cr.

\*see the required courses section of the catalog for a full list of courses. Written Communications elective: ENGL 218G Recommended; Oral Communications Elective : COMM 265 Recommended

**Area II: Mathematics (4 credits)**

MATH 190G	Trigonometry and Precalculus	4 cr. (3+2P)
-----------	------------------------------	-----------------

**Area III: Laboratory Science (8 credits)**

CHEM 110G	Principles and Applications of Chemistry	4 cr. (3+3P)
PHYS 211G	General Physics I	3 cr.
PHYS 211GL	General Physics I Laboratory	1 cr.

**Area IV: Social and Behavioral Sciences (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	Anthropology, Economics, Political Science, Psychology, and Sociology electives	6-9 cr.
--	---	---------

\*see the required courses section of the catalog for a full list of courses

**Area V: Humanities and Fine Arts (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	History, Philosophy, Literature, Art, Music, Dance, or Theater electives	6-9 cr.
--	--	---------

\*see the required courses section of the catalog for a full list of courses

**Institution Specific General Education (6 credits)**

	Viewing a Wider World Electives	6 cr.
--	---------------------------------	-------

\*see the required courses section of the catalog for a full list of courses

**Program Specific Requirements (85 credits)****Mathematics (6 credits)**

MATH 235	Calculus for the Technical Student I	3 cr.
MATH 236	Calculus for the Technical Student II	3 cr.

**Natural Science (3 credits)**

PHYS 212G	General Physics II	3 cr.
E T 190	Applied Circuits	4 cr. (3+2P)
E E 201	Electric Circuit Analysis	3 cr.

**Technical (30 credits)**

A ST 311	Statistical Applications	3 cr.
ENGR 100	Introduction to Engineering	3 cr. (2+3P)
I E 451	Engineering Economy	3 cr.
DRFT 109	Computer Drafting Fundamentals	3 cr. (2+2P)
DRFT 143	Civil Drafting Fundamentals	3 cr. (2+2P)
SUR 222	Plane Surveying	3 cr. (2+3P)
	Surveying Elective	3 cr.
	Technical Electives	9 cr.

**Engineering Technology (45 credits)**

E T 154	Construction Methods and Communications	3 cr.
E T 240	Applied Statics	3 cr.
E T 241	Applied Dynamics	3 cr.
E T 254	Concrete Technology	3 cr. (2+2P)
E T 308	Fluid Technology	3 cr.
E T 308 L	Fluid Technology Lab	1 cr. (3P)
E T 310	Applied Strength of Materials	3 cr.
E T 310 L	Applied Strength of Materials Lab	1 cr. (3P)
E T 332	Applied Design of Structures I	4 cr. (3+3P)
E T 354	Soil and Foundation Technology	4 cr. (3+3P)
E T 355	Site/Land Development and Layout	3 cr.
E T 410	Senior Seminar	1 cr.
E T 412	Highway Technology	3 cr.
E T 418	Applied Hydraulics	3 cr.
E T 420	Senior Internship	1-6 cr.
E T 421	Senior Project	3 cr.
E T 432	Applied Design of Structures II	4 cr. (3+3P)

**CONCENTRATION: Construction Technology**

Students can fulfill the Construction Technology Concentration requirements by choosing four courses from below that also meet the technical and surveying elective requirements of the ET C major.

**Technical and Surveying Elective Requirements****Three required courses:**

E T 454	Advanced Construction Technology	3 cr.
E T 455	Cost Estimating and Scheduling	3 cr.
SUR 328	Principles and Practices of Construction Surveying	3 cr. (2+3P)

**Select one course from the following:**

MGT 453	Leadership and Motivation	3 cr.
MGT 454	Work Teams in Organizations	3 cr.
MGT 461	New Venture Creation	3 cr.

**CONCENTRATION: Renewable Energy Technologies**

Students can fulfill the Renewable Energy Technologies Concentration requirements by choosing four courses from below that also meet the technical and surveying elective requirements of the ET C major.

**Technical and Survey Elective Requirements**

E T 381	Renewable Energy Technologies	3 cr.
E T 382	Solar Energy Technologies	3 cr. (2+3P)
	or	
E T 384	Wind and Water Energy Technologies	3 cr.
E T 386	Sustainable Construction and Green Building Design	3 cr.
SUR 328	Principles and Practices of Construction Surveying	3 cr. (2+3P)

**CONCENTRATION: Transportation Technology**

Students can fulfill the Transportation Technology Concentration requirements by choosing the four courses from below that also meet the technical and surveying elective requirements of the ET C major.

**Technical and Survey Elective Requirements**

C E 479	Pavement Analysis and Design	3 cr.
E T 455	Cost Estimating and Scheduling	3 cr.
E T 472	Intelligent Transportation Systems (ITS)	3 cr.
SUR 328	Principles and Practices of Construction	3 cr.

	Surveying	(2+3P)
--	-----------	--------

**CONCENTRATION: Water/Wastewater Technology**

Students can fulfill the Water/Wastewater Technology Concentration requirements by choosing four courses from below that also meet the technical and surveying elective requirements of the ET C major.

**Technical and Survey Elective Requirements**

C E 256	Environmental Engineering and Science	3 cr.
C E 356	Fundamentals of Environmental Engineering	3 cr.
ENVE 455	Solid and Hazardous Waste Systems Design	3 cr.
	or	
ENVE 456	Environmental Engineering Design	3 cr. (2+3P)
SUR 328	Principles and Practices of Construction Surveying	3 cr. (2+3P)

**MAJOR: ENGINEERING TECHNOLOGY - ELECTRONICS AND COMPUTER**

Accredited by the Engineering Technology Accreditation Commission of the ABET, Inc.

**REQUIREMENTS (TOTAL CREDITS 128)****General Education (43 Credits)****State of New Mexico Common Core (37 credits)****Area I: Communications (10 credits)**

ENGL 111G	Rhetoric and Composition	4 cr.
	*Written Communications Elective	3 cr.
	*Oral Communications Elective	3 cr.

\*see the required courses section of the catalog for a full list of courses. Written Communications elective: ENGL 218G Recommended; Oral Communications Elective :COMM 265 Recommended

**Area II: Mathematics (4 credits)**

MATH 190G	Trigonometry and Precalculus	4 cr. (3+2P)
-----------	------------------------------	-----------------

**Area III: Laboratory Science (8 credits)**

PHYS 211G	General Physics I	3 cr.
PHYS 211GL	General Physics I Laboratory	1 cr.
PHYS 212G	General Physics II	3 cr.
PHYS 212GL	General Physics II Laboratory	1 cr.

**Area IV: Social and Behavioral Sciences (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	Anthropology, Economics, Political Science, Psychology, and Sociology electives	6-9 cr.
--	---	---------

\*see the required courses section of the catalog for a full list of courses

**Area V: Humanities and Fine Arts (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	History, Philosophy, Literature, Art, Music, Dance, or Theater electives	6-9 cr.
--	--	---------

\*see the required courses section of the catalog for a full list of courses

**Institution Specific General Education (6 credits)**

	Viewing a Wider World Electives	6 cr.
--	---------------------------------	-------

\*see the required courses section of the catalog for a full list of courses

**Program Specific Requirements (85 credits)****Mathematics (6 credits)**

MATH 235	Calculus for the Technical Student I	3 cr.
MATH 236	Calculus for the Technical Student II	3 cr.

**Natural Science (4 credits)**

	Laboratory Science Elective	4
--	-----------------------------	---

\*see the required courses section of the catalog for a full list of courses. CHEM 110G Recommended

**Technical (18 credits)**

A ST 311	Statistical Applications	3 cr.
ENGR 100	Introduction to Engineering	3 cr. (2+3P)
I E 451	Engineering Economy	3 cr.
	Technical Electives	9 cr.

**Engineering Technology (57 credits)**

E T 182	Digital Logic	3 cr.
E T 190	Applied Circuits	4 cr. (3+2P)
E T 246	Electronic Devices I	4 cr. (3+3P)
E T 262	Software Technology I	3 cr. (2+2P)
E T 272	Electronic Devices II	4 cr. (3+3P)
E T 282	Digital Electronics	4 cr. (3+3P)
E T 314	Communications Systems I	3 cr.
E T 324	Signal Processing and Filtering	4 cr. (3+3P)
E T 344	Microcomputer Systems	3 cr. (2+3P)
E T 362	Software Technology II	3 cr.
E T 377	Computer Networking I	3 cr. (2+2P)
E T 381	Renewable Energy Technologies	3 cr.
E T 398	Digital Systems	3 cr. (2+3P)
E T 402	Instrumentation	3 cr. (2+3P)
E T 410	Senior Seminar	1 cr.
E T 435	Senior Project	3 cr. (2+3P)
E T 444	Hardware and Software Senior Design	3 cr. (2+3P)
E T 456	Applied Power Technologies	4 cr. (3+3P)

**CONCENTRATION-Renewable-Energy-Technologies**

Students can fulfill the requirements for the Renewable Energy Technologies concentration within the ET EC majors by judicious selection of the three required technical electives. The selection of these electives will not require any additional credits beyond those of the major.

**Requirements****Select three courses from the following:**

CHME 466	Fuel Cell and Hydrogen Technology	3 cr.
E T 365	Building Utilities	3 cr. (2+3P)
E T 382	Solar Energy Technologies	3 cr. (2+3P)
E T 384	Wind and Water Energy Technologies	3 cr.
E T 401	Heating and Air-Conditioning Systems	3 cr.

**Select one course from the following:**

E T 420	Senior Internship	1-6 cr.
	or	
E T 435	Senior Project	3 cr. (2+3P)

Senior Internship must be carried out within a renewable energy field. Senior Project must be related to a renewable energy application.

**MAJOR: ENGINEERING TECHNOLOGY - INFORMATION**

Accredited by the Engineering Technology Accreditation Commission of ABET Inc.

**REQUIREMENTS (128 CREDITS)****General Education (43 credits)****State of New Mexico Common Core (37 credits)****Area I: Communications (10 credits)**

ENGL 111G	Rhetoric and Composition	4 cr.
	*Written Communications Elective	3 cr.
	*Oral Communications Elective	3 cr.

\*see the required courses section of the catalog for a full list of courses. Written Communications elective: Recommended: ENGL 218G Recommended; Oral Communications Elective: COMM 265 Recommended

**Area II: Mathematics (4 credits)**

MATH 190G	Trigonometry and Precalculus	4 cr. (3+2P)
-----------	------------------------------	-----------------

**Area III: Laboratory Science (8 credits)**

	Biology, Chemistry, or Physics electives (w/Lab)	8 cr.
--	--	-------

\*see the required courses section of the catalog for a full list of courses

**Area IV: Social and Behavioral Sciences (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	Anthropology, Economics, Political Science, Psychology, and Sociology electives	6-9 cr.
--	---	---------

\*see the required courses section of the catalog for a full list of courses

**Area V: Humanities and Fine Arts (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	History, Philosophy, Literature, Art, Music, Dance, or Theater electives	6-9 cr.
--	--	---------

\*see the required courses section of the catalog for a full list of courses

**Institution Specific General Education (6 credits)**

	Viewing a Wider World Electives	6 cr.
--	---------------------------------	-------

\*see the required courses section of the catalog for a full list of courses

**Program Specific Requirements (86 credits)****Mathematics (6 credits)**

MATH 235	Calculus for the Technical Student I	3 cr.
MATH 236	Calculus for the Technical Student II	3 cr.

**Technical (24 credits)**

A ST 311	Statistical Applications	3 cr.
BCIS 350	Information Systems Analysis and Design	3 cr.
ENGR 100	Introduction to Engineering	3 cr. (2+3P)
	Business Elective	3 cr.
	Management Elective	3 cr.
	Technical Electives	9 cr.

**Engineering Technology (55 credits)**

ET 182	Digital Logic	3 cr.
ET 160	Basic Computer Operating Systems	3 cr.
ET 200	Special Topics	1-3 cr.
ET 245	Computer Hardware Fundamentals	3 cr. (2+2P)
ET 255	Linux System Administration	3 cr.
ET 262	Software Technology I	3 cr. (2+2P)
ET 277	Computer Networking I for IET	3 cr. (2+2P)
ET 339	Introduction to Digital Forensics and Incident Response	3 cr. (2+3P)
ET 344	Microcomputer Systems	3 cr. (2+3P)

ET 362	Software Technology II	3 cr.
ET 410	Senior Seminar	1 cr.
ET 435	Senior Project	3 cr. (2+3P)
ET 439	Advanced Digital Forensics and Incident Response	3 cr.
ET 457	Information Security	3 cr.
	or	
BCIS 480	E-Commerce Security	3 cr.
ET 458	Database Technology for Engineering	3 cr.
ET 462	Web Technologies and Multimedia	3 cr.
ET 463	Advanced Linux and Python Scripting	3 cr.
ET 464	Advanced Windows Server Administration	3 cr.
ET 477	Computer Networking II	3 cr.

ET 200: must be taken for 3 credits, see advisor for topic area

**MAJOR: ENGINEERING TECHNOLOGY - MECHANICAL**

Accredited by the Engineering Technology Accreditation Commission of ABET, Inc.

**REQUIREMENTS (128 CREDITS)****General Education (43 Credits)****State of New Mexico Common Core (37 credits)****Area I: Communications (10 credits)**

ENGL 111G	Rhetoric and Composition	4 cr.
	*Written Communications Elective	3 cr.
	*Oral Communications Elective	3 cr.

\*see the required courses section of the catalog for a full list of courses; Written Communications elective: ENGL 218G Recommended; Oral Communications elective: COMM 265G Recommended

**Area II: Mathematics (4 credits)**

MATH 190G	Trigonometry and Precalculus	4 cr. (3+2P)
-----------	------------------------------	-----------------

**Area III: Laboratory Science (8 credits)**

CHEM 110G	Principles and Applications of Chemistry	4 cr. (3+3P)
PHYS 211G	General Physics I	3 cr.
PHYS 211GL	General Physics I Laboratory	1 cr.

**Area IV: Social and Behavioral Sciences (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	Anthropology, Economics, Political Science, Psychology, and Sociology electives	6-9 cr.
--	---	---------

\*see the required courses section of the catalog for a full list of courses

**Area V: Humanities and Fine Arts (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	History, Philosophy, Literature, Art, Music, Dance, or Theater electives	6-9 cr.
--	--	---------

\*see the required courses section of the catalog for a full list of courses

**Institution Specific General Education (6 credits)**

	Viewing a Wider World Electives	6 cr.
--	---------------------------------	-------

\*see the required courses section of the catalog for a full list of courses

**Program Specific Requirements (85 credits)****Mathematics (6 credits)**

MATH 235	Calculus for the Technical Student I	3 cr.
MATH 236	Calculus for the Technical Student II	3 cr.

**Natural Science (4 credits)**

PHYS 212G	General Physics II	3 cr.
PHYS 212GL	General Physics II Laboratory	1 cr.

**Technical (21 credits)**

A ST 311	Statistical Applications	3 cr.
ENGR 100	Introduction to Engineering	3 cr. (2+3P)
I E 451	Engineering Economy	3 cr.
	Technical Electives	9 cr.
	and	
	MGT 300+ course*	3 cr.
	or	
	300+ Business Elective	3 cr.
	or	
	MKTG 300+ course*	3 cr.
	or	
	MATH elective (upper division)	3 cr.

**Engineering Technology (54 credits)**

ET 110	Introduction to Computer-Aided Drafting and Design	3 cr.
ET 182	Digital Logic	3 cr.
ET 190	Applied Circuits	4 cr. (3+2P)
ET 210	Computer-Aided Design	2 cr. (1+3P)
ET 217	Manufacturing Processes	3 cr.
ET 240	Applied Statics	3 cr.
ET 241	Applied Dynamics	3 cr.
ET 262	Software Technology I	3 cr. (2+2P)
ET 305	Design for Manufacturing	3 cr. (2+3P)
ET 306	Fundamental and Applied Thermodynamics	3 cr.
ET 306 L	Thermodynamics Lab	1 cr.
ET 308	Fluid Technology	3 cr.
ET 308 L	Fluid Technology Lab	1 cr. (3P)
ET 310	Applied Strength of Materials	3 cr.
ET 310 L	Applied Strength of Materials Lab	1 cr. (3P)
ET 328	Kinematics of Machines	3 cr. (2+3P)
ET 396	Heat Transfer and Applications	3 cr. (2+3P)
ET 410	Senior Seminar	1 cr.
ET 422	Mechanical Measurements	3 cr. (2+3P)
	or	
ET 402	Instrumentation	3 cr. (2+3P)
ET 426	Analysis/Design of Machine Elements	3 cr. (2+3P)
ET 435	Senior Project	3 cr. (2+3P)

ET 110, ET 182, ET 190, ET 210, ET 262, ET 305, ET 328, ET 396, ET 402, ET 422, ET 426, and ET 435: Courses with built-in laboratory component.

**Additionally, it is strongly recommended that students select from the following elective courses as noted:**

**Social and Behavioral Science Elective**

ECON 251G	Principles of Macroeconomics	3 cr.
	or	
ECON 252G	Principles of Microeconomics	3 cr.

**Viewing a Wider World Elective I**

Select one Business Administration, Business Law, Finance or Management course

**Viewing a Wider World Elective II****College of Agriculture**

**One course from the following four alternatives:**

AG E 337V	Natural Resource Economics	3 cr.
EPWS 380V	Ecosystem Earth: The Impact of Human Activities	3 cr.

**College of Arts and Sciences**

PHYS 303V	Energy and Society in the New Millennium	3 cr.
HIST 302V	Science in Modern Society	3 cr.

**RECOMMENDED FRESHMAN YEAR****Course Sequence (34 credits)**

CHEM 110G	Principles and Applications of Chemistry	4 cr. (3+3P)
ET 110	Introduction to Computer-Aided Drafting and Design	3 cr.
ET 182	Digital Logic	3 cr.
ET 190	Applied Circuits	4 cr. (3+2P)
ET 210	Computer-Aided Design	2 cr. (1+3P)
ENGL 111G	Rhetoric and Composition	4 cr.
ENGR 100	Introduction to Engineering	3 cr. (2+3P)
MATH 190G	Trigonometry and Precalculus	4 cr. (3+2P)
PHYS 211G	General Physics I	3 cr.
PHYS 211GL	General Physics I Laboratory	1 cr.
	Humanities & Fine Arts Elective	3 cr.

**CONCENTRATION: Renewable Energy Technologies**

Students can fulfill the requirements for the Renewable Energy Technologies concentration within the ET M majors by judicious selection of the three required technical electives. The selection of these electives will not require any additional credits beyond those of the major.

**Requirements**

Required course

ET 381	Renewable Energy Technologies	3 cr.
--------	-------------------------------	-------

**Select two courses from the following:**

CHME 466	Fuel Cell and Hydrogen Technology	3 cr.
ET 365	Building Utilities	3 cr. (2+3P)
ET 382	Solar Energy Technologies	3 cr. (2+3P)
ET 384	Wind and Water Energy Technologies	3 cr.
ET 401	Heating and Air-Conditioning Systems	3 cr.

**Select one course from the following:**

ET 420	Senior Internship	1-6 cr.
	or	
ET 435	Senior Project	3 cr. (2+3P)

Senior Internship must be completed within a field of renewable energy field.

Capstone Design Project must be related to a renewable energy application.

**DEGREE: BACHELOR OF SCIENCE IN SURVEYING ENGINEERING  
MAJOR: SURVEYING ENGINEERING****REQUIREMENTS (127 CREDITS)**

Students must take the Fundamentals of Surveying examination prior to graduation.

**General Education (40 Credits)****State of New Mexico Common Core (37 credits)****Area I: Communications (10 credits)**

ENGL 111G	Rhetoric and Composition	4 cr.
	*Written Communications Elective	3 cr.
	*Oral Communications Elective	3 cr.

*\*see the required courses section of the catalog for a full list of courses; Written Communications elective: ENGL 218G Recommended; Oral Communications elective: COMM 265G Recommended*

**Area II: Mathematics (4 credits)**

MATH 191G	Calculus and Analytic Geometry I	4 cr.
-----------	----------------------------------	-------

**Area III: Laboratory Science (8 credits)**

GEOL 111G	Survey of Geology	4 cr. (3+3P)
PHYS 215G	Engineering Physics I	3 cr.
PHYS 215GL	Engineering Physics I Laboratory	1 cr. (3P)

**Area IV: Social and Behavioral Sciences (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	Anthropology, Economics, Political Science, Psychology, and Sociology electives	6-9 cr.
--	---	---------

*\*see the required courses section of the catalog for a full list of courses*

**Area V: Humanities and Fine Arts (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	History, Philosophy, Literature, Art, Music, Dance, or Theater electives	6-9 cr.
--	--	---------

*\*see the required courses section of the catalog for a full list of courses*

**Institution Specific General Education (6 credits)**

	Viewing a Wider World Electives	6 cr.
--	---------------------------------	-------

*\*see the required courses section of the catalog for a full list of courses*

**Program Specific Requirements (87 credits)****Mathematics (10 credits)**

MATH 192G	Calculus and Analytic Geometry II	4 cr.
MATH 280	Introduction to Linear Algebra	3 cr.
	or	
MATH 480	Matrix Theory and Applied Linear Algebra	3 cr.
STAT 371	Statistics for Engineers and Scientists I	3 cr.

**Natural Science (4 credits)****One course from the following**

PHYS 216G	Engineering Physics II	3 cr.
	and	
PHYS 216GL	Engineering Physics II Laboratory	1 cr. (3P)
	or	
PHYS 214	Electricity and Magnetism	3 cr.
	and	
PHYS 214 L	Electricity and Magnetism Laboratory	1 cr. (3P)
	or	
PHYS 217	Heat, Light, and Sound	3 cr.
	and	
PHYS 217 L	Experimental Heat, Light and Sound	1 cr. (3P)

**Technical (12 credits)**

C E 450	Engineering Economy and Law	3 cr.
---------	-----------------------------	-------

C S 187	Java Programming	3 cr. (2+2P)
	or	
E T 262	Software Technology I	3 cr. (2+2P)
DRFT 109	Computer Drafting Fundamentals	3 cr. (2+2P)
DRFT 153	Survey Drafting Applications	3 cr. (2+2P)

**Other (9 credits)**

BLAW 316	Legal Environment of Business	3 cr.
	Mathematics and/or Natural Science electives	6 cr.

**Surveying Engineering (52 credits)**

ENGR 100	Introduction to Engineering	3 cr. (2+3P)
SUR 222	Plane Surveying	3 cr. (2+3P)
SUR 264	Introduction to LIS	3 cr. (2+3P)
SUR 285	Photogrammetry	3 cr. (2+3P)
SUR 292	Public Land Survey System Boundaries	3 cr. (2+3P)
SUR 312	Legal Principles of Boundary Surveying	3 cr.
SUR 328	Principles and Practices of Construction Surveying	3 cr. (2+3P)
SUR 330	Computer Applications of Surveying	3 cr. (2+3P)
SUR 351	Introductory Survey Measurements, Analysis, and Adjustments	3 cr.
SUR 361	Introduction to Geodesy	3 cr. (2+3P)
SUR 370	Control Surveying	3 cr. (2+3P)
SUR 401	Ethics and Professionalism in Surveying and Mapping	3 cr.
SUR 412	Advanced Topics in Boundary Surveying	3 cr. (2+3P)
SUR 450	Senior Project	1 cr.
SUR 451	Advanced Survey Measurements, Analysis, and Adjustments	3 cr. (2+3P)
SUR 452	Land Development Design	3 cr. (2+3P)
SUR 461	Introduction to Satellite Geodesy	3 cr. (2+3P)
SUR 464	Land Information Systems Applications	3 cr. (2+3P)

**Surveying Engineering**

Surveying Engineering involves the application of knowledge to the analysis, design and execution of surveying and mapping projects as well as the design of land mapping and information systems. When performing this work, surveyors must have an understanding of: the science of surveying measurement and analysis; the legal principles of boundary location; the laws related to boundaries and land use; and applicable mathematical and computational theories and principles. Professional surveying is made up of positional accuracy, land planning and development concepts pertinent to subdivision science. Surveying engineers work for private surveying or engineering firms, for City, County, State or Federal Highway Departments, for State Lands Commissions, for the US Forest Service and for the US Bureau of Land Management.

The mission of the Department of Engineering Technology and Surveying Engineering is to provide men and women with the rigorous, fundamental education needed to enter and succeed in the surveying and surveying-related professions.



To accomplish this mission, the department will introduce students to the theory and application of recognized surveying principles.

### MINOR: DIGITAL ELECTRONIC APPLICATIONS

#### REQUIREMENTS (19 CREDITS)

A grade of C- (or better) is required in each class. No courses may be taken S/U. All prerequisites must be met before enrolling in a class. Engineering Technology students can meet most of the requirements for this minor by judicious selection of their technical electives.

#### Required Courses

ET 182	Digital Logic	3 cr.
ET 282	Digital Electronics	4 cr. (3+3P)
ET 362	Software Technology II	3 cr.
ET 344	Microcomputer Systems	3 cr. (2+3P)
ET 398	Digital Systems	3 cr. (2+3P)
ET 444	Hardware and Software Senior Design	3 cr. (2+3P)

### MINOR: INFORMATION TECHNOLOGIES

#### REQUIREMENTS (18 CREDITS)

A grade of C- (or better) is required in each class. No courses may be taken S/U. All prerequisites must be met before enrolling in a class. Engineering Technology students can meet most of the requirements for this minor by judicious selection of their electives.

#### Required Courses

BCIS 350	Information Systems Analysis and Design	3 cr.
ET 339	Introduction to Digital Forensics and Incident Response	3 cr. (2+3P)
ET 362	Software Technology II	3 cr.
	or	
BCIS 322	Advanced Object-Oriented Programming	3 cr.
ET 377	Computer Networking I	3 cr. (2+2P)

Choose one (1) of the following three paths for the additional 6 credits

#### Path 1

BCIS 480	E-Commerce Security	3 cr.
ET 477	Computer Networking II	3 cr.

#### Path 2

BCIS 450	Systems Design, Development and Implementation	3 cr.
	or	
BCIS 475	Database Management Systems	3 cr.
ET 458	Database Technology for Engineering	3 cr.

#### Path 3

ET 463	Advanced Linux and Python Scripting	3 cr.
ET 457	Information Security	3 cr.
	or	
BCIS 482	Management of Information Security	3 cr.

### MINOR: MANUFACTURING

#### REQUIREMENTS (18 CREDITS)

A grade of C- or better is required in each class and no courses may be taken S/U. All prerequisites must be met before enrolling in a course. Engineering Technology students can meet most of the requirements for this minor by judicious selection of their electives.

Select one manufacturing course with accompanying/embedded lab from the following:

ET 217	Manufacturing Processes	3 cr.
ET 217 L	Manufacturing Processes Lab	1 cr. (3P)
	or	
I E 217	Manufacturing Processes	2 cr.
I E 217 L	Manufacturing Processes Laboratory	1 cr. (3P)
	or	
M E 222	Introduction to Product Development	3 cr. (2+3P)

Select one course from the following:

MGT 335V	Business and Government	3 cr.
	or	
MGT 344	Production and Operations Management	3 cr.
	or	
MGT 345V	Quality and Competitiveness: An International Perspective	3 cr.

Select four courses from the following:

ET 317	Manufacturing Technology	3 cr.
ET 415	Manufacturing Management and Productivity	3 cr.
ET 480	Innovation and Product Development	3 cr.
ET 482	Advance Modeling and Design	3 cr. (2+2P)
I E 365	Quality Control	3 cr.

### MINOR: RENEWABLE ENERGY TECHNOLOGIES

#### REQUIREMENTS (18 CREDITS)

A grade of C- or better is required in each class and no courses may be taken S/U. All prerequisites must be met before enrolling in a class. Engineering Technology students can meet most of the requirements for this minor by judicious selection of their electives.

Nine credits from the following:

ET 381	Renewable Energy Technologies	3 cr.
ET 382	Solar Energy Technologies	3 cr. (2+3P)
ET 384	Wind and Water Energy Technologies	3 cr.
ET 386	Sustainable Construction and Green Building Design	3 cr.

Six credits from the following:

C E 256	Environmental Engineering and Science	3 cr.
C E 356	Fundamentals of Environmental Engineering	3 cr.
C E 498	Special Topics	1-3 cr.
CHME 466	Fuel Cell and Hydrogen Technology	3 cr.
CHME 486	Biofuels	3 cr.
ET 365	Building Utilities	3 cr. (2+3P)
ET 396	Heat Transfer and Applications	3 cr. (2+3P)
	or	
M E 341	Heat Transfer	3 cr.
ET 456	Applied Power Technologies	4 cr. (3+3P)
ET 401	Heating and Air-Conditioning Systems	3 cr.
I E 490	Selected Topics	1-3 cr.

Students may only take one class from the following choices

ET 420	Senior Internship	1-6 cr.
ET 435	Senior Project	3 cr. (2+3P)
ET 440	Senior Design	2 cr. (1+2P)

ET 441	Senior Project	2 cr. (1+2P)
WERC 300	Introduction to Pollution Prevention and Its Application	3 cr.

*ET 420 or ET 435: must be related to a renewable energy field and approved by faculty advisor)*

### Three credits from the following:

*Note: if the selected class is outside the student's college it may also satisfy a Viewing a Wider World requirement:*

AEEC 590	Special Topics	3 cr.
AG E 337V	Natural Resource Economics	3 cr.
AG E 420	Special Problems	1-3 cr.
C E 330	Environmental Management Seminar I	1 cr.
ET 360V	Technology in Business and Society	3 cr. (2+2P)
ECON 337V	Natural Resource Economics	3 cr.
ECON 384V	Water Resource Economics	3 cr.
EPWS 380V	Ecosystem Earth: The Impact of Human Activities	3 cr.
HIST 302V	Science in Modern Society	3 cr.
HON 378V	Technology and Policy	3 cr.
PHYS 303V	Energy and Society in the New Millennium	3 cr.

### MINOR: SECURITY TECHNOLOGY

#### REQUIREMENTS (18 CREDITS)

A grade of C- or better is required in each class and no courses may be taken S/U. All prerequisites must be met before enrolling in a class.

#### Choose six courses for a total of 18 credits required:

ET 339	Introduction to Digital Forensics and Incident Response	3 cr. (2+3P)
ET 439	Advanced Digital Forensics and Incident Response	3 cr.
ET 457	Information Security	3 cr.
C S 478	Computer Security	3 cr.
BCIS 482	Management of Information Security	3 cr.

#### One elective course from the following:

ICT 457	Introduction to Information Security Technology	3 cr.
C J 321	Criminal Investigation and Intelligence	3 cr.
BCIS 480	E-Commerce Security	3 cr.

### MINOR: SURVEYING ENGINEERING

#### REQUIREMENTS (24 CREDITS)

##### Required Courses

SUR 222	Plane Surveying	3 cr. (2+3P)
SUR 264	Introduction to LIS	3 cr. (2+3P)
SUR 285	Photogrammetry	3 cr. (2+3P)
SUR 292	Public Land Survey System Boundaries	3 cr. (2+3P)
SUR 312	Legal Principles of Boundary Surveying	3 cr.
SUR 328	Principles and Practices of Construction Surveying	3 cr. (2+3P)
SUR 361	Introduction to Geodesy	3 cr. (2+3P)
	Surveying Elective	3 cr.

## INDUSTRIAL ENGINEERING

### Associate Professor, Edward Pines, Department Head

**Associate Professors** Mullen, Pines, Sohn, Valles-Rosales; **Assistant Professors** Kammerdiner

**phone: (575) 646-4923**

**website: <http://ie.nmsu.edu/>**

### DEGREE: BACHELOR OF SCIENCE IN INDUSTRIAL ENGINEERING

Industrial engineers design, develop, install and improve integrated systems. This could be for people, equipment, information, financial resources, software, materials or energy. Industrial engineers work in a variety of manufacturing, health care, utility, retail, government and research settings, therefore the tools and methods of the industrial engineer are both varied and broad. They use knowledge and skills in engineering, mathematics, and physical and social sciences. Industrial engineers also use principles and methods of engineering analysis and design to monitor and improve such systems. New Mexico State University's undergraduate degree program in Industrial Engineering prepares students to join the work force or pursue graduate education while setting the foundation for life-long learning.

Specifically, graduates of the program will be:

- able to apply various industrial engineering techniques in an integrated fashion to solve real world problems in process design and/or improvement;
- able to obtain meaningful employment or enroll in a graduate program; and
- prepared for a long-term, successful career sustained by life-long learning experiences

In addition, the Engineering Accreditation Commission of ABET, Inc. criteria in conjunction with the Institute of Industrial Engineers, requires that:

- baccalaureate degree graduates will be able to demonstrate the ability to design, develop, implement and improve integrated systems that include people, materials, information, equipment and energy;
- industrial engineering curriculums include in-depth instruction allowing students to accomplish the integration of systems using appropriate analytical, computational and experimental practices; and
- that faculty teaching in industrial engineering departments show evidence of understanding professional practice and maintain currency in their respective professional areas. Program faculty must have responsibility and sufficient authority to define, revise, implement and achieve program objectives.

### MAJOR: INDUSTRIAL ENGINEERING

#### REQUIREMENTS (126 CREDITS)

In addition to the university requirements for graduation, a student must have a 2.0 grade-point average in all departmental courses.

#### General Education (43 credits)

#### State of New Mexico Common Core (37 credits)

##### Area I: Communications (10 credits)

ENGL 111G	Rhetoric and Composition	4 cr.
	*Written Communications Elective	3 cr.
	*Oral Communications Elective	3 cr.

*\*see the required courses section of the catalog for a full list of courses*

##### Area II: Mathematics (4 credits)

MATH 191G	Calculus and Analytic Geometry I	4 cr.
-----------	----------------------------------	-------

##### Area III: Natural Sciences (8 credits)

CHEM 111G	General Chemistry I	4 cr. (3+3P)
PHYS 215G	Engineering Physics I	3 cr.

**Area IV: Social and Behavioral Sciences (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	*Economics, Political Science, Psychology, Sociology, and Anthropology electives	6-9 cr.
--	--	---------

*\*see the required courses section of the catalog for a full list of courses*

**Area V: Humanities and Fine Arts (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	History, Philosophy, Literature, Art, Music, Dance, Theater, Foreign Language, and Religion electives	6-9 cr.
--	---	---------

*\*see the required courses section of the catalog for a full list of courses*

**Institution Specific General Education (6 credits)**

	Viewing a Wider World Electives	6 cr.
--	---------------------------------	-------

*\*see the required courses section of the catalog for a full list of courses*

**Program Specific Requirements (77 credits)****Mathematics (13 credits)**

MATH 192G	Calculus and Analytic Geometry II	4 cr.
MATH 291G	Calculus and Analytic Geometry III	3 cr.
MATH 392	Introduction to Ordinary Differential Equations	3 cr.
	Math elective	3 cr.

*Math elective: Students must complete 15 total credits from Area IV and V, with at least six credits from each area.*

**Natural Science (7 credits)**

CHEM 112G	General Chemistry II	4 cr. (3+3P)
	or	
PHYS 216G	Engineering Physics II	3 cr.
	Science elective	3 cr.

**Engineering (17 credits)**

C E 233	Mechanics-Statics	3 cr.
	or	
M E 236	Engineering Mechanics I	3 cr.
CHME 361	Engineering Materials	3 cr.
ENGR 100	Introduction to Engineering	3 cr. (2+3P)
M E 159	Graphical Communication and Design	2 cr. (1+3P)
	Engineering Electives	9 cr.

**Industrial Engineering (46 credits)**

I E 151	Computational Methods in Industrial Engineering	3 cr.
I E 217	Manufacturing Processes	2 cr.
I E 311	Engineering Data Analysis	3 cr.
I E 316	Methods Engineering	3 cr. (2+3P)
I E 351	Applied Problem Solving in Industrial Engineering	3 cr.
I E 365	Quality Control	3 cr.
I E 413	Engineering Operations Research I	3 cr.
I E 423	Engineering Operations Research II	3 cr.
I E 424	Manufacturing Systems	3 cr.
I E 451	Engineering Economy	3 cr.
I E 460	Evaluation of Engineering Data	3 cr.
I E 467	Discrete-Event Simulation Modeling	4 cr.
I E 478	Facilities Planning and Design	3 cr.
I E 480	Senior Design	3 cr. (2+3P)

**RECOMMENDED FRESHMAN YEAR****Course Sequence (34 credits)**

CHEM 111G	General Chemistry I	4 cr. (3+3P)
ENGL 111G	Rhetoric and Composition	4 cr.
ENGR 100	Introduction to Engineering	3 cr. (2+3P)
I E 151	Computational Methods in Industrial Engineering	3 cr.
M E 159	Graphical Communication and Design	2 cr. (1+3P)
MATH 191G	Calculus and Analytic Geometry I	4 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.
PHYS 215G	Engineering Physics I	3 cr.
PHYS 215GL	Engineering Physics I Laboratory	1 cr. (3P)
	AREA V: Humanities and Fine Arts	3 cr.
	AREA IV: Social/ Behavioral Sciences	3 cr.

**MINOR: ENTREPRENEURSHIP****REQUIREMENTS (18 CREDITS)**

The entrepreneurship minor is offered in collaboration with the Departments of Management and Engineering Technology and Surveying Engineering

**Entrepreneurship (12 credits)**

I E 381	Technology Ventures	3 cr.
I E 382	Business for the Practicing Engineer	3 cr.
	or	
MGT 461	New Venture Creation	3 cr.
E T 490	Selected Topics	1-3 cr.
I E 480	Senior Design	3 cr. (2+3P)

**Electives (6 credits)**

MGT 470	Project Management in Organizations	3 cr.
MGT 454	Work Teams in Organizations	3 cr.
MGT 448	Business Consulting	3 cr.
MGT 361	Managing a Startup	3 cr.
MGT 351	Supply Chain Management	3 cr.
MGT 345V	Quality and Competitiveness: An International Perspective	3 cr.
MGT 344	Production and Operations Management	3 cr.
MGT 309	Human Behavior in Organizations	3 cr.
MKTG 324	Product/Service Development	3 cr.
CHME 449	Intellectual Property for Engineers and Scientists	3 cr.

## MECHANICAL ENGINEERING AND AEROSPACE ENGINEERING

**Professor, Ruey-Hung Chen, Department Head**

**Associate Professor, Gabe Garcia, Associate Department Head**

**Professor** Chen, Ma, Sevostianov; **Associate Professors** Choo, Conleyt, Garcia, Lee, Park, Shashikanth, Wei; **Assistant Professors** Abdelkefi, Dratch, Gross, Kota, Kuravi, Shu, Sun

**phone: (575) 646-3502**

**website: <http://mae.nmsu.edu/>**

*†Registered Professional Engineer (State other than NM)*

## Mechanical and Aerospace Engineering Mission and Educational Objectives

The mission of the Mechanical and Aerospace Engineering Department at New Mexico State University is threefold:

- to educate those who will advance knowledge and become the future leaders of industry and academia;
- to conduct both basic and applied research in mechanical and aerospace engineering and related interdisciplinary areas; and
- to provide service to the profession, to the State of New Mexico, to the country, and to the future development of engineering worldwide.

A critical focus within the department is to afford undergraduates of varying backgrounds and abilities every opportunity for achieving success in the mechanical and aerospace engineering professions. To address this focus, the faculty of the Mechanical and Aerospace Engineering Department, with input from other constituents, have established the following program educational objectives that inform the overall undergraduate programs:

- Our graduates will gain relevant employment and/or pursue a graduate degree.
- Our graduates will advance in their level of workplace responsibility.

## DEGREE BACHELOR OF SCIENCE IN AEROSPACE ENGINEERING

The aerospace engineering program prepares students for a range of professional engineering careers in aerospace and related professions. The aerospace engineering curriculum covers the important classical areas of low and high speed aerodynamics, propulsion, orbital mechanics, flight mechanics and control, aerospace structures and laboratory practice. In addition, the principles of systems engineering and design that are necessary to conceive, design, analyze and troubleshoot complex engineering systems are covered extensively and are considered to be especially important in the overall educational experience. Students will also be encouraged to participate in significant non-classroom experiences, including: co-ops and internships; industrial and laboratory field trips; guest speakers from outside NMSU; the New Mexico Space Grant Program; special seminar programs on current topics in aerospace. Aerospace engineers find employment in areas of launch vehicles, space vehicles and missions, aircraft systems design, land and sea vehicle design, robotics and automated manufacturing, safety and other areas. The aerospace engineering background also allows graduates to pursue careers in non-aerospace fields of engineering. Graduates of the aerospace engineering program will be prepared to apply the following skills to problems of interest either in the industry or research and development: engineering sciences, mathematics, computational methods, modern experimental methods, effective communication skills and systems engineering principles. The aerospace engineering program is also intended to prepare students to pursue graduate study, which can be of significant benefit in the aerospace profession. The general goals of the aerospace engineering program, as well as the program educational objectives, are the same as those stated above for the mechanical engineering program.

## MAJOR: AEROSPACE ENGINEERING

### REQUIREMENTS (131 CREDITS)

In addition to the NMSU and College of Engineering requirements for graduation, a student must obtain a minimum grade of C- in all math, science, and engineering courses applied toward their BSAE and/or ME minor.

#### General Education (43 Credits)

#### State of New Mexico Common Core (37 credits)

#### Area I: Communications (10 credits)

ENGL 111G	Rhetoric and Composition	4 cr.
	*Written Communications Elective	3 cr.
	*Oral Communications Elective	3 cr.

\*see the required courses section of the catalog for a full list of courses

#### Area II: Mathematics (4 credits)

MATH 191G	Calculus and Analytic Geometry I	4 cr.
-----------	----------------------------------	-------

#### Area III: Natural Science (8 credits)

CHEM 111G	General Chemistry I	4 cr.
-----------	---------------------	-------

		(3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)

#### Area IV: Social and Behavioral Sciences (6 or 9 credits)

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	*Economics, Political Science, Psychology, Sociology, and Anthropology electives	6-9 cr.
--	--	---------

\*see the required courses section of the catalog for a full list of courses

#### Area V: Humanities and Fine Arts (6 or 9 credits)

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	History, Philosophy, Literature, Art, Music, Dance, Theater, and Religion electives	6-9 cr.
--	---	---------

\*see the required courses section of the catalog for a full list of courses

#### Institution Specific General Education (6 credits)

	Viewing a Wider World Electives	6 cr.
--	---------------------------------	-------

\*see the required courses section of the catalog for a full list of courses

#### Program Specific Requirements (88 credits)

##### Mathematics (10 credits)

MATH 192G	Calculus and Analytic Geometry II	4 cr.
MATH 291G	Calculus and Analytic Geometry III	3 cr.
	Math elective	3 cr.

Math elective: One course from the following: MATH 391, MATH 471, MATH 472, MATH 473, MATH 480, or STAT 371.

##### Natural Science (6 credits)

PHYS 215G	Engineering Physics I	3 cr.
PHYS 216G	Engineering Physics II	3 cr.

##### Engineering (9 credits)

ENGR 100	Introduction to Engineering	3 cr. (2+3P)
C E 301	Mechanics of Materials	3 cr.
CHME 361	Engineering Materials	3 cr.

##### Mechanical Engineering (33 credits)

M E 159	Graphical Communication and Design	2 cr. (1+3P)
M E 222	Introduction to Product Development	3 cr. (2+3P)
M E 236	Engineering Mechanics I	3 cr.
M E 237	Engineering Mechanics II	3 cr.
M E 240	Thermodynamics	3 cr.
M E 261	Mechanical Engineering Problem Solving	3 cr. (2+3P)
M E 328	Engineering Analysis I	3 cr.
M E 341	Heat Transfer	3 cr.
M E 345	Experimental Methods I	3 cr. (2+3P)
M E 449	Mechanical Engineering Senior Seminar	1 cr.
	Technical Elective	6 cr.

Technical Electives: Students must take ME 210 and ME 228 (see 2016-2017 BSAE flowchart).

##### Aerospace Engineering (30 credits)

Courses subject to once per year rotation

A E 339	Aerodynamics I	3 cr.
A E 362	Orbital Mechanics	3 cr.
A E 363	Aerospace Structures	3 cr.
A E 364	Flight Dynamics and Controls	3 cr.
A E 439	Aerodynamics II	3 cr.
A E 419	Propulsion	3 cr.
A E 424	Aerospace Systems Engineering	3 cr.
A E 428	Aerospace Capstone Design	3 cr. (3+2P)

A E 447	Aerofluids Laboratory	3 cr. (2+3P)
	Aerospace engineering senior elective	3 cr.

**DEGREE: BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING**

The mechanical engineering program prepares students for a wide range of professional engineering careers in such areas as: research and development; design; facilities operation and maintenance; management; and production. Graduates of the program will be prepared to apply engineering sciences, mathematics, computational methods, modern experimental methods, and effective communication skills to problems of interest in industry as well as government or scholarly topics. Employment opportunities for graduates are extensive. These opportunities include: energy and utility; manufacturing; automotive; aerospace; defense and space; research and development; and many others. The emphasis in the curriculum is on engineering sciences (solid mechanics, thermal sciences, fluid mechanics and materials science); mathematics; engineering analysis; engineering design; general sciences; and communication balanced with general education topics and electives. Graduates of the program will also be prepared for graduate studies (subject to grade-point and standardized test qualifications). Students will be prepared to take the fundamentals of engineering examination (and are encouraged to do so) as a step towards professional registration.

**MAJOR: MECHANICAL ENGINEERING****REQUIREMENTS (131 CREDITS)**

In addition to the NMSU and College of Engineering requirements for graduation, a student must obtain a minimum grade of C- in all math, science and engineering courses applied toward their BSME and/or AE minor.

**General Education (43 Credits)****State of New Mexico Common Core (37 credits)****Area I: Communications (10 credits)**

ENGL 111G	Rhetoric and Composition	4 cr.
	*Written Communications Elective	3 cr.
	*Oral Communications Elective	3 cr.

\*see the required courses section of the catalog for a full list of courses

**Area II: Mathematics (4 credits)**

MATH 191G	Calculus and Analytic Geometry I	4 cr.
-----------	----------------------------------	-------

**Area III: Natural Science (8 credits)**

CHEM 111G	General Chemistry I	4 cr. (3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)

**Area IV: Social and Behavioral Sciences (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	*Economics, Political Science, Psychology, Sociology, and Anthropology electives	6-9 cr.
--	--	---------

\*see the required courses section of the catalog for a full list of courses

**Area V: Humanities and Fine Arts (6 or 9 credits)**

Students must complete 15 total credits from Area IV and V, with at least six credits from each area.

	History, Philosophy, Literature, Art, Music, Dance, Theater, and Religion electives	6-9 cr.
--	---	---------

\*see the required courses section of the catalog for a full list of courses

**Institution Specific General Education (6 credits)**

	Viewing a Wider World Electives	6 cr.
--	---------------------------------	-------

\*see the required courses section of the catalog for a full list of courses

**Program Specific Requirements (88 credits)****Mathematics (10 credits)**

MATH 192G	Calculus and Analytic Geometry II	4 cr.
MATH 291G	Calculus and Analytic Geometry III	3 cr.
	Math elective	3 cr.

*Math elective: One course from the following: MATH 391, MATH 471, MATH 472, MATH 473, MATH 480, or STAT 371.*

**Natural Science (6 credits)**

PHYS 215G	Engineering Physics I	3 cr.
PHYS 216G	Engineering Physics II	3 cr.

**Engineering (9 credits)**

ENGR 100	Introduction to Engineering	3 cr. (2+3P)
C E 301	Mechanics of Materials	3 cr.
CHME 361	Engineering Materials	3 cr.

**Mechanical Engineering (63 credits)**

M E 159	Graphical Communication and Design	2 cr. (1+3P)
M E 222	Introduction to Product Development	3 cr. (2+3P)
M E 236	Engineering Mechanics I	3 cr.
M E 237	Engineering Mechanics II	3 cr.
M E 240	Thermodynamics	3 cr.
M E 261	Mechanical Engineering Problem Solving	3 cr. (2+3P)
M E 326	Mechanical Design	3 cr.
M E 328	Engineering Analysis I	3 cr.
M E 338	Fluid Mechanics	3 cr.
M E 340	Applied Thermodynamics	3 cr.
M E 341	Heat Transfer	3 cr.
M E 345	Experimental Methods I	3 cr. (2+3P)
M E 425	Design of Machine Elements	3 cr.
M E 426	Design Project Laboratory I	3 cr. (6P)
M E 427	Design Project Laboratory II	3 cr. (6P)
M E 445	Experimental Methods II	3 cr. (2+3P)
M E 449	Mechanical Engineering Senior Seminar	1 cr.
	Mechanics Elective	3 cr.
	Technical Elective	6 cr.
	Mechanical engineering senior electives	6 cr.

*Mechanics Elective: One course from the following: M E 331, M E 332, or M E 333.*

*Technical Electives: Students must take M E 210 and M E 228 (see 2016-2017 BSME flowchart).*

*M E Senior Electives: Approved M E 400 level and/or A E 400 level courses only.*

**MINOR: AEROSPACE ENGINEERING****REQUIREMENTS (38 CREDITS)****Math and Science (14 credits)**

MATH 191G	Calculus and Analytic Geometry I	4 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.
MATH 291G	Calculus and Analytic Geometry III	3 cr.
PHYS 215G	Engineering Physics I	3 cr.

**Required Engineering (24 credits)**

C E 301	Mechanics of Materials	3 cr.
M E 236	Engineering Mechanics I	3 cr.
M E 237	Engineering Mechanics II	3 cr.
M E 240	Thermodynamics	3 cr.
M E 328	Engineering Analysis I	3 cr.
A E 339	Aerodynamics I	3 cr.
	Technical Elective	6 cr.

*Technical Electives: One course from the following: A E 364 or A E 439, and one course from the following: A E 362, A E 363, or A E 419.*

*Technical Electives cannot be used to satisfy BSME Engineering elective requirement.*

**MINOR: MECHANICAL ENGINEERING****REQUIREMENTS (38 CREDITS)****Math and Science (14 credits)**

MATH 191G	Calculus and Analytic Geometry I	4 cr.
MATH 192G	Calculus and Analytic Geometry II	4 cr.
MATH 291G	Calculus and Analytic Geometry III	3 cr.
PHYS 215G	Engineering Physics I	3 cr.

**Required Engineering (24 credits)**

C E 301	Mechanics of Materials	3 cr.
M E 236	Engineering Mechanics I	3 cr.
M E 237	Engineering Mechanics II	3 cr.
M E 240	Thermodynamics	3 cr.
M E 328	Engineering Analysis I	3 cr.
M E 338	Fluid Mechanics	3 cr.
M E 425	Design of Machine Elements	3 cr.
	Technical Elective	3 cr.

*Technical elective: One course from the following: M E 452, M E 456, M E 460, M E 481, or M E 487.*

*Technical Elective cannot be used to satisfy BSAE Engineering elective requirement.*

# COLLEGE OF HEALTH AND SOCIAL SERVICES

**Dean • Donna Wagner**

**Associate Dean for Academic Affairs • Teresa Keller**

**Associate Dean for Research • Joseph Tomaka**

**Assistant Dean for Advancement • Jennifer Cervantes**

**Director of Finance • Aida Lopez**

**Coordinator of Student and Academic Programs • Sarah Baker**

**Bachelor of Public Health**

**Bachelor of Science in Nursing**

**Bachelor of Social Work**

The College of Health and Social Services brings together associated disciplines and professional fields of study directly applied to the improvement of the quality of life and its existence in rapidly changing family and community environments. The college includes the Department of Public Health Sciences, and the Schools of Nursing and Social Work.

## Accreditation

Within the College of Health and Social Services, the baccalaureate degree program in the School of Nursing is accredited by the Commission of Collegiate Nursing Education (CCNE). The baccalaureate degree program in the School of Social Work is accredited by the Council on Social Work Education. The Bachelor of Public Health degree program in the Department of Public Health Sciences is accredited by the Society for Public Health Education/American Association of Health Education Baccalaureate Program Approval Committee.

## Bachelor Degree Graduation Requirements

Three bachelor degree programs are available. To be awarded a bachelor degree in any of the three programs (i.e., Bachelor of Public Health, Bachelor of Science in Nursing, and Bachelor of Social Work) you must:

1. Complete the requirements for the degree as shown by the department in which the degree is offered including a minimum of 48 credits of upper-division courses (numbered 300 and above) and the minimum total number of credits required for the degree.
2. Complete the general education common core presented in the general education section of this catalog, the specific general education courses that may be required by each department, and Viewing a Wider World requirements specified elsewhere in this catalog.\*
3. Complete any other requirements for graduation as discussed under Regulations (p. 24) in the General Information chapter of this catalog.

\*Students must check with their academic advisor for current requirements and lists of specific courses that meet these requirements.

While the ultimate responsibility for planning an academic program in compliance with university, college, and departmental requirements rests with you, the college recognizes the importance of helping you work out appropriate academic programs. All Health and Social Service students pursuing baccalaureate degrees are advised about academic matters in their respective department. Students are encouraged to contact departments for specific subject area information and career planning.

## NURSING

**Pamela Schultz, Director & Associate Dean for Nursing Education**

**Professors** Huttlinger, Keele; **Associate Professors** Keller, Reinhardt; **Assistant**

**Professors** DeBlick, Lynch, Noe, Summers

**phone:** (575) 646-3812

**website:** <http://schoolofnursing.nmsu.edu/>

## DEGREE: BACHELOR OF SCIENCE IN NURSING

NMSU's School of Nursing offers a Bachelor of Science in Nursing (B.S.N.) degree. The degree plan provides three options to accommodate either the beginning nursing student, the beginning nursing student with a baccalaureate degree in another field, or the returning registered nurse. Students graduating from the first two options are eligible to take the NCLEX-RN® examination for licensure as a registered nurse upon completion of their program studies. This program is also offered at two additional satellite sites at NMSU Grants, NM and NMSU Alamogordo, NM. Option three is designed for the registered nurse who wishes to complete a BSN.

The Bachelor of Science in Nursing degree program is approved by the New Mexico Board of Nursing and accredited by the Commission on Collegiate Nursing Education (CCNE). Approval by the New Mexico Board of Nursing is required for graduates to be eligible for the National Council Licensing Examination (NCLEX-RN®) for licensure as a registered nurse. Accreditation by the CCNE assures prospective students and employers that the program has met national education standards.

The NMSU SON is a full member of the New Mexico Nursing Education Consortium (NMNEC) and offers the NMNEC BSN curriculum.

## MAJOR: NURSING

### Requirements for B.S.N. Program Admission

Requirements and procedures to follow for admission to the four-year B.S.N. program are as follows:

1. Obtain admission to NMSU as a regular student.
2. Contact the pre-nursing advisor in the College of Health and Social Services for complete Nursing Program information and advisement.
3. Satisfy NMSU basic academic competency requirements in English and Math.
4. Complete prerequisite coursework before final admission to the nursing major.
5. Prerequisite science courses must have been completed within the past seven years.
6. Achieve a grade of C- or better in each nursing prerequisite course.
7. Achieve a competitive minimum prerequisite GPA of 2.75 which includes grades earned from all higher education institutions.
8. Prelicensure applicants to the NMSU School of Nursing are required to take a standardized admission exam and to obtain a satisfactory score prior to application to the nursing major.
9. Applicants will be considered for admission to the nursing major during the fall or spring semester of anticipated completion of prerequisite coursework or after prerequisite courses are completed. Applicants for fall semester admission may not finish prerequisites in the summer session immediately preceding the fall semester in which they wish to be admitted.
10. Application deadlines each year are:
  - February 1st—for consideration for Fall admission to the nursing major
  - September 1st—for consideration for Spring admission to the nursing major

*NOTE: Admission is competitive and available seats are limited. Priority for admission will be given to applicants with the highest GPAs in the required prerequisite coursework, scores on the standardized admission exam, and to New Mexico residents.*

Any applicant not admitted to the nursing major may reapply.

**Second Degree : BSN (Pathway option) or the Accelerated 2nd Degree (Roadrunner option)**

Requirements and procedures for admission to the two second degree options are as follows:

1. Obtain admission to NMSU as a second bachelor's degree-seeking student with official transcripts
2. Contact the pre-nursing advisors in the School of Nursing Advising Center for advisement on program application and admission.
3. Have a minimum 3.0 GPA on a 4.0 scale in first bachelor's degree
4. Have a minimum of a 3.0 GPA on a 4.0 scale in the required pre-requisite Anatomy and Physiology or A&P I and A&P II (8 credits), third science course (3 credits in BIOL, MOLB, CHEM, or PHYS), a Pathophysiology course (3- 4 credits) and Statistics (3 credits). Roadrunner applicants must also obtain a B or better in all prerequisites. All courses must be completed before submitting a nursing application and must not be older than 7 years.
5. Roadrunner students are admitted once a year, in the summer. Pathway option students are admitted in spring or fall semesters. Submit an official application to the second degree option to the School of Nursing Advising Center by February 1st, for consideration for summer Roadrunner admissions. Submission dates for Pathway students are February 1st for fall admission, or September 1st for spring admission to the nursing program.
6. Complete a resume documenting prior education and work experience.
7. A Medical Terminology Course is recommended
8. Applications are considered only after all requested documentation is received by the pre-nursing Advisors.
9. Three letters of recommendation are required.

**REQUIREMENTS****Four-Year Curriculum Plan Courses**

A grade of C- or better is required for all courses in the curriculum. Students must also complete six elective credits from the Part III Viewing a Wider World general education category.

Math basic academic skills requirement must be satisfied.

**Departmental Requirements (39-40 credits)**

A ST 311	Statistical Applications	3 cr.
	or	
STAT 251G	Statistics for Business and the Behavioral Sciences	3 cr.
BIOL 211G	Cellular and Organismal Biology	3 cr.
BIOL 211GL	Cellular and Organismal Biology Laboratory	1 cr. (3P)
BIOL 219	Public Health Microbiology	3 cr.
	or	
BIOL 311	General Microbiology	3 cr.
BIOL 311 L	General Microbiology Laboratory	2 cr. (4P)
BIOL 253	Human Anatomy	4 cr. (3+3P)
BIOL 254	Human Physiology	3 cr.
C EP 110G	Human Growth and Behavior	3 cr.
HNDS 251	Human Nutrition	3 cr.
MATH 121G	College Algebra	3 cr.
NURS 328	Human Pathophysiology Foundation for Nursing	4 cr.
PSY 201G	Introduction to Psychology	3 cr.

**One course from the following**

CHEM 110G	Principles and Applications of Chemistry	4 cr. (3+3P)
CHEM 111G	General Chemistry I	4 cr.

		(3+3P)
CHEM 112G	General Chemistry II	4 cr. (3+3P)

**Common Core**

	Communications Area I	9-10 cr.
	Math Area II (counted in department)	3 cr.
	Science Area III (counted in department)	8 cr.
	Social/Behavior Science Area IV (3 cr. counted in department)	3 cr.
	Humanities Area V	6-9 cr.

**University Requirements (27-28 credits)**

	VWW (from specified list)	3 cr.
	VWW (from specified list)	3 cr.

**Formal Acceptance required before taking NURSING courses**

The NMSU School of Nursing participates in the New Mexico Nursing Education Consortium. The nursing curriculum offered is the NMNEC Statewide Curriculum Plan:

**Level 1**

NURS 293	Introduction to Nursing Concepts	3 cr.
NURS 294	Principals of Nursing Practice	4 cr.
NURS 362	Evidence Based Practice	3 cr.

**Level 2**

NURS 377	Health and Illness Concepts I	3 cr.
NURS 378	Health Care Participant	3 cr.
NURS 379	Nursing Pharmacology	3 cr.
NURS 380	Assessment and Health Promotion	4 cr.

**Level 3**

NURS 395	Health and Illness Concepts II	3 cr.
NURS 396	Professional Nursing Concepts I	3 cr.
NURS 398	Care of Patients with Chronic Conditions	4 cr. (8P)

**Level 4**

NURS 466	Health and Illness Concepts III	4 cr.
NURS 467	Clinical Intensive I	4 cr. (0-1)+(0-6P)
NURS 468	Clinical Intensive II	3 cr.

**Level 5**

NURS 486	Concept Synthesis	3 cr.
NURS 487	Professional Nursing Concepts II	3 cr.
NURS 488	Clinical Intensive III	4 cr.
NURS 489	Capstone	4 cr.

*Note: A grade of C- or better is required for all courses in the curriculum. You must also complete 6 elective credits from the Part III Viewing a Wider World general education category.*

Note:

1. An applicant who is not a U.S. citizen or who has been convicted of a felony is advised to contact the appropriate State Board of Nursing regarding eligibility for licensure.
2. Clinical clearances are required for all students prior to admission and concurrent with each semester of studies. These include: current immunizations; background screening; drug testing; individual health insurance coverage; current CPR status; various health agency orientations, as well as other requirements mandated by clinical affiliation agreements. Failure to complete and provide documentation within timelines established by the School of Nursing may prevent admission to/or continuation within the nursing program.
3. Students are required to make a satisfactory score on nationally- normed, standardized tests before application. In the last semester of the curriculum, students are required to take a comprehensive/ standardized exam and to make a satisfactory score on this exam prior to their final clinical experience.



- Newly admitted students are required to attend an orientation session which occurs prior to the start of classes for their first nursing semester.
- School-wide activities begin 1-3 days prior to the start of classes. Attendance is required.

### R.N.-B.S.N.

Requirements and procedures for admission to the R.N. to B.S.N completion program area are as follows:

- Regular status admission to the University.
- All Nursing coursework is 100% online.
- Contact the School of Nursing for complete program information and application materials.
- Submit an official application to the School of Nursing.
- Provide evidence of graduation from an accredited associate or diploma nursing program.
- Provide evidence of current R.N. licensure.
- Apply during fall or spring for summer admission.
- Satisfy NMSU basic academic competency requirements in English and Math.
- Submit official transcripts from all nursing schools, colleges and universities attended to the School of Nursing. These will be evaluated for allowable transfer credits.
- Achieve a minimum GPA of 2.5 on a 4.0 scale for prerequisite courses and prior nursing coursework.
- Completed prerequisite course work.
- A STAT 311 or STAT 251 prerequisite for NURS 376, Research and Evidence-Based Practice for the Practicing RN.
- Attend MANDATORY 2-3 day on site orientation.
- Have access to a computer and internet service.
- Meet Clinical Clearance requirements to include background check.

Note: Nursing class sizes are limited. Students admitted to the R.N.-B.S.N. program may be accommodated based on space availability in any given nursing course. All documentation must be submitted to the school by December 1st to begin nursing classes the following May. Generally, the sequence of nursing courses start in Summer I (May). If additional classes are added, students must submit all documentation at least 6 months prior to the start of the nursing sequence to allow for timely reviews and selection of the nursing cohort.

### R.N. TO B.S.N. COMPLETION CURRICULUM

Non-nursing and General education (or equivalent) courses (See the "General Information" section (p. 4) of this catalog for details of NMSU general education requirements). A grade of C or better is required in all courses within the curriculum. In addition all students must complete:

- Inferential statistics
- Two Viewing a Wider World: "V" courses
- Upper division elective courses as required to satisfy NMSU's 48 upper division credit hour requirements and all the general education requirements prior to or concurrently with completion of the last semester of nursing.

In addition, it is the student's responsibility to complete a minimum of 128 total credit hours including 48 upper-division credits.

The nursing course sequence for this degree option normally starts in the first summer session.

**The core nursing courses required for the R.N. to B.S.N. completion are listed below:**

NURS 314	Computer Technology for Nurses	3 cr.
NURS 315	Introduction to Professional Nursing for the R. N.	3 cr.
NURS 322	Nursing Health Assessment	3 cr.
NURS 324	Nursing Care of the Older Adult	3 cr.
NURS 325	Human Pathophysiology for Nursing	3 cr.
NURS 352	Bioterrorism	3 cr.
NURS 353	Nursing Informatics	3 cr.
NURS 376	Research and Evidence-Based Practice for the	3 cr.

	Practicing RN	
NURS 420	Community Health Nursing	3 cr.
NURS 426	Community Health Nursing for the R.N.: Clinical	3 cr. (6P)
NURS 475	Issues and Trends in Professional Nursing	3 cr.
NURS 476	Nursing Organization & Management for the R.N.: Clinical	3 cr. (6P)
NURS 477	Nursing Organization and Management for the RN	3 cr.
	Upper Division Elective/Stats Elective	3 cr.
	Viewing a Wider World	6 cr.

#### Notes:

- The R.N. - B.S.N. Option uses a compressed scheduling format designed for registered nurses from diverse educational and multicultural backgrounds.
- Students must complete all NURSING courses online.
- Students are required to attend MANDATORY on site orientation.
- Clinical preceptors for this program must be approved by the School of Nursing.
- Clinical clearances are required for all nursing students (i.e. current immunizations, background screenings, current CPR status and various health agency orientation workshops).
- Failure to complete and provide documentation within timelines established by the School of Nursing may prevent admission or continuation within the nursing program.

## PUBLIC HEALTH SCIENCES

### Professor, Mark J. Kittleson, Department Head

**Professors** Kittleson, Rao, Robinson; **Associate Professors** Forster-Cox, Kozel, Palacios, Wilson; **Assistant Professors** Amatya, Gladstone, Kratzke; **College Assistant Professors** Kendall

phone: (575)646-4300

website: <http://publichealth.nmsu.edu/>

### DEGREE: BACHELOR OF PUBLIC HEALTH

The curriculum in public health prepares students for careers in community and public health programs, also in voluntary, private and governmental agencies. Upon completion of the degree, the graduate is eligible to take the national Certified Health Education Specialist (CHES) examination administered by the National Commission for Health Education Credentialing, Inc. The Bachelor of Public Health degree has the full approval of the Society for Public Health Education (SOPHE)/American Association for Health Education (AAHE)/Baccalaureate Program Approval Committee (SABPAC).

Students seeking admission to the Bachelor of Public Health degree in the Department of Public Health Sciences at NMSU are first admitted as pre-public health (PPHL) students. Students keep this designation until they have met the following admissions requirements:

- A cumulative grade-point average of at least 2.5 after completing specified general education coursework (the common core).
- A grade of C- or better in prerequisite departmental courses (PHLS 100, PHLS 150, PHLS 275 OR PHLS 375, and PHLS 395).
- A grade of C- or better in MATH 120.
- A grade of B or better in A ST 251G/STAT 251G or A ST 311.
- Entrance Exam: A score of 37% or better on the Conventions of Written English assessment and 75% or better on the Math assessment.
- Submission of an application packet that includes (1) a brief personal statement of interest in the profession, and (2) a completed application for the Bachelor of Public Health degree program.

The Bachelor of Public Health degree program accepts applicants during the Spring and Fall semesters. The deadlines for accepting application packets are September 15th for Spring admission and February 15th for Fall admission. All

applications must be submitted to the College of Health and Social Services, CHSS, Room 326.

Applicants may receive a conditional acceptance into the program if they are currently enrolled in the last of the required prerequisites at the time that they submit an application to the Bachelor of Public Health degree program. Such conditional acceptance will be revoked if the applicant does not successfully complete each of the prerequisite courses.

Students must attain a grade of C- or better in all required PHLS core coursework.

Any student who receives two or more grades of D or F in required PHLS core courses must petition, in writing, to continue as a major. Unsuccessful petitioners will be dismissed from the program. Should said student receive any further grades of D or F they will be irrevocably dismissed from the BPH program.

## MAJOR: PUBLIC HEALTH

### REQUIREMENTS

#### General Requirements (44 credits)

General education requirements for the Department of Public Health Sciences follow those outlined by the university in this catalog.

#### Departmental Requirements

You are required to complete the following Public Health Sciences core courses. Of the 128 credits required for the degree, you must have a minimum of 48 upper division credit hours (300- and 400-level courses).

#### Prerequisite Courses (16 credits)

A ST 251G	Statistics for Business and the Behavioral Sciences	3 cr.
	or	
A ST 311	Statistical Applications	3 cr.
PHLS 100	Introduction to Health Science	1 cr.
PHLS 150G	Personal Health and Wellness	3 cr.
PHLS 275	Foundations of Health Education	3 cr.
	or	
PHLS 375	Foundations of Community Health Education	3 cr.
PHLS 395	Foundations of Public Health	3 cr.
MATH 120	Intermediate Algebra	3 cr.

A ST 311: does not meet the Common Core Area II

#### Public Health Education Core (25 credits)

PHLS 471	Health Informatics	3 cr.
PHLS 473	Health Program Planning	3 cr.
PHLS 475	Methods of Community Health Education	3 cr.
PHLS 476	Theoretically-Based Interventions	3 cr.
PHLS 478	Health Program Evaluation and Research	3 cr.
PHLS 496	Community Health Education Field Experience	1-6 cr.
PHLS 497	Senior Seminar in Community Health Education	1 cr.
PHLS 499	Problems in Health Education	3 cr.

#### Public Health Core (15 credits)

PHLS 450	Epidemiology	3 cr.
PHLS 451	Biometrics and Health Research	3 cr.
PHLS 452	Environmental Health	3 cr.
PHLS 457	Administration of Health Programs	3 cr.
PHLS 459	Infectious and Noninfectious Disease Prevention	3 cr.

#### Select one (1) of the following (3 credits) Cultural Foundations Course Requirements

PHLS 461	Health Disparities: Determinants and Interventions	3 cr.
PHLS 462	Hispanic Health Issues	3 cr.
PHLS 464V	Cross-Cultural Aspects of Health	3 cr.
PHLS 465	International Health Problems	3 cr.
PHLS 466	International Health Practicum	1-3 cr.

PHLS 467	Rural Health Issues	3 cr.
PHLS 468	Coping with Loss and Grief: A Cross-Cultural Perspective	3 cr.
PHLS 469	U.S.-Mexico Border Health Issues	3 cr.

#### Elective (31 credits)

An additional 31 credit hours of elective courses are required. You must select additional electives to bring your total number of credit hours to the University requirement of 128. Students are encouraged to select additional PHLS and GERO courses to satisfy the elective requirement. Students with an associate degree in an allied health field may transfer up to 31 credit hours of electives.

#### Minors in Public Health Sciences

A grade of C- or better is required for all minor requirements

### MINOR: GERONTOLOGY

#### REQUIREMENTS (18 CREDIT HOURS, ON-LINE PROGRAM ONLY)

##### Core Gerontology Courses (12 credit hours):

GERO 415	Introduction to Gerontology	3 cr.
GERO 493	Adulthood and Aging	3 cr.
GERO 456	Biological Aspects of Aging	3 cr.
GERO 494	Aging in a Multicultural Society	3 cr.

##### Two courses from the following (6 credits)

FCS 213	Adult Development and Aging	3 cr.
HNDS 406	Geriatric Nutrition	3 cr.
GERO 450	Health Promotion for the Older Adult	3 cr.
GERO 451	Aging and Public Policy	3 cr.
NURS 416	Older Adult Nursing	2 cr.
	Requires additional Independent Study (to be arranged with either Public Health or Nursing department)	1 cr.

### MINOR: PUBLIC HEALTH SCIENCES

#### REQUIREMENTS (18 CREDIT HOURS)

##### Core Public Health Education Courses (12 credit hours)

PHLS 275	Foundations of Health Education	3 cr.
PHLS 395	Foundations of Public Health	3 cr.
PHLS 450	Epidemiology	3 cr.
PHLS 457	Administration of Health Programs	3 cr.

##### One course from the following (3 credits):

PHLS 300	Drugs and Behavior	3 cr.
PHLS 355	Responding to Emergencies	3 cr.
PHLS 301V	Human Sexuality	3 cr.
PHLS 380V	Women's Health Issues	3 cr.
PHLS 320	Human Stress Management	3 cr.
PHLS 492	Health Care of the Aged	3 cr.

##### One course from the following (3 credits)

PHLS 461	Health Disparities: Determinants and Interventions	3 cr.
PHLS 462	Hispanic Health Issues	3 cr.
PHLS 464V	Cross-Cultural Aspects of Health	3 cr.
PHLS 465	International Health Problems	3 cr.
PHLS 466	International Health Practicum	1-3 cr.
PHLS 467	Rural Health Issues	3 cr.
PHLS 468	Coping with Loss and Grief: A Cross-Cultural Perspective	3 cr.

NOTE: All public health minors must complete A ST 251G/STAT 251G or A ST 311 with a B or better before taking HL S 450 Epidemiology.

### MINOR: U.S.-MEXICO BORDER HEALTH ISSUES

#### REQUIREMENTS (18 CREDIT HOURS)

##### Core - Select one U.S.- Mexico Border Health Issues Courses (3 credits)

PHLS 466	International Health Practicum	1-3 cr.
PHLS 469	U.S.-Mexico Border Health Issues	3 cr.

PHLS 463: when subtitle relates to US-Mexico Border Health

**Four courses from the following (12 credit hours)**

PHLS 461	Health Disparities: Determinants and Interventions	3 cr.
PHLS 462	Hispanic Health Issues	3 cr.
PHLS 464V	Cross-Cultural Aspects of Health	3 cr.
PHLS 465	International Health Problems	3 cr.
PHLS 467	Rural Health Issues	3 cr.
PHLS 486	Special Topics	3 cr.
GERO 494	Aging in a Multicultural Society	3 cr.

PHLS 486: when subtitle relates to US-Mexico Border Health

**One course from the following**

PHLS 481	Public Health Preparedness and Response	3 cr.
----------	---	-------

## SOCIAL WORK

### School of Social Work

Tina Hancock, DSW, Director

**Professors** Wagner; **Associate Professors** Blair, de la Rosa, Gurrola, Nedjat-Haiem, Whittlesey-Jerome; **Assistant Professor** Gergerich; **College Associate Professor** Cabada; **College Assistant Professors** Burns, Ortiz;

**BSW Academic Advisor**, Irma Hernandez

phone: (575) 646-2143

website: <http://socialwork.nmsu.edu>

Social Work Course Descriptions (p. 296)

### DEGREE: BACHELOR OF SOCIAL WORK (BSW)

The BSW degree allows you to join a profession dedicated to helping people in personal and social situations. As a unique and challenging field, social work addresses the complexity of human behavior and the ever-present needs and potential of people. From rural communities to inner cities, social workers are at work in social service agencies, mental health centers, hospitals, schools, neighborhood organizations, probation offices and private agencies. Social work roles are varied and flexible. Social workers practice in areas such as child abuse, community organization, direct services with individuals and families, mental health, group work, and the administration, planning and development of social programs. With each consumer group and in every agency setting, social workers help to correct the causes or alleviate the results of poverty, racism, poor health, mental illness or any condition that prohibits people from reaching their potential.

### MAJOR: SOCIAL WORK

The B.S.W. program prepares you for a beginning professional level of generalist social work practice with an understanding and appreciation of the cultural diversity of the Southwest.

To be admitted as a B.S.W. candidate, you must formally apply for admission to the program. A 2.5 grade-point average is required for admission. Consult the pre-social work major advisor, located in the School of Social Work in the College of Health and Social Services. The deadline for submitting applications is the last Friday in January. The program is fully accredited by the Council on Social Work Education and all students have access to copies of the Curriculum Policy Statement.

### GENERAL EDUCATION REQUIREMENTS

Students need to complete the New Mexico State University general education requirements before applying to the Bachelor of Social Work program. The School of Social Work requirements include S WK 221G and two semesters of a second language. Once accepted into the program, students also need to meet a Cultural Emphasis requirement.

Students may choose one of three tracks to complete a minimum of six credit hours.

1. Take two more semesters of any language.
2. Take an approved language immersion program.

3. Take two approved upper-level courses with a multicultural emphasis (you can get the approved list of courses from your social work advisor).

If the cultural emphasis classes are also Viewing a Wider World classes, you still need to complete the total number of specified upper-division credits necessary for graduation. Highly recommended electives for social work students include courses in sociology, history, Spanish, psychology, family life, child development, English, philosophy, anthropology, computer science, criminal justice, government and economics. Electives must be sufficient to bring total credits to 120, including 52 upper-division credits, for graduation.

### DEPARTMENTAL REQUIREMENTS

Preparation for entry-level professional social work requires a thorough knowledge of theory and skills; therefore, the high number (57) of core social work credits is required.

#### Freshman Year

##### Fall Semester (18-19 credits)

ENGL 111G	Rhetoric and Composition	4 cr.
ENGL 111GH	Rhetoric and Composition Honors	4 cr.
BIOL 101G	Human Biology	3 cr.
BIOL 101GL	Human Biology Laboratory	1 cr. (3P)
	Communications	3 cr.
	Second language	3-4 cr.

BIOL 101G and BIOL 101GL: must be completed before starting the S WK program and require a grade of C- or better.

##### Spring Semester (15-16 credits)

MATH 121G	College Algebra	3 cr.
MATH 112G	Fundamentals of Elementary Math II	3 cr.
MATH 210G	Mathematics Appreciation	3 cr.
MATH 142G	Calculus for the Biological and Management Sciences	3 cr. (2+2P)
STAT 251G	Statistics for Business and the Behavioral Sciences	3 cr.
STAT 271G	Statistics for Psychological Sciences	3 cr.
C EP 110G	Human Growth and Behavior	3 cr.
	Lab Science	4 cr.
	Second language	3-4 cr.
S WK 221G	Introduction to Social Welfare	3 cr.

C EP 110G and S WK 221G: must be completed before starting the S WK program and require a grade of C- or better.

#### Sophomore Year

##### Fall Semester (12 credits)

A ST 311	Statistical Applications	3 cr.
	or	
STAT 251G	Statistics for Business and the Behavioral Sciences	3 cr.
	Humanities/Fine Arts	3 cr.
	Humanities/Fine Arts	3 cr.
	Social/Behavioral Science	3 cr.

##### One course from the following:

ENGL 203G	Business and Professional Communication	3 cr.
ENGL 211G	Writing in the Humanities and Social Sciences	3 cr.
ENGL 218G	Technical and Scientific Communication	3 cr.

##### Spring Semester (12 credits)

	Viewing a Wider World/C E	3 cr.
	Viewing a Wider World/C E	3 cr.
	Elective	3 cr.
	Elective	3 cr.

NOTE: Students need to submit a formal application packet to the School of Social Work in January and be accepted into program before they can take junior or senior year courses.

**Junior Year**

**Sufficient electives to bring the total number of credits to a minimum of 120 credits**

**Fall Semester (12 credits)**

S WK 300	Social Work Practice Skills	3 cr.
S WK 309	Sociocultural Concepts	3 cr.
S WK 311	Human Behavior and the Social Environment I	3 cr.
S WK 331V	Introduction to Social Policy: History	3 cr.

**Spring Semester (13 credits)**

S WK 301	Orientation to Field	1 cr.
S WK 312	Human Behavior and the Social Environment II	3 cr.
S WK 313	Social Work Practice with Individuals	3 cr.
S WK 315	Social Work Practice with Families	3 cr.
S WK 316	Social Work Research	3 cr.

**Senior Year****Fall Semester (12 credits)**

S WK 405	Service Learning	3 cr.
S WK 415	Generalist Social Work Practice with Organizations and Communities	3 cr.
S WK 416	Generalist Social Work Practice with Groups	3 cr.
S WK 417	Social Welfare Policy: Legislation	3 cr.

**Spring Semester (15 credits)**

S WK 412	Generalist Social Work Practicum Block Placement	12 cr. (12P)
S WK 418	Professionalism in the Field of Social Work	3 cr.

A grade of C- or better is required for all social work courses.

# HONORS COLLEGE

**Dean • Miriam Chaiken**

**Associate Dean and Director of National Scholarships • Tim Ketelaar**

**Associate Dean • Mark C. Andersen**

**Assistant Dean for External Relations • Nigel Holman**

**Administrative Assistant • Valerie Torres**

**Crimson Scholars Coordinator • Yvonne Flores**

The Honors College is located in the Conroy Honors Center on the corner of University and Espina Avenues. Most honors classes are taught either in the Conroy Honors Center or in the honors residence center in Rhodes Garrett Hamiel Hall (RGH).

**phone: (575) 646-2005**

**website: <http://honors.nmsu.edu/>**

## Mission of the Honors College

The mission of the New Mexico State University Honors College is to serve the citizens and state of New Mexico by providing an enriching environment for diverse, academically talented and motivated students. The Honors College also seeks to create a community of scholars and mentors that fosters personal growth, critical thinking, leadership, independence, curiosity and social responsibility. The college aspires to cultivate student potential to broadly understand and positively impact communities, organizations and the larger world. The Honors College aims to focus campus attention on excellence in undergraduate education while strengthening New Mexico State University's reputation as the university of choice in New Mexico.

In support of this mission, the Honors College integrates the following objectives:

- Provide students with an interdisciplinary, intellectually challenging curriculum that integrates active and service-based learning;
- Promote university-wide undergraduate research opportunities, linking students with faculty mentors;
- Foster faculty enrichment and professional development;
- Encourage, mentor and guide students seeking postgraduate scholarships and fellowships;
- Offer students opportunities for developing leadership skills;
- Create a residential community that combines learning inside and outside the classroom.

In small classes taught by master teachers, students in the Honors College engage in lively discussion and collaborative investigation of interdisciplinary topics. By taking honors courses, students may also work toward completing general education requirements and disciplinary requirements in the major.

Students in the Honors College are 'dual citizens', meaning they enroll in both the college(s) of their major/minor and the Honors College. The Honors College does not offer a degree instead, it offers students the opportunity to graduate with various levels of honors distinction (described below).

## The Honors Faculty

The Honors College faculty come from academic departments from throughout the university. Members of the faculty are chosen through a rigorous selection process and include many of New Mexico State University's most distinguished teachers and researchers.

**Professors** Alexander, Amato, Andersen, Bosland, Bronstein, Butler, Catlett, Cleveland, Fouillade, E. Hammond, K. Hammond, Harvey, Horodowich, Hubbell, Knapp, Lapid, Lawton, Linkin, Lodder, Malamud, Manning, McNamara, Munson-McGee, Olberding, Pollack, Scoccia, Serrano, Shearer, Stanford, Storm, Thompson

**Associate Professors** Armfield, Boeing, Clarkson, Guynn, Herrera, Huhmann, Ketelaar, Lee, Miller-Tomlinson, Morgan, Rourke, Salamaca-Riba, Schirmer, Throop

**Assistant Professors** Duran, Dylko, Flores-Carmona, Keleher, Luna, Quintana

**College Professors** Fitzsimmons, Gilpin, Gray, Lavender, LaPorte

**Emeritus Professors** Baker, Compton, Eamon, Ellis, Gregware, Ocepek, Rundell, Staffeldt, Townley, Trevathan, Wolf

## Admission to the Honors College

Students admitted to the Honors College are designated as Crimson Scholars, the following eligibility criteria apply:

**Automatic Eligibility.** Entering freshmen are automatically eligible for admission to the Honors College and Crimson Scholars by meeting one of the following criteria:

- composite ACT score of 26 (or 1170 SAT score); or
- high school GPA of 3.75 or higher

**Admission by Petition.** Entering freshmen who have an ACT score of at least 24 (or 1100 SAT score) or a high school GPA of 3.50 may submit a written petition for provisional admission to the Honors College using a form provided by the Honors College office upon the request of the student.

**Transfer and Continuing Students.** Transfer and continuing students who have earned at least 3 college credit hours will be eligible for admission to the college on the basis of a cumulative college GPA that meets eligibility requirements for continuing students (see below).

**Eligibility for Continuing Membership.** The eligibility criteria for continuing membership in the Honors College is the same as for continuing Crimson Scholars status. The requirements are:

- Fewer than 28 hours earned: 3.3 GPA
- More than 28 hours earned: 3.5 GPA

**Appeals.** Students who fall below the designated GPAs and lose their eligibility for Honors College status due to extraordinary circumstances may petition the College Admission Committee for readmission.

## Enrolling in Honors Courses

Students do not have to be members of the Honors College to enroll in honors courses. Any eligible student may enroll. The eligibility requirements to enroll in lower-division honors courses are the same as those pertaining to admission to the college and continuance in the college. For upper-division courses, the requirement is a cumulative 3.2 GPA. Students lacking these requirements may petition the Honors College Dean for permission on a case-by-case basis.

## Graduating with University Honors

The Honors College offers two program options: graduation with University Honors and the Honors Certificate. Each option has separate eligibility requirements, benefits and forms of recognition for the student. Almost all honors courses fulfill university general education requirements. To have these courses count toward one of these programs, a student must earn at least a B.

Any student who attains an overall GPA of 3.5-3.749 and who completes 15 credits of honors coursework and the honors thesis is eligible to graduate with University Honors. Students who attain an average of 3.75 or better and who complete 15 credits of honors coursework and the honors thesis are eligible to graduate with Distinction in University Honors. Transcripts will certify graduation with University Honors or Distinction in University Honors. Students who complete the requirements for graduation with either distinction receive recognition in the commencement program, a Certificate of Distinction and a medallion upon graduation.

## University Honors Requirements

<b>Freshman-Sophomore Years</b>	
Three courses from the Honors Core (lower division)	9 cr.
<b>Junior-Senior Years</b>	
Two 300- or 400-level Honors Certificate Program courses	6 cr.

Thesis or Final Project	3 r.
Total Credits Required	18 cr.

### Final Project

In order to graduate from the Honors College with the designation of University Honors or Distinction in University Honors, a student must complete a final project. The final project is normally done during the senior year and may be undertaken only if the student meets the eligibility requirements for graduation from the College (3.5 minimum GPA and the required courses). The final project carries 3 graded credit hours.

Before beginning the final project, the student must choose a faculty advisor and file with the College a proposal that is approved by the faculty advisor and the Dean of the Honors College. The final project is graded by the faculty advisor, who submits a final grade to the Dean of the Honors College.

Candidates for graduation with University Honors and Distinction in University Honors are expected to make public presentations of their final projects at one or more of the following: (1) the Undergraduate Research and Creative Arts Symposium, (2) a department seminar, (3) and/or a seminar sponsored by the Honors College. The method of presentation shall be that deemed appropriate for the discipline in which the project is undertaken.

The written component of the final project shall be filed with the Honors College in a bound copy according to the guidelines established by the college.

The final project may be any one of the following:

**Thesis** — The thesis is an independent scholarly or scientific research project that is undertaken with the advice and direction of a member of the university faculty. The thesis does not need to be on a topic in the student's major field, but must meet the guidelines and protocols of the discipline in which it is written. The faculty advisor, in consultation with the thesis committee, will examine the student's thesis and determine a final grade.

**Creative Arts or Performance Project** — The Senior Creative Arts/Performance project may take the form of an exhibition, recital or other venue deemed appropriate by the faculty advisor and the Dean of the Honors College. In addition to the performance or exhibition, the student must complete a written report or description of the project that is approved by the faculty advisor, to be filed with the Honors College.

**Service Learning Project** — The Service Learning Project shall be undertaken under the auspices and supervision of an agency approved by the Dean of the Honors College. A faculty advisor must approve the project and monitor its progress. The Service Learning Project must be more than simply a certain number of hours volunteered to an agency. It must also involve a creative and leadership element, such as the design of a program or policy that identifies a problem and meets a specific need of the agency. A time log and journal shall be kept by the student during the course of the project. A written report describing the objective and design of the project, as well as an evaluation of its successes and failures, must be submitted to the Honors College according to norms established by the college. The report must also contain a reflective component, demonstrating increased self-awareness and personal growth.

At the completion of the final project, the student will be required to do an exit interview with the faculty advisor and/or Dean of the Honors College. Such interviews will be used in the formal assessment process.

**Honors Contract** — An Honors Contract is a mechanism for adding an "honors dimension" to a course that is not listed as an honors course (HON prefix). The contract allows honors students to convert a regular non-honors course into an honors course that counts toward graduation with University Honors. The Honor Contract project should add an academic or experiential dimension to the course by introducing new material and/or experiences. Contract form may be downloaded from the Honors College website.

### Community Service Options

The Honors College encourages its students to perform volunteer public service. Under certain circumstances, public service may be used as an alternative to completing some of the requirements for graduation from the Honors College. The following guidelines apply:

During the sophomore, junior or senior year, a student with at least a 3.5 GPA may undertake community service with an agency or organization in Doña Ana County (or an agency outside the area approved by the Honors College Dean) to earn a

waiver of up to 3 of the hours required for University Honors (not including the Final Project). A minimum of 15 hours of community service per week, per semester is required for each honors credit hour to be waived. Community service hours must be verified by a supervisor of the agency or organization on a form approved by the Honors College. On-campus activities are not included under this option. The student must also certify that the community service hours are not being used for any course or degree requirement. Approval of the Dean of the Honors College must be obtained prior to beginning volunteer service to be eligible for this option.

### International Study Option

Students in the Honors College are strongly encouraged to participate in international study. An NMSU honors student with at least a 3.5 GPA may earn a waiver of up to 3 credit hours required for University Honors for such international study (not including the Final Project). This waiver will be awarded for college credit earned while participating in any international study program approved by the Honors College or the Office of International Study. One honors hour will be waived for each 3 semester credit hours earned with a grade of 'A', 'B', or 'S'. Permission to use this option must be approved in advance by the Honors College.

Note: Waiver of university honors credit for service learning or international study does not reduce or affect in any way the total number of hours required for graduation. Waiver of honors credit for service learning or international study cannot be applied toward the final project requirement.

### Honors Certificate Program

Sophomores, juniors and seniors with a cumulative grade-point average of 3.2 are eligible for the Honors Certificate Program. A student who completes at least two 300- or 400-level honors seminars will be given a Certificate of Distinction at graduation and special recognition in the commencement program. See the honors Dean for details on available seminars, Honors College, Conroy Honors Center.

### Crimson Scholars Program

The Crimson Scholars Program is a benefits and recognition program for academically superior students who have a cumulative 3.5 GPA and are taking three or more credits per semester. Crimson Scholars receive a number of benefits, including:

- Automatic eligibility for all Honors courses
- Early registration
- Extended library check-out privileges
- Special advising
- Students who have maintained Crimson Scholar status for 90 Crimson hours\* from New Mexico State University at the time of graduation receive a "Crimson Scholar Graduate" notation on their transcript
- Students who accumulated 75 Crimson hours\* from New Mexico State University at the time of applying for their degree receive recognition in the commencement program and are eligible to purchase a Crimson Scholar cord for graduation.
- Students who have maintained Crimson Scholars status for 24 Crimson hours\* from New Mexico State University earn a Crimson scholar pin

To be eligible for the Crimson Scholars Program, applicants must be degree seeking.

- Entering freshmen must have either: a minimum ACT standard composite score of 26; a 3.75 or better high school GPA; or a minimum SAT score of 1170; or a 3.75 or better high school GPA
- Currently enrolled students must have a minimum cumulative GPA of 3.5 for 3 or more credits\* at NMSU
- Transfer students must have a 3.5 cumulative GPA from their previous institution(s) or complete 3 or more credits\* at NMSU for eligibility

\* does not include 1 or audit course designations at NMSU

To maintain Crimson Scholar status:

- Freshmen entering on an ACT score must maintain a cumulative GPA of 3.5 and complete three or more credits per semester to continue in the program.

- Sophomores, juniors and seniors must maintain a minimum cumulative GPA of 3.5 and be currently enrolled in a total of 3 or more credits\* per semester at NMSU or any NMSU community college to retain their Crimson Scholars status.
- Crimson Scholars whose GPA drops below the required cumulative 3.5 or drop below the three credit minimum will be dropped from the program. If in the following semester, the student's cumulative GPA and credits again meet the minimum requirement, the student will *automatically* be reinstated.

In recognition of the student's academic achievement, a statement designating "Crimson Scholar Graduate" is placed on the student's transcript after completion of 90 Crimson hours\* from New Mexico State University at the time of graduation and a minimum cumulative GPA of 3.5. To be designated in the commencement program as a Crimson Scholar graduate, a student must complete a minimum of 75 Crimson hours\* from New Mexico State University at the time of applying for their degree receive recognition in the commencement program and are eligible to purchase a Crimson Scholar cord for graduation as a Crimson Scholar and must have a minimum cumulative GPA of 3.5. Students who complete 24 Crimson hours\* from New Mexico State University earn a Crimson Scholar pin. Crimson Scholars are entitled to early registration and library privileges. Additional information is available from the Crimson Scholars Office, located in the Conroy Honors Center.

*NOTE: Crimson Scholars interested in work-study positions must submit a yearly Free Application for Federal Student Aid (FAFSA) and complete a financial aid file with the NMSU Office of Financial Aid.*

*\* does not include I or audit course designations at NMSU*

### **The Honors Living and Learning Community (HLLC)**

The New Mexico State University Honors Living and Learning Community (HLLC) is an educational initiative that links in-class and out-of-class learning experiences for honors students. The goals of the Honors Living and Learning Community are to: (1) supplement classroom learning experiences with co-curricular programming; (2) foster the development of an honors community that includes honors students, faculty, and staff; and (3) create a supportive environment for honors students. Above all, the Honors Living and Learning Community aims to develop a small-college environment within the context of a large research university, thus giving students the benefits of both. Honors students, especially first-year students, are encouraged to take advantage of this special opportunity. The Honors Living and Learning Community is comprised of three components:

The Conroy Honors Center — is the academic home of the Honors College. This historic building was designed by the renowned southwestern architect Henry C. Trost and built in 1908 to house the campus chapter of the YMCA. The Conroy Center houses the administrative offices of the program along with three seminar rooms, a student commons area, a kitchen and a computer lab.

The Honors Residence Hall — is located in Rhodes, Garrett, Hamiel Hall (RGH) and is the focus of NMSU's vibrant honors community. It is a place where honors students live among a community of excellent students with outstanding academic records and who are interested in getting the most out of the academic opportunities offered to them at a large research institution. It also hosts many social and extracurricular academic activities.

The Honors Residence Hall is equipped with two electronic classrooms, where many introductory honors courses are taught. The honors faculty participate in residence hall programming and frequently attend residence hall floor meetings with students. The Honors Residence Hall is open to both men and women of any university class standing.

The Crimson Scholar Residential Mentors Program — Crimson Scholar Residential Mentors live in the Honors Residence Hall and promote academic success of the entire student body by tutoring and mentoring residence hall students. Mentors also foster a sense of community throughout the Honors Residence Hall by creating personal affiliations, engaging in scholarly conversation, and lending academic support to their peers.

### **Honors Program information:**

**Honors College, MSC 3HON  
New Mexico State University  
P O Box 30001**

**Las Cruces NM 88003-8001 (575) 646-2005**

### **Crimson Scholars Program information:**

Yvonne Flores, Coordinator  
Crimson Scholars Program, MSC 3HON  
New Mexico State University  
P O Box 30001

Las Cruces NM 88003-8001 (575) 646-2542

# NMSU COMMUNITY COLLEGES

---

**President • Garrey Carruthers**

**Executive Vice President and Provost • Daniel Howard**

**Associate Vice President and Deputy Provost • Greg Fant**

**President NMSU-Alamogordo • Kenneth Van Winkle**

**President NMSU-Carlsbad • John Gratton**

**President NMSU-Doña Ana • Renay Scott**

**Interim President NMSU-Grants • Harry Sheski**

**Administrative Assistant • Kimberly Altamirano**

NMSU's Community College campuses make two years of college education available to students in their home environment. The community colleges provide a high quality program of education for all full-time and part-time students; provide occupational education; and provide noncredit community education courses.

Degree completion programs have been established at all NMSU Community College campuses. Students who live outside the Las Cruces campus area may pursue a degree in Grants, Alamogordo or Carlsbad. Some Las Cruces campus courses are available through distance education so students may complete their degree without ever having to relocate.

A student attending any NMSU Community College campus is enrolled as a New Mexico State University student and may change campuses without completing additional admission procedures.

## Associate Degree Graduation Requirements

Associate degree programs are offered at the NMSU Community College campuses for those desiring specialized training for employment. Community, junior, and technical college transfer students may be admitted and classified on the basis of acceptable credits at two-year institutions. The Associate in prebusiness degree, administered by the College of Business, is available to NMSU Community College campus students completing the requirements as outlined in the "College of Business (p. 122)" section of this catalog. Most courses required for the Associate in Applied Science degree with options in electronics technology offered at the Carlsbad, Grants and Alamogordo campuses meet lower division requirements for the baccalaureate degree program in Electronics Engineering Technology, which is offered on the Las Cruces campus through the College of Engineering. The Associate Degree in Pre-Engineering is administered through the College of Engineering.

Math requirements in some associate degree and certificate programs vary. ENGL 111G and all developmental studies courses in English, math and reading must be completed with a grade of C- or better. Please refer to your NMSU Community College campus catalog for details. The last 15 semester credits for an associate degree must be taken in residence at NMSU or one of the NMSU Community Colleges. Degree requirements remain in effect for six years. The designation, Meritorious Graduate, is awarded to the top 15 percent of the students receiving associate degrees within each college in any one academic year, provided 45 or more credits have been completed at NMSU and/or a NMSU Community College with computable grades.

## Occupational Education (OE prefix) Courses

OE prefix courses may be applicable toward four-year degrees at New Mexico State University without special approval of the appropriate department head and college dean. The College of Agriculture, Consumer and Environmental Sciences, the College of Business, the College of Health and Social Services, and the College of Extended Learning will accept a number of OE prefix courses in certain degree programs. Contact the respective college's advisor for detailed information.

## Certificate Programs

In addition to the regular degree programs offered by the NMSU Community College campuses, certificate programs in selected areas are offered. Students

are advised to contact the NMSU Community College campus for information on available certificate programs.

## NMSU Community College Campus Information

Information concerning NMSU Community College campus programs, class schedules, catalogs, registration and other data may be obtained from the NMSU Community College campus administration.

### **Kenneth Van Winkle, President** **NMSU-Alamogordo Community College**

2400 N. Scenic Dr.  
Alamogordo, New Mexico 88310  
Alamogordo Course Catalog  
(575) 439-3696

### **John Gratton, President** **NMSU-Carlsbad Community College**

1500 University Drive  
Carlsbad, New Mexico 88220  
Carlsbad Course Catalog  
(575) 234-9210

### **Dr. Renay Scott, President** **NMSU-Doña Ana Community College**

Box 30001, Dept. 3DA  
Las Cruces, New Mexico 88003  
Dona Ana Course Catalog  
(575) 527-7510

### **Harry Sheski, Interim President** **NMSU-Grants Community College**

1500 Third Street  
Grants, New Mexico 87020  
Grants Course Catalog  
(505) 287-6678



# COURSE DESCRIPTIONS

## COURSE LISTINGS

Courses are titled in the following style:

ASTR 110G Introduction to Astronomy (4 cr. (3+3P))

- Course number- (110 ) indicates the course is a freshman course.
- Suffix (G)- indicates a New Mexico Common Core course.
- Suffix (V)- indicates a Viewing a Wider World course.
- Suffix (H)- indicates a Honors courses outside of the Honors prefix.
- Suffix (L)- indicates a Laboratory course.
- Suffix (M)- indicates a Multicultural course.
- Credits - The unit of university credit is the semester hour, which is the equivalent of one hour's recitation or a minimum of two hours of practice per week for one semester. The (3+3P) means that the class meets for 150 minutes per week for lecture and also requires 150 minutes per week of "laboratory" (practice, field work, or recitation).

### Course Number Designation

100-199 – Freshman courses  
 200-299 – Sophomore courses  
 300-399 – Junior courses  
 400-499 – Senior courses  
 450-499 – Senior or graduate courses  
 500-599 – First-year graduate courses  
 600-699 – Advanced graduate courses  
 700 – Ph.D. dissertation

In order to register for 300-level courses, a student must have met the basic academic skills requirements.

The letter N will be added as a suffix to the course number when the course credits are not applicable to the baccalaureate and specified associate degrees.

## A E - AEROSPACE ENGINEERING

### A E 102 - Introduction to Aerospace Engineering (1 cr.)

A survey course of aeronautical, aerospace, and astronautical engineering, with an emphasis on basic aerospace concepts and major aerospace principles without going into detailed math and analysis. Students are given the opportunity to listen to guest speakers and participate in projects utilizing the NMSU Ultralight and NMSU wind tunnel. Restricted to: Main campus only.

### A E 339 - Aerodynamics I (3 cr.)

Fluid properties, conservation equations, incompressible 2-dimensional flow; Bernoulli's equation; similarity parameters; subsonic aerodynamics: lift and drag, analysis and design of airfoils. Prerequisite(s): M E 234 and MATH 392. Restricted to: A E majors.

### A E 362 - Orbital Mechanics (3 cr.)

Dynamics of exoatmospheric flight of orbiting and non-orbiting bodies; 2-body orbital dynamics and Kepler's laws; orbits in 3 dimensions; orbit determination; orbit design and orbital maneuvers; lunar and interplanetary trajectories. Prerequisite(s): MATH 392, M E 234, and M E 261.

### A E 363 - Aerospace Structures (3 cr.)

Advanced concepts of stress and strain, introduction to the analysis of aero structures, complex bending and torsion, thin walled sections and shells, computational techniques. Prerequisites: C E 301

### A E 364 - Flight Dynamics and Controls (3 cr.)

Fundamentals of airplane flight dynamics, static trim, and stability; spacecraft and missile six degree of freedom dynamics; attitude control of spacecraft. Prerequisite(s): MATH 392, M E 234, and M E 261.

### A E 400 - Undergraduate Research (1-3 cr.)

Performed with the direction of a department faculty member. May be repeated for a maximum of 6 credits. Prerequisite(s): Consent of faculty member.

### A E 405 - Special Topics (3 cr.)

Topics of modern interest to be offered by the departmental staff. Consent of instructor required.

### A E 419 - Propulsion (3 cr.)

Propulsion systems, thermodynamic cycles, combustion, specific impulse; principles of gas turbines, jet engines, and rocket propulsion systems. Prerequisites: A E 439

### A E 424 - Aerospace Systems Engineering (3 cr.)

Basic principles of top down systems engineering and current practice; preliminary and detailed design of aircraft and space vehicles, including requirement, subsystem interaction, and integration, tradeoffs, constraints and non-technical aspects. Prerequisite(s): A E 362.

### A E 428 - Aerospace Capstone Design (3 cr. (3+2P))

Team Project-analysis, design, hands-on build test, evaluate. Prerequisite(s)/Corequisite(s): A E 447. Prerequisite(s): A E 363 and A E 424.

### A E 439 - Aerodynamics II (3 cr.)

Principles of compressible flow, momentum and energy conservation; thermal properties of fluids; supersonic flow and shock waves; basics of supersonic aerodynamics. Prerequisite(s): A E 339, M E 240, and M E 328.

### A E 447 - Aerofluids Laboratory (3 cr. (2+3P))

Use of subsonic wind tunnels and other flow to study basic flow phenomena and methods of fluid measurement and visualization. Prerequisite(s)/Corequisite(s): A E 439. Prerequisite(s): M E 345.

### A E 451 - Aircraft Design (3 cr.)

Conceptual design of aircraft based on existing designs, empirical relationships, and theory. Dimensioning, structural design, and performance analysis of major subcomponents such as fuselage, wing, and propulsion system. Static stability and control analysis. Prerequisite(s): A E 339 and A E 363.

## A EN - AGRICULTURAL ENGINEERING

### A EN 459 - Design of Water Wells/Pumping Systems (3 cr.)

Design of water wells; selection and specification of pumps and power units. Prerequisite: C E 382.

### A EN 475 - Soil and Water Conservation (3 cr.)

Types and extent of erosion. Design and operation of structural and vegetative systems to control erosion. Elements of hydrology. Prerequisite: C E 331. Corequisite: C E 382 or consent of instructor.

### A EN 478 - Irrigation and Drainage Engineering (3 cr. (2+3P))

Design and operation of surface and sprinkler irrigation systems; pumping and conveyances; introduction to principles and practices of drainage systems and wells. Prerequisite: C E 382 or consent of instructor.

### A EN 498 - Special Topics (1-3 cr.)

Prerequisite: consent of instructor. May be repeated for a maximum of 6 credits.

**A S - ARTS AND SCIENCES****A S 100 - Insights: University Experience for Future Careers (1 cr.)**

Research and investigation of college majors and career opportunities.

**A S 101 - Success Seminar (1 cr.)**

Academic and personal strategies and campus resources to enhance scholastic achievement. Prerequisite: limited to freshmen and students on warning or probation.

**A S 102 - Career Planning and Development (1 cr.)**

Individual assessment of self, the world of work, and the career decision making process.

**A S 200 - Interdisciplinary Topics (1-4 cr.)**

An interdisciplinary approach to subject matter cutting across departmental fields. Specific subjects to be announced in the Schedule of Classes.

**A S 300 - Interdisciplinary Topics (1-3 cr.)**

An interdisciplinary approach to subject matter cutting across departmental fields. Specific subjects to be announced in the Schedule of Classes. Graded S/U.

**A S 305 - Prehealth Internship (1-3 cr. (30P))**

Placement with an office of a health professional. May be repeated for a maximum of 3 credits. Student must be registered with the Prehealth Advisory Committee and must have a minimum of 15 credits completed at NMSU. Consent of instructor required. Graded: S/U. Prerequisite(s): Minimum junior standing, 2.5 GPA.

**A S 350 - Faculty Led International Travel (1-3 cr.)**

This is an intensive Faculty Led International Program and earns an additional credit(s) for participation the FLIP. May be repeated up to 3 credits. Prerequisite(s)/Corequisite(s): Students need to be enrolled or have taken the course related to the Faculty Led International Program.

**A S 480 - Topics in Pharmacy (12-18 cr.)**

This course accepts the transfer of credits from the University of New Mexico College of Pharmacy to New Mexico State University for students who are participants in the UNM/NMSU Pre-Pharmacy Cooperative Program. May be repeated up to 18 credits. Prerequisite(s): Student must have completed 91 undergraduate credits at NMSU. 35 must be General Education, 48 must be upper division, and 6 must be Viewing a Wider World. Restricted to: Bachelor of Individualized Studies - Pre-Pharmacy majors.

**A S 490 - Advanced Topics in Pharmacy (12-18 cr.)**

This course accepts the transfer of credits from the University of New Mexico College of Pharmacy to New Mexico State University for students who are participants in the UNM/NMSU Pre-Pharmacy Cooperative Program. May be repeated up to 18 credits. Prerequisite(s): Student must have completed 91 undergraduate credits at NMSU. 35 must be General Education, 48 must be upper division, and 6 must be Viewing a Wider World. Restricted to: Bachelor of Individualized Studies, Pre-Pharmacy majors.

**A ST - APPLIED STATISTICS****A ST 250 - Special Topics (1-4 cr.)**

Subjects and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester and a grand total of 9 credits.

**A ST 251G - Statistics for Business and the Behavioral Sciences (3 cr.)**

Techniques for describing and analyzing data; estimation, hypothesis testing, regression and correlation; basic concepts of statistical inference. Prerequisite: C- or better in MATH 120. Same as STAT 251G.

**A ST 311 - Statistical Applications (3 cr.)**

Techniques for describing and analyzing economic and biological data; estimation, hypothesis testing, regression and correlation; basic concepts of statistical inference. Prerequisite(s): MATH 120.

**A ST 350 - Special Topics (1-4 cr.)**

Specific subjects and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester and a total of 9 credits.

**A ST 450 - Special Topics (1-4 cr.)**

Specific subjects and credits announced in the Schedule of Classes. Maximum of 4 credits per semester and a grand total of 9 credits.

**A ST 456 - Statistical Methods and Data Analysis (3 cr. (2+2P))**

Methods for sampling and estimation; analysis of variance and elementary experimental designs; linear regression and correlation; multiple regression, variable selection methods and residual analysis; introduction to statistical packages. Prerequisite: A ST 251G, A ST 311, or equivalent.

**A ST 498 - Independent Study (1-3 cr.)**

Individual studies directed by consenting faculty with prior approval of the department head. Maximum of 3 credits per semester and a grand total of 3 credits.

**ACCT - ACCOUNTING****ACCT 200 - A Survey of Accounting (3 cr.)**

Emphasis on financial statement interpretation and development of accounting information for management. For engineering, computer science, and other non business majors. Prerequisite: one C S course or consent of instructor. Community Colleges only.

**ACCT 221 - Financial Accounting (3 cr.)**

Interpretation and use of financial accounting information for making financing, investing, and operating decisions.

**ACCT 222 - Management Accounting (3 cr.)**

Development and use of accounting information for management decision making. Prerequisite(s): ACCT 221.

**ACCT 301 - Financial Accounting I (3 cr.)**

Concepts, principles, and practices of financial accounting, stressing the determination of income and financial position. Prerequisite(s): C- or better in ACCT 221 and ACCT 222.

**ACCT 302 - Financial Accounting II (3 cr.)**

A continuation of ACCT 301. Prerequisite(s): C- or better in ACCT 301.

**ACCT 351 - Accounting Systems (3 cr.)**

Covers accounting information systems as processors of data for financial reporting and control of economic organizations. Prerequisite(s): ACCT 222 and ACCT 221.

**ACCT 353 - Cost Accounting (3 cr.)**

The development and use of cost accounting information for inventory valuation, income determination, and cost control. Prerequisite(s): C- or better in both ACCT 222 and ACCT 221.

**ACCT 403 - Federal Taxation I (3 cr.)**

Basic federal income tax laws; emphasis on determination of taxable income of individuals. Prerequisite(s): A C- or better in ACCT 221 and ACCT 222.

**ACCT 451 - Auditing Theory and Practices (3 cr.)**

Auditing standards, audit evidence, auditors reports and opinions and professional responsibilities. Prerequisite(s): ACCT 351 and C- or better in ACCT 302.

**ACCT 455 - Federal Taxation II (3 cr.)**

Federal income tax laws applicable to partnerships, corporations, fiduciaries, tax research, tax planning. Prerequisite(s): C- or better in ACCT 403 or consent of instructor.

**ACCT 456 - Accounting for Nonprofit Organizations (3 cr.)**

Control and reporting problems unique to governmental units and other nonprofit organizations. Fund accounting principles, procedures and reports. Prerequisite(s): C- or better in ACCT 302.

**ACCT 457 - Mergers, Acquisitions, and Partnerships (3 cr.)**

Consolidated financial statements, accounting for partnership formation and liquidation. Prerequisite(s): C- or better in ACCT 302.

**ACCT 459 - Ethics and Professionalism in Accounting (3 cr.)**

Introduction to ethical reasoning, integrity, objectivity, independence, and professional accounting issues. Students will apply the concepts and theories to accounting-specific cases. Prerequisite: grade of C- or better in ACCT 451 or concurrent enrollment or consent of instructor. Same as ACCT 559.

**ACCT 460 - Fraud Examination and Prevention (3 cr.)**

Covers business fraud as it is occurring in American society. Emphasis is on occupational fraud and financial statement fraud. Examines various types of fraud, its symptoms and effective investigation techniques. Effective fraud prevention measures are discussed throughout the course. Emphasizes case studies and the application of principles to actual fraud cases. Prerequisites: a C- or better in ACCT 451 or concurrent enrollment.

**ACCT 490 - Selected Topics (1-3 cr.)**

Current topics in accounting. Prerequisites vary according to the seminar offered. May be repeated for a maximum of 12 credits under different subtitles.

**ACCT 498 - Independent Study (1-3 cr.)**

Individual studies directed by consenting faculty with the prior approval of the department head. Prerequisites: junior or senior standing and consent of instructor. A maximum of 3 credits may be earned.

**ACES-AGRICULTURAL, CONSUMER, AND ENVIRONMENTAL SCIENCES****ACES 101 - Agricultural Leadership Development (1-3 cr.)**

This course will introduce the student to skill sets necessary to engage in the process of leadership through an applied project. A broad spectrum of principles and applications associated with the College of Agricultural, Consumer and Environmental Sciences will be employed. The development of a specific project through a collaborative process will be required. Students will be engaged in hands-on, real-time experiences applicable to agriculture. Course may be repeated once. Student must have a 3.5 GPA and above. Consent of Instructor required.

**ACES 111 - Freshman Orientation (1 cr.)**

Orientation to University life, including the understanding and utilization of resources that promote University success. Designed to promote success in achieving a career objective and perseverance for degree completion. Promotes a recognition of changes required in moving from high school to the University. Eight weeks in length, required for all freshmen in the College of Agricultural, Consumer and Environmental Science.

**ACES 121 - Financial Fitness for College Students (1 cr.)**

An introduction to personal financial practices in post high school and/or college lives. Emphasis is placed on budgeting, savings, investment, college debt, student loans, credit cards, scams and consumer protection.

**ACES 199 - Academic Excellence (1-3 cr.)**

Academic curriculum of excellence that includes the development of collaborative learning and student success environment, learning diverse learning styles and multiple intelligences, and developing multi-contextual academic communication styles. Restricted to: Open to all ACES majors. Restricted to Las Cruces campus only.

**ACES 201 - Agricultural Leadership Development (1-3 cr.)**

This course will introduce the student to skill sets necessary to engage in the process of leadership through an applied project. A broad spectrum of principles and applications associated with the College of Agricultural, Consumer and Environmental Sciences will be employed. The development of a specific project through a collaborative process will be required. Students will be engaged in hands-on, real-time experiences applicable to agriculture. Course may be repeated once. Student must have a 3.5 GPA and above. Consent of Instructor required.

**ACES 301 - Agricultural Leadership Development (1-3 cr.)**

This course will introduce the student to skill sets necessary to engage in the process of leadership through an applied project. A broad spectrum of principles and applications associated with the College of Agricultural, Consumer and Environmental Sciences will be employed. The development of a specific project through a collaborative process will be required. Students will be engaged in

hands-on, real-time experiences applicable to agriculture. Course may be repeated once. Student must have a 3.5 GPA and above. Consent of Instructor required.

**ACES 305 - Advanced Leadership and Communication in Agricultural Sciences (1-3 cr.)**

Theory and application of advanced communication techniques, focusing on public speaking and public relations, are emphasized in this course for current and potential college ambassadors. May be repeated to a maximum of 8 credits. Consent of instructor required.

**ACES 401 - Agricultural Leadership Development (1-3 cr.)**

This course will introduce the student to skill sets necessary to engage in the process of leadership through an applied project. A broad spectrum of principles and applications associated with the College of Agricultural, Consumer and Environmental Sciences will be employed. The development of a specific project through a collaborative process will be required. Students will be engaged in hands-on, real-time experiences applicable to agriculture. Course may be repeated once. Student must have a 3.5 GPA and above. Consent of Instructor required.

**AERO - AEROSPACE STUDIES****AERO 121 - The Air Force Today I (2 cr. (1.25+2P))**

Survey course on the USAF and AFROTC. Includes mission and organization of the Air Force, officership and professionalism, military customs and courtesies, as well as basic communication skills. Leadership Lab practicum, AERO 000 is included. \*Changes: Made "officership" one word

**AERO 122 - The Air Force Today II (2 cr. (1.25+2P))**

Continuation of AERO 121, with emphasis on Air Force officer opportunities, group leadership problems, and further development of communication skills (oral and written). Includes Leadership Lab practicum, AERO 000.

**AERO 221 - The Air Force Way I (2 cr. (1.25+2P))**

Topics include: Air Force heritage, Air Force leaders, an introduction to ethics and values, and an application of communication skills. Facilitates the transition from Air Force ROTC cadet to Air Force ROTC candidate. Includes Leadership Lab practicum, AERO CIOD.

**AERO 222 - The Air Force Way II (2 cr. (1.25+2P))**

Continuation of AERO 221, including an introduction to leadership, quality Air Force, and continued application of communication skills. Includes Leadership Lab practicum, AERO 000.

**AERO 223 - Air Force Leadership Development (1 cr. (2P))**

This course prepares cadets to excel in field training. Cadets are prepared in all facets of field training, including: leadership competency evaluations, the Cadet's Guide to Field Training, individual drill evaluations, attention to detail, dining hall procedures, maintenance of living areas, and the group problem solving process. Restricted to: Main campus only.

**AERO 301 - Air Force Leadership and Management I (4 cr. (3+2P))**

Study of the leadership and quality management fundamentals, professional knowledge, Air Force doctrine, leadership ethics, and communication skills required of an Air Force junior officer. Includes Leadership Lab practicum, AERO 000. Prerequisites: Completion of AERO 121/122 and 221/222, or permission of instructor.

**AERO 302 - Air Force Leadership and Management II (4 cr. (3+2P))**

Continuation of AERO 301, with case studies used to examine Air Force leadership and management situations as a means of demonstrating and exercising practical application of the concepts studied. Continued emphasis on developing communication skills. Includes Leadership Lab practicum, AERO 000. Prerequisites: Completion of AERO 121/122 and 221/222, or permission of instructor.

**AERO 401 - Preparation for Active Duty I (4 cr. (3+2P))**

Examines the national security process, regional studies, and Air Force doctrine. Special topics focus on the military as a profession, officership, and civilian

control of the military. Communication skills (oral and written) are refined. Includes Leadership Lab practicum, AERO 000. Prerequisites: Completion of AERO 121/122, 221/222, and 301/302, or permission of instructor.

**AERO 402 - Preparation for Active Duty II (4 cr. (3+2P))**

Continuation of AERO 401, concentrating on advanced leadership ethics, military justice, preparation for active duty, and current issues affecting military professionalism. Continued emphasis on communication skills necessary to succeed as a junior Air Force officer. Includes Leadership Lab practicum, AERO 000. Prerequisites: Completion of AERO 121/122, 221/222, 301/302, and 401 or permission of instructor.

**AERO 411 - Aerospace Studies Independent Study (1 cr.)**

This course provides in-depth research on specified topics of the United States Air Force and NMSU's Detachment 505 history. Consent of instructor required. Prerequisite(s): AERO 301, AERO 302, AERO 401, AERO 402.

**AG E - AGRICULTURAL ECONOMICS**

**AG E 100 - Introductory Agricultural Economics and Business (3 cr.)**

Orientation to agricultural supply businesses, farm and ranch production, food markets, food processing and distribution, and food consumption. Microeconomic principles for managers.

**AG E 101 - Intro to Agribusiness Management (1 cr.)**

Orientation to the Department of Agricultural and Agricultural Business. Students will discover the types of careers available to graduates.

**AG E 200 - Special Topics (1-4 cr.)**

Specific subjects and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester. No more than 9 credits toward a degree. Consent of instructor required.

**AG E 210G - Survey of Food and Agricultural Issues (3 cr.)**

Survey of food and agricultural issues, including: geography of food production and consumption; human-agricultural-natural resource relations; agriculture in the United States and abroad; modern agribusiness; food safety; food, agriculture, and natural resources policy; ethical questions; role and impact of technology. Crosslisted with: FSTE 210G.

**AG E 236 - Agribusiness Management Principles (3 cr.)**

Description and application of management and financial principles, market planning, and organization theory in small business situations.

**AG E 250 - Technology and Communication for Business Management (3 cr. (2+2P))**

Understanding and improving skills for data analysis, information management and communication is the focus of this course. Drawing examples from a variety of management, business, technological and research situations, students discover the versatility and variety of uses of computer applications such as spreadsheet, database, presentation and document software. Emphasizing a "hands-on" approach students learn the foundations of these tools and their use.

**AG E 260 - Farm and Ranch Records (3 cr.)**

Purpose and methods of keeping and analyzing farm and ranch records. Net worth and income statements, efficiency measures, analysis of the business, and tax computations.

**AG E 300 - Internship (1-4 cr.)**

Professional work experience under the supervision of a faculty member. May be repeated up to 6 credits. Consent of Instructor required. Prerequisite(s): Consent of instructor. S/U Grading (S/U, Audit). Restricted to Las Cruces campus only.

**AG E 305 - Marketing and Pricing Agricultural Products (3 cr.)**

Description of agricultural processes and functions; food production and consumption patterns; agricultural product prices; nature of competition in agricultural product markets; commodity markets. Prerequisites: ECON 201G or ECON 252G. Same as MKTG 305.

**AG E 311 - Financial Futures Markets (3 cr.)**

Emphasis on financial instruments, currencies, and stock index futures. Principles of hedging, arbitrage, speculation, technical and fundamental price analysis, and trading strategies. Simulated computer trading game. Same as FIN 311.

**AG E 314 - Agricultural Law (3 cr.)**

Relationship of common-law principles, statutory law and regulatory law to problems involving agriculture with an emphasis on New Mexico issues. Legal problems relevant to agribusiness, torts, fencing laws, liability for agricultural pollution, irrigation water rights, corporations and partnerships, land tenure, farm and ranch tenancy, agricultural labor, farm and ranch management and taxation.

**AG E 315V - World Agriculture and Food Problems (3 cr.)**

Survey of food and agricultural issues in the U.S. and other countries. Covers: role of agriculture in economic development; trade in food and agricultural products; global food production, consumption, and marketing patterns; economics of technical change and food assistance; agriculture and the environment. Same as GEOG 315V.

**AG E 325 - Mastering Financial Agricultural Statements (3 cr.)**

Understanding, using, and constructing financial statements for agribusiness analysis. Learn how to produce integrated pro forma financial statements first on paper and then on a spreadsheet. Prepare and link revenue, cost, and financing input assumptions formulas to the financial outcomes on the spreadsheet. Prerequisite: AG E 250 or equivalent experience using spreadsheets. Same as ANSC 325.

**AG E 337V - Natural Resource Economics (3 cr.)**

Gain insight into important natural resource problems of our time. Apply economic principles to problems in the preservation, use, and development of agricultural, range, mineral, water, forestry, fishery, and environmental resources. Understand the use of cost-benefit analysis for government natural-resource projects, policies, and programs. Prerequisite: ECON 201G or ECON 252G. Same as ECON 337V.

**AG E 340 - Agricultural Prices (3 cr.)**

Focuses on the analysis of supply and demand characteristics of commodities with particular attention to agricultural products. Pays special attention to empirical analysis. Includes institutional aspects of pricing, temporal and spatial price relationships, price forecasting, and the economic consequences of pricing decisions. Prerequisite(s): ECON 252G, MATH 142G, A ST 311.

**AG E 342 - Economic Analysis of Agribusiness (3 cr.)**

A discussion and application of economic, managerial, and financial considerations in agricultural business. Prerequisite(s): ECON 251G, ECON 252G.

**AG E 375 - Dairy Economics (3 cr.)**

Integration of production, marketing, accounting, finance, agricultural policy, human behavior, and business environment concepts in management of dairy businesses using economic principles related to western dairies production and marketing businesses. Management and economic characteristics of dairying, government policies, including environment, labor, dairy pricing in federal milk marketing orders, and dairy price supports, will be included. Risk management strategies using futures and revenue insurance will be considered. Prerequisite(s): ECON 201G or ECON 252G.

**AG E 384V - Water Resource Economics (3 cr.)**

Use of economic principles to evaluate current and emerging issues in water resources. Applications focus on use of economic methods of analysis to current policy decisions surrounding agricultural, municipal, industrial, and environmental uses of water. Prerequisite: AG E 100 or ECON 252G. Same as ECON 384V.

**AG E 385 - Applied Production Economics (3 cr.)**

Analysis of economic principles of agricultural production and planning, emphasizing marginal principles. Practical application in budgeting and analyzing profit maximizing agricultural-production strategies. Prerequisite(s): ECON 252G, MATH 142G, A ST 311.

**AG E 400 - Seminar (1 cr.)**

Current topics and cases in the agribusiness literature stressing rigorous qualitative analysis of current problems and policy issues. Consent of Instructor required. Prerequisite(s): Senior standing. Restricted to: AEAB; NREP majors. S/U Grading (S/U, Audit).

**AG E 406 - The Economics of Sports (3 cr.)**

Applying the tools of economic analysis to a particular industry and gaining an in-depth knowledge of the interaction of professional sports teams and leagues with the economy and society. Same as ECON 406.

**AG E 420 - Special Problems (1-3 cr.)**

Special problems in agricultural economics or agricultural business of particular interest to the individual student. Maximum of 3 credits per semester. No more than 6 credits toward degree. Consent of instructor required.

**AG E 425 - Agribusiness Financial Management (3 cr.)**

Description and application of techniques and principles of financial management to problem situations faced by agricultural businesses, including financial statement development and analysis, capital budgeting, sources and costs of capital. Prerequisite: ECON 252G and ACCT 221.

**AG E 440 - Ranch Economics (3 cr.)**

Economic principles related to western ranch business. Business management, economic characteristics of ranches, ranch land problems and values, and economics of rangeland use. Prerequisite: ECON 201G or ECON 252G.

**AG E 445V - Agricultural Policy (3 cr.)**

Historical and cultural background of food and agricultural policy in the United States. Analysis of food and agricultural problems, policy-making and implementation. Economic evaluation of specific U.S. food and agricultural policy instruments, their domestic and international impacts. Prerequisites: ECON 251G and ECON 252G.

**AG E 450 - Advanced Microcomputer Applications in Agriculture (3 cr. (2+2P))**

An advanced course in electronic spreadsheets and the concepts and tools of database management emphasizing agricultural application. Same as AECC 550 with additional work for graduate credit. Cannot receive credit for both AG E 450 and AECC 550. Prerequisite: AG E 250 or consent of instructor.

**AG E 451 - Agribusiness Market Planning (3 cr.)**

Applications course in which self-managed teams develop and present marketing plans for agribusiness firms. Emphasis on integrating the marketing mix, particularly promotional elements. Prerequisites: AG E 305 or MKTG 305 or consent of instructor. Same as MKTG 451.

**AG E 452 - Food and Agricultural Products Marketing Research Techniques and Written and Oral Presentation Skill (3 cr.)**

This course focuses on learning marketing research methods applicable to developing new food and agricultural products and repositioning existing products for new markets. Students will be required to prepare precise written and oral marketing plans to industry standards and will have opportunities to present written and oral plans at national competitions.

**AG E 454 - Community Economic Development (3 cr.)**

In this course students acquire knowledge and understanding of the tools and techniques and the process by which people in a community study the economic conditions of that community, determine its economic needs and unfulfilled opportunities, decide what can and should be done to improve the economic conditions in that community, and then move to achieve agreed-on economic goals and objectives. Prerequisite(s): ECON 251G and ECON 252G.

**AG E 456 - Agribusiness Management (3 cr.)**

Integration of production, marketing, accounting, finance, agricultural policy, human behavior, and business environment concepts in management of agricultural businesses using a decision case approach. Prerequisites: Senior standing. Main campus only.

**AG E 458 - Economics of Making and Marketing Wine (3 cr.)**

Economics of making and marketing wine for small commercial wineries and amateurs. The class starts with selecting, crushing, and fermenting grapes and all the steps required through bottling the wine. Students must be 21 to enroll in the class. Consent of instructor required.

**AG E 470 - Real Estate Appraisal (3 cr. (2+2P))**

This course addresses issues influencing the value of real estate with some emphasis upon rural properties. Topics include courthouse records, property taxes, appraisal methodology, expert courtroom testimony, condemnation, and legal issues. Students will take field trips and write appraisals. Course material is relevant to students in Finance, Accounting, and Pre-Law, as well as Agriculture. Accredited for hours to apply to both pre-licensing and continuing education requirements of the New Mexico Real Estate Commission for both Appraisers and Real Estate Brokers. Prerequisite(s): Junior or above standing. Crosslisted with: FIN 470

**AG E 491 - Linear Programming Methods (1 cr.)**

Methods, techniques, and uses of linear and quadratic programming applications in agricultural economics.

**AG E 499 - Senior Thesis (3 cr.)**

Develop a thesis project with a faculty advisor. The senior thesis requires students to work creatively to apply business and economic principles to address a problem of concern. Prerequisites: consent of department head and have senior standing. Restricted to AEAB majors.

**AGRO - AGRONOMY****AGRO 100G - Introductory Plant Science (4 cr. (3+2P))**

Introduction to the physical, biological, and chemical principles underlying plant growth and development in managed ecosystems. In the laboratory portion of the class, students perform experiments demonstrating the principles covered in lecture. The course uses economic plants and agriculturally relevant ecosystems to demonstrate basic principles. Appropriate for nonscience majors. Same as HORT 100G.

**AGRO 200 - Special Topics (1-4 cr.)**

Specific subjects and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester. No more than 9 credits toward a degree. May be repeated up to 9 credits. Consent of Instructor required.

**AGRO 250 - Plant Propagation (3 cr. (2+2P))**

Practical methods of propagating horticultural plants by seed, cuttings, layering, grafting, division and tissue culture. Examination of relevant physiological processes involved with successful plant propagation techniques. Crosslisted with HORT 250.

**AGRO 257 - Introduction to Meteorology (4 cr. (3+3P))**

Introduction to Earth's atmosphere and the dynamic world of weather as it happens. Working with current meteorological data delivered via the Internet and coordinated with learning investigations keyed to the current weather; and via study of select archives. Consent of instructor required. Crosslisted with: GEOG 257 and SOIL 257.

**AGRO 300 - Special Topics (1-4 cr.)**

Specific subjects and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester. No more than 9 credits toward a degree. May be repeated up to 9 credits. Consent of Instructor required. Restricted to Las Cruces campus only.

**AGRO 303V - Genetics and Society (3 cr.)**

Relates the science of genetics with social ramifications. Ways in which genetics and evolution interact with social, political, and economic issues. Includes genetic engineering, gene therapy, DNA finger-printing, ancient DNA, plant and animal improvement, and future prospects. Students required to formulate value judgments on contemporary biological issues that will impact society. Crosslisted with: GENE 303V.

**AGRO 305 - Principles of Genetics (3 cr.)**

Covers fundamental principles of reproduction, variation, and heredity in plants and animals. Prerequisite(s): BIOL 111G, BIOL 211G and either CHEM 111G or CHEM 115. Crosslisted with: ANSC 305, BIOL 305, HORT 305 and GENE 305.

**AGRO 311 - Introduction to Weed Science (4 cr.)**

Principles of weed science with emphasis on characteristics of invasive plants, methods of integrated weed management, and current issues impacting weed management. Identification of local weeds. Prerequisite: junior standing or consent of instructor and CHEM 111G and BIOL 211G. Same EPWS 311.

**AGRO 315 - Crop Physiology (3 cr.)**

Whole plant physiological processes as related to growth, development, yield, quality and post harvest physiology of crop plants within the environment of the crop community. Prerequisite(s): EPWS/BIOL 314 or consent of instructor. Crosslisted with: HORT 315

**AGRO 365 - Principles of Crop Production (4 cr. (3+3P))**

Basic principles of crop production including environmental and physiological factors limiting production, plant nutrition and soil science, soil-water management, cropping systems and management, pest management, and economic factors influencing crop production. Prerequisite(s): AGRO/HORT 100, CHEM 111G or equivalent and MATH 120 or equivalent. Crosslisted with: HORT 365

**AGRO 377 - Introduction to Turfgrass Management (4 cr. (3+3P))**

Establishment and maintenance of turfgrass with emphasis on seeding methods, soil and water management, mowing, disease, insects and turfgrass varieties. Consent of instructor required. Crosslisted with: HORT 377

**AGRO 391 - Internship (1-6 cr.)**

Professional work experience under the joint supervision of the employer and a faculty member. A written report is required. No more than 6 credits toward a degree. Consent of Instructor required. Prerequisite(s): Consent of instructor. S/U Grading (S/U, Audit).

**AGRO 447 - Seminar (1 cr.)**

Organization, preparation, and presentation of current topics in agronomy, horticulture, and soil science. Same as HORT 447 and SOIL 447.

**AGRO 449 - Special Problems (1-3 cr.)**

Research problem, experience training, or other special study approved by a faculty adviser. Maximum of 3 credits per semester and a grand total of 6 credits. May be repeated up to 6 credits. Consent of Instructor required.

**AGRO 450 - Special Topics (1-4 cr.)**

Specific subjects to be announced in the Schedule of Classes. Maximum of 4 credits per semester and a total of 9 credits toward a degree. May be repeated up to 9 credits. Consent of Instructor required.

**AGRO 462 - Plant Breeding (3 cr.)**

Principles and practices involved with the genetic improvement of plants. Prerequisites: ANSC/AGRO/BIOL/HORT 305. Same as HORT 462.

**AGRO 471 - Plant Mineral Nutrition (3 cr.)**

Basic and applied aspects of plant requirements for soil-derived minerals and the processes whereby minerals are acquired, absorbed, translocated, and utilized throughout the plant. Prerequisite: EPWS/BIOL 314, or concurrent enrollment, or consent of instructor. Same as HORT 471 and EPWS 471.

**AGRO 483 - Sustainable Production of Agronomic Crops (4 cr. (3+2P))**

Characteristics and objectives of sustainable agricultural systems with application to the production, utilization, and improvement of cereal grain, fiber, forage and oilseed crops. Corequisite(s): AGRO 365 or HORT 365.

**AGRO 485 - Materials from Biorenewable Resources (3 cr.)**

Types, sources, composition and properties of biomass. Production, processing, and applications of biomass materials with energy, water, cost, sustainability, and waste management considerations. Crosslisted with: HORT 486, E S 485, SOIL 485 and CHME 485. Prerequisite(s): CHEM 211 or CHEM 313 or permission of instructor.

**AGRO 492 - Diagnosing Plant Disorders (3 cr. (2+3P))**

Systematic diagnosis of the physiological, pathological, and entomological causes of plant disorders. Prerequisites: EPWS 303 and EPWS 310. Same as EPWS 492 and HORT 492.

**ANSC - ANIMAL SCIENCE****ANSC 100 - Introductory Animal Science (3 cr.)**

Orientation and survey of livestock industry in the United States; introduction to feeding, breeding, and management practices for producing farm animals and select companion animals.

**ANSC 100 L - Introductory Animal Science Laboratory (1 cr. (2P))**

Students will observe and participate in activities related to farm animal management and will include areas of livestock selection, nutrition, reproductive physiology, animal ID and animal health. This lab is required for animal science majors. Pre/Corequisite(s): ANSC 100.

**ANSC 103 - Introductory Horse Science (3 cr. (2+2P))**

The light horse industry; breeds; introduction to feeding, breeding, marketing and management; handling and selecting horses for breeding and performance.

**ANSC 112 - Companion Animals in Society (3 cr.)**

Examination of the history, evolution, and future roles of companion animals in human society. The companion animal industry, governmental policies and laws, and sports and competitions involving interactions between companion animals and humans will be explored. Special emphasis will be given to canine, equine, and feline species. Restricted to: Main campus only.

**ANSC 190 - Western Equitation I (2 cr. (4P))**

Basic principles of Western riding, including care and management of the riding horse, equitation equipment, and development of riding skills.

**ANSC 200 - Introduction to Meat Animal Production (3 cr. (2+2P))**

Production and utilization of beef cattle, sheep and swine; emphasis on feeding, breeding, management problems and marketing; selection of animals for breeding and market.

**ANSC 201 - Introduction to Genetics for Animal Production (3 cr.)**

Introduction to genetics and inheritance relative to livestock production. Introduction to procedures for collection and use of performance information in livestock improvement programs. Prerequisites: BIOL 111G.

**ANSC 220 - Animal Science Career Development (1 cr.)**

Introduction to scientific disciplines and career options in animal-agriculture career-skill development, including resume preparation, networking, importance of internships, and leadership experiences in animal agriculture.

**ANSC 250 - Special Topics (1-4 cr.)**

Specific subjects and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester. No more than 9 credits toward a degree.

**ANSC 261 - Introduction to Animal Metabolism (3 cr.)**

Principles underlying the mechanisms of animal metabolism as they relate to production, maintenance, and health of animals. Prerequisite: CHEM 111G.

**ANSC 262 - Introduction to Meat Science (3 cr. (2+3P))**

Fundamental aspects of the red meat industry. Lecture topics and laboratory exercises include the nutrient value of meat, meat preservation, meat safety, muscle structure and contraction, slaughter and processing of beef, lamb, and pork, sausage manufacture, meat curing, meat cookery, and muscle and bone anatomy.

**ANSC 285 - Companion Animal Management (3 cr.)**

Introduction to care and management of companion animals. Topics will include an understanding of common varieties of pets and their place within human cultures, domestication, breeding ethics, nutrition, management; and health care topics.

**ANSC 288 - Horse Fitting and Selling (3 cr.)**

Preparation of horses for sale; planning and conduct of auction sale; application of marketing principles relating to selling horses. Prerequisite: ANSC 103 or consent of instructor.

**ANSC 289 - Management of Equine Operations (3 cr.)**

Introduction and application of business skills necessary to effectively manage the equine operation. Students will learn how to use strategic thinking and sound business management practices to succeed in the demanding equine industry. Prerequisite(s): ANSC 103 or consent of instructor.

**ANSC 290 - Western Equitation II (2 cr. (4P))**

Intermediate principles of Western riding, including reading horse behavior, limbering-up exercises, and developing riding skills. Introduction to rollbacks, turnarounds and stops. Prerequisite: consent of instructor.

**ANSC 295 - Team Competition in Animal Science (1-2 cr.)**

Training in team competition in the animal sciences. May be repeated for a maximum of 6 credits.

**ANSC 301 - Animal and Carcass Evaluation (3 cr. (2+2P))**

Determination of the market value of meat animals by relating live animal and carcass traits. Topics include the identification of economically important traits, grading, growth and development, wholesale and retail pricing, and futures and options markets.

**ANSC 302 - Therapeutic Horseback Riding I (3 cr.)**

Basic principles and understanding of horsemanship and therapeutic riding, including equipment, safety, how to be an effective volunteer, side walker, and horse handler. Consent of instructor required.

**ANSC 303 - Livestock, Meat and Wool Evaluation (4 cr. (3+2P))**

Selection, classification, grading, and judging of livestock, meat, and wool.

**ANSC 304 - Feeds and Feeding (3 cr. (2+2P))**

Digestibility of feeds, their nutritive values, grades, and classes, principles of ration formulation and computer ration formulations, and practical feeding of farm animals. Prerequisite(s): CHEM 111G, General Chemistry I.

**ANSC 305 - Principles of Genetics (3 cr.)**

Covers fundamental principles of reproduction, variation, and heredity in plants and animals. Prerequisite(s): BIOL 111G, BIOL 211G and either CHEM 111G or CHEM 115. Crosslisted with: AGRO 305, BIOL 305, HORT 305 and GENE 305

**ANSC 308 - Horse Evaluation (4 cr. (2+4P))**

Students will acquire a working knowledge of selection and classification of horses, learn criteria for evaluation and selection of breeding and show animals, gain a broad understanding of judging conformation and performance in the horse, and learn effective oral and written communication skills through defense of class placings. This course is considered an introduction to the NMSU Horse Judging Team.

**ANSC 310 - Exhibiting Livestock (3 cr. (1+4P))**

Fitting and showing beef cattle, dairy cattle, sheep and swine.

**ANSC 311 - Companion Animal Behavior and Training (3 cr.)**

An examination of the behavior of companion animals and the role that genetics, physiology, neurobiology and domestication have played. Training methods and problem behaviors will be examined. The influence of companion animal owners in shaping their animal's behavior will be explored. Emphasis will be on canine and feline species.

**ANSC 312V - Companion Animals and Human-Animal Interaction (3 cr.)**

The science behind the human-animal bond. An examination of the interactions between humans and companion animals and the effects on human health and wellness. Cultural and geographical differences in the human-animal bond will be explored. Topics will include Animal Assisted Activity (AAA), Animal Assisted Therapy (AAT), and service animals. Emerging and future uses of companion animals in human-animal interactions will be discussed.

**ANSC 320 - Equine Behavior and Training (3 cr. (6P))**

Basic principles, methods and philosophies of handling, breaking and training the two-year-old Western horse. May be repeated up to 6 credits. Prerequisite(s): ANSC 290 or consent of instructor.

**ANSC 321 - Advanced Equine Behavior and Training (3 cr. (6P))**

Continuation of ANSC 320. Further development of skills required to advance the training of the two-year-old Western horse. Emphasis will be placed on lateral work, lead changes, turn-arounds, obstacles, and making the horse accustomed to ranch and trail riding situations. Prerequisites: ANSC 320 or consent of instructor.

**ANSC 325 - Mastering Financial Agricultural Statements (3 cr.)**

Same as AG E 325.

**ANSC 350 - Special Topics (1-4 cr.)**

Specific subjects and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester. No more than 9 credits toward a degree.

**ANSC 351V - Agricultural Animals of the World (3 cr.)**

Global study of the development and use of animals for production of food and nonfood products. Climatic, cultural, and economic influences on systems of livestock production and species and breeds of livestock utilized will be evaluated.

**ANSC 353 - Advanced Livestock Evaluation (2 cr. (4P))**

Advanced selection, classification and grading of livestock.

**ANSC 363 - Meat Technology (3 cr.)**

Structure function and composition of muscles; factors influencing conversion of muscle to meat; buying, palatability and nutritive value of meat and meat products.

**ANSC 370 - Anatomy and Physiology of Farm Animals (4 cr. (3+2P))**

Structure and function of the animal body. Includes studies of the horse, cow, sheep, pig, and comparisons with the human body. Prerequisite(s): CHEM 111G and BIOL 111G or BIOL 211G.

**ANSC 383 - Equine Reproductive Management (3 cr. (1+4P))**

Anatomy, physiology, and endocrinology of reproduction of the mare and stallion; training in modern reproductive techniques employed in the horse industry. Prerequisites: ANSC 103, ANSC 289, and ANSC 370.

**ANSC 390 - Internship (1-3 cr.)**

Professional work experience under the joint supervision of the employer and a faculty member. A written report is required. No more than 3 credits toward a degree. Prerequisite: consent of instructor. Graded S/U.

**ANSC 395 - Team Competition II (1-2 cr.)**

Advanced training in team competition in the animal sciences. May be repeated for a maximum of 6 credits.

**ANSC 402 - Animal Science Seminar (1 cr.)**

Review of the current literature in animal sciences. Oral and written reports.

**ANSC 412 - Companion Animal Health and Diseases (3 cr.)**

Examination of the differences between infectious and non-infectious diseases and the basics of the immune system. Pathophysiology and treatment of common diseases affecting canines and felines and the role the pet owner plays in predisposing their animals to disease. Prerequisite(s): ANSC 285 or consent of instructor.

**ANSC 421 - Physiology of Reproduction (4 cr. (3+2P))**

Fertility and the role of hormones, nutrition, selection, management and environment in the maintenance of high reproductive rate. Prerequisite(s): ANSC 370.

**ANSC 422 - Animal Nutrition (3 cr.)**

Nutrient utilization and measurement and nutrient requirements for the various body functions. Prerequisite(s): CHEM 211 or CHEM 313 or ANSC 261.

**ANSC 423 - Animal Breeding (3 cr. (2+2P))**

Mating systems, and selection procedures; calculation of inbreeding coefficients, genetic relationships, and gene frequency. Prerequisite(s): ANSC 201 or 305.

**ANSC 424 - Swine Production (3 cr. (2+2P))**

Breeding, feeding, and care of swine. Prerequisite(s): ANSC 304.

**ANSC 425 - Horse Science and Management (3 cr. (2+2P))**

Senior level course requiring students to apply basic knowledge acquired in the previous courses to solve typical problems encountered in the horse industry. Specific topics include genetics and animal breeding, business and legal issues, reproduction, health, nutrition and exercise physiology. Prerequisite(s): ANSC 304 and ANSC 370 or concurrent registration.

**ANSC 426 - Beef Production (3 cr. (2+2P))**

Breeding, nutrition, management and marketing of beef cattle. Prerequisite(s): ANSC 304 and (ANSC 201 or ANSC 305) or concurrent registration.

**ANSC 427 - Dairy Production (3 cr. (2+2P))**

Breeding, nutrition, physiology and management of dairy cattle. Prerequisite(s): ANSC 304 and (ANSC 201 or ANSC 305) or concurrent registration.

**ANSC 428 - Sheep and Wool Production (3 cr. (2+2P))**

Genetics, nutrition, physiology and management of sheep. Wool grading, shearing, and disease control. Prerequisite(s): ANSC 304 and junior status.

**ANSC 448 - Problems (1-4 cr.)**

Individual investigation in a specific area of animal science. Maximum of 4 credits per semester. No more than 6 credits toward a degree. Consent of Instructor required.

**ANSC 450 - Equine Assisted Learning (3 cr.)**

Covers the complex relationship between horses and humans. Students are introduced to human psychological theories and methods of how people and horses can work together and the application of such structured learning settings using horses to achieve learning outcomes. Students will also be introduced to horsemanship including proper use and maintenance of equipment, safety, handling, basic care, behavior of horses and benefits of the horse. Consent of instructor required. Crosslisted with: FCS 450

**ANSC 458 - Livestock Behavior, Welfare and Handling (3 cr. (2+3P))**

Principles of animal behavior and evaluation of management practices on animal welfare in confined and rangeland livestock operations. Low stress livestock handling techniques. Design of livestock handling facilities. Prerequisite(s): RGSC 294 or ANSC 100. Crosslisted with: RGSC 458

**ANSC 462 - Parasitology (3 cr.)**

Same as EPWS 462.

**ANSC 462 L - Parasitology Lab (1)**

Classification, biological effects, and management of animal parasites of man, domestic animals, and wildlife. One-hour lab is optional. Same as EPWS 462.

**ANSC 468 - Advanced Dairy Herd Management (3 cr.)**

The course is offered through the Southern Great Plains Dairy Consortium in Clovis, NM, and will include breeding, nutrition, physiology, health and management of large herd dairies of the Southwest. Students must apply for the course through the Consortium, and can take it more than once, as topics vary. Consent of instructor required. Prerequisite(s): ANSC 304.

**ANSC 480 - Environmental Physiology of Domestic Animals (3 cr.)**

Influence of environmental factors on physiological processes of domestic animals. Prerequisite: ANSC 370.

**ANSC 484 - Ruminant Nutrition (3 cr.)**

Energy, nitrogen, and mineral nutrition of ruminants with special emphasis on digestive physiology and metabolism of nonprotein nitrogen compounds. Prerequisite: ANSC 422.

**ANSC 488 - Equine Nutrition and Exercise Physiology (3 cr. (2+2P))**

Students will gain an in-depth understanding of nutrition and exercise physiology in the horse. Students will investigate the response of major physiological

systems to exercise, conditioning and training, gastrointestinal physiology, nutrition requirements and clinical nutrition of the horse.

Prerequisite(s)/Corequisite(s): Junior standing or consent of instructor.

**ANTH - ANTHROPOLOGY****ANTH 110 - North American Prehistory (3 cr.)**

Introduction to major prehistoric cultural developments and changes in North America from the first entry of people into the New World until prior to the arrival of European settlers. Restricted to Community Colleges campuses only.

**ANTH 115 - Native Peoples of North America (3 cr.)**

General survey of the ethnology of selected native American groups.

**ANTH 116 - Native Peoples of the American Southwest (3 cr.)**

Introduction to the early history and culture of native people of the Southwest.

**ANTH 118 - Introduction to Historic Preservation (3 cr.)**

Introduction to historic preservation, its history, goals, methods, legal basis, and economic importance. Explores public role in decision-making. Community Colleges only.

**ANTH 120G - Human Ancestors (3 cr.)**

Evolutionary history of the human species from its origin in the primate order, with primary emphasis on the evolution of humankind during the past three million years. Examination of the social lives of apes and consideration of similarities to and differences from them. Biological foundations of human behavior, emphasizing thought, movement, and interaction.

**ANTH 125G - Introduction to World Cultures (3 cr.)**

Examine cross-cultural diversity and human universals through the lens of anthropological inquiry. Explore human thought and behavior in contemporary world cultures covering kinship, economic patterns, power structures, and religious practices and beliefs. The impact of cultural influence on everyday life is emphasized.

**ANTH 130G - Human's Place in Nature: Introduction to Biological Anthropology (3 cr.)**

This course uses scientific methods and principles to examine human evolutionary history and family tree relationships, as well as the biological foundations of human behavior. Through lectures, readings and laboratory assignments students are introduced to the history and development of modern evolutionary biology, molecular and population genetics, the primate and human fossil record and modern human biological diversity. By examining the social lives of apes and other primates, primitive and unique aspects of human behavior are identified and the lives of fossil ancestors are reconstructed. Corequisite(s): ANTH 130GL.

**ANTH 130GL - Human's Place in Nature Laboratory (1 cr. (2P))**

This one credit laboratory course uses scientific methods and principles to examine evidence for human evolutionary history and family tree relationships, primate ecology and behavior, and modern human diversity.

**ANTH 201G - Introduction to Anthropology (3 cr.)**

Exploration of human origins and the development of cultural diversity. Topics include biological and cultural evolution, the structure and functions of social institutions, belief systems, language and culture, human-environmental relationships, methods of prehistoric and contemporary cultural analysis, and theories of culture.

**ANTH 202G - Introduction to Archaeology and Physical Anthropology (3 cr.)**

Provides an introduction to the methods, theories, and results of two subfields of anthropology: archaeology and physical anthropology. Archaeology is the study of past human cultures. Physical anthropology is the study of human biology and evolution.

**ANTH 203G - Introduction to Language and Cultural Anthropology (3 cr.)**

Provides an introduction to the methods, theories, and results of two subfields of anthropology: linguistics and cultural anthropology. Linguistics is the study of



human language. Cultural anthropology is the study of the organizing principles of human beliefs and practices.

**ANTH 205 - Basic Methods in Archaeology (3 cr.)**

Examines the aims and methods of archaeology with particular emphasis on the nature of archaeological evidence and its interpretation. Community Colleges only.

**ANTH 297 - Elementary Special Topics (1-4 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits.

**ANTH 301 - Cultural Anthropology (3 cr.)**

Human concepts of culture and life processes.

**ANTH 304 - Contemporary SW Native Americans (3 cr.)**

Introduction to the contemporary Native American peoples of the Southwest borderlands. Emphasis on sociocultural change and persistence including present day socioeconomic status.

**ANTH 305V - Contemporary Native Americans (3 cr.)**

Introduction to contemporary native peoples and cultures of North America. Emphasis on sociocultural and socioeconomic history, sociocultural change and persistence, present day reservation life, and current social and economic goals.

**ANTH 306V - Peoples of Latin America (3 cr.)**

Introduction to cultural patterns and diversity of Latin America with emphasis on indigenous groups, peasants, plantation workers, and urban residents throughout South America, the Caribbean, Mexico, and Central America.

**ANTH 307 - Anthropology of Mexico and Guatemala (3 cr.)**

This course focuses on ethnographic study of people in Mexico and Guatemala. Through reading and discussing a variety of ethnographic works, the course will examine some historical and contemporary issues facing different groups of people in this region and will include topics such as gender, indigenous movements, migration, urbanization, and tourism.

**ANTH 308 - Peoples of the Southwest (3 cr.)**

Ethnographic study of cultural groups in the southwest. Critical examination and discussion of a variety of ethnographies. Designed for ANTH and SOC majors.

**ANTH 309 - Native American Philosophy and Spirituality (3 cr.)**

Survey of philosophical traditions of Indigenous peoples of the Western Hemisphere. This course examines various forms of spiritual expression which encompasses art, dance, music, political/social activism, and the relationship to land. This course looks at present-day spiritual issues and on-going practices in Native America. Crosslisted with: HON 362.

**ANTH 310 - America Before Columbus (3 cr.)**

This course examines the initial colonization and regional developments of prehistoric North America to the 15th century. This course provides information about how archaeologists reconstruct the past, characteristics of Native American peoples of the New World, and how pre-Columbian groups are related to many contemporary peoples we continue to reside among. The aim of this course is to understand the richness and complexity of the culture of North American prehistory and how it impacts our society today. Taught with ANTH 527.

**ANTH 312 - The Ancient Maya (3 cr.)**

Archaeological evidence of culture change in the Maya civilizations of Mexico and Central America from 2000 BC to the Spanish Conquest.

**ANTH 313 - Ancient Mexico (3 cr.)**

Archaeological evidence of culture change among the Aztecs, Zapotecs, and their predecessors in Central Mexico and Oaxaca from 7,000 BC to the Spanish Conquest.

**ANTH 315 - Introduction to Archaeology (3 cr.)**

Concepts and methods for study of prehistoric cultures; history of archaeological research.

**ANTH 316 - Archaeology of the American Southwest (3 cr.)**

Introduction to the prehistoric peoples of the North American Southwest, a historical approach emphasizing the rise of method and theory in the region.

**ANTH 318 - Historical Archaeology in Latin America (3 cr.)**

Examination of theoretical and methodological issues in historical archaeology in Latin America from 1450 to present, including conquest, colonialism, capitalism, and modernity as anthropological processes. The contributions and limitations of historical, ethnohistorical, and archaeological evidence are emphasized.

**ANTH 320 - Anthropological Linguistics (3 cr.)**

The study of language and culture with particular emphasis on the cultural factors in the communication process.

**ANTH 330V - Magic, Witchcraft and Religion (3 cr.)**

Provides an overview of old and new methods and theories for the study of religion. Exposure to the ways groups of people in diverse cultural systems construct and change their religious traditions to serve practical and meaningful ends. Crosslisted with: HIST 330V and SOC 330V.

**ANTH 334 - Anthropology of Art (3 cr.)**

Cross-cultural survey of art traditions asking the following: Why do people make art? What meanings do art traditions convey? What are the relationships between art traditions, artists, and their societies?

**ANTH 335 - History of Christianity (3 cr.)**

Emphasizes perceptions about Jesus, the changing nature and role of the Bible, especially the new testament, interactions of religion and government, issues of faith and culture, and development of modern Christianity. Same as HIST 335 and SOC 335.

**ANTH 345 - Introduction to Museology (3 cr.)**

Museum philosophy, history, administration, and collection management. Emphasis on cataloging, care, and exhibition, as well as ethics and public responsibility.

**ANTH 348 - Museums & Society (3 cr.)**

Examines theoretical frameworks that shape museum administration, exhibits and collections development. Examines themes of gender, space, place, multiculturalism, national and international politics in museum contexts.

**ANTH 350 - Anthropological Theory (3 cr.)**

This course introduces students to historical and contemporary theory in anthropology with a focus on understanding why theory matters in our discipline. Key questions the course explores include: How have anthropologists thought about the concept of culture in different ways throughout the history of anthropology? What is the relevance of anthropological theory, both inside and outside the discipline? What new and promising trajectories do we see in anthropological theory today?

**ANTH 355 - Physical Anthropology (3 cr.)**

An introduction to primate behavior, human evolution, and physical variation in modern human populations.

**ANTH 357V - Medical Anthropology (3 cr.)**

This course introduces students to evolutionary, ecological, interpretive, political-economic, and applied anthropological perspectives on health, illness, and healing to address some of the major questions in the field. How do humans adapt to changing environments that bring with them new illnesses and diseases? How do anthropologists understand the multiple meanings of health and illness cross-culturally? How can anthropologists effectively study health inequalities? What can medical anthropological perspectives contribute to addressing the health issues that we face in our current global context?

**ANTH 360V - Food and Culture Around the World (3 cr.)**

Study of the interaction between food and human culture from an anthropological perspective. Examines the traditional role of food in local economies, social relations, and identity around the world. Also examines the impact of globalization on traditional food systems and cultures.

**ANTH 361V - Social Issues in the Rural Americas (3 cr.)**

Discussion of major social issues in the rural United States and Latin America. Topics include social history, cultural groups, land tenure, irrigation, government policy, markets, and agricultural labor. Same as SOC 361V.

**ANTH 362 - Environmental Anthropology (3 cr.)**

This course examines ecology and current environmental studies from an anthropological point of view. The class focuses on how cultural values mediate environmental management. The class will cover topics such as theoretical foundations of ecological anthropology, large scale development, biodiversity conservation, sustainable environmental management, indigenous groups, consumption and globalization.

**ANTH 376 - Lithic Technology Organization (3 cr.)**

Advanced seminars and laboratory exercises to learn and develop techniques and methods that will help us determine how to interpret behavioral and cultural information from lithic (stone tool) data. Prerequisite(s): ANTH 315.

**ANTH 378 - Introduction to Lab Methods in Archaeology (3 cr.)**

Laboratory techniques used in the analysis of archaeological materials.

**ANTH 385 - Internship in Anthropology (3-12 cr.)**

Applied or field experience to gain professional expertise. Placements with public agencies, NGOs, or research organizations. Topical focus tailored to student's individual needs through consultation with instructor. Prerequisite(s): Junior status, consent of instructor and GPA 2.8 or better.

**ANTH 386 - Anthropological Study Odyssey (3-6 cr.)**

This course allows students to explore an anthropological topic, such as an archaeological tradition or culture, through classroom and field activities. Students are initially exposed to a topic during several days of intensive in class work and then pursue greater understanding of the topic through a field trip and possibly limited fieldwork. Readings, site tours, on-site lectures by specialists, and field exercises provide students an opportunity to develop an understanding of anthropological perspectives on the topic as well as to provide exposure to anthropological field and analytic methods. This course also allows students to experience other cultures, prehistoric sites, and/or locales firsthand. May be repeated for credit under a different odyssey title. Taught with ANTH 521. May be repeated up to 6 credits. Consent of Instructor required.

**ANTH 387 - Field work in Latin America (3-12 cr.)**

Anthropological field methods in Latin America including in-field lab analysis. Prerequisite: consent of instructor. May not be taken S/U.

**ANTH 388 - Intermediate Archaeological Field School (2-6 cr.)**

Training in archaeological field methods, including excavations of prehistoric sites, record keeping, mapping and analysis of data. Consent of Instructor required.

**ANTH 389 - Archaeological Mapping (3-6 cr.)**

Techniques for mapping archaeological sites and recording spatial distributions of archaeological data using a variety of surveying equipment and computer mapping software.

**ANTH 398 - Intermediate Historical Field Archaeology (3-6 cr.)**

Training in historical archaeological field methods, including excavation, record keeping, mapping, historic research, and analysis of data. Prerequisite: consent of instructor.

**ANTH 399 - Professionalism & Practice in Anthropology (3 cr.)**

Capstone course for seniors designed to allow students to synthesize the anthropological knowledge they have acquired and connect theory to application in preparation for entry into a career. Restricted to: ANTH majors.

**ANTH 401 - Ethnography Seminar (3 cr.)**

A literature review of ethnographic field research, data gathering, and analysis. A wide variety of anthropological publications will be critically examined and discussed. Designed for ANTH and SOC majors.

**ANTH 402 - Contemporary Medical Anthropology (3 cr.)**

This advanced seminar in medical anthropology addresses contemporary issues in the field of medical anthropology through theoretical and ethnographic texts.

Topics span a wide range of studies in medical anthropology and may include such issues as the social production of health and illness, medical pluralism, discourses of mental health, the practice of complementary and alternative medicine, health inequalities, and the political economy of infectious disease. Taught with ANTH 546. Prerequisite(s): ANTH 201G or 357V.

**ANTH 404 - Cultures of Africa (3 cr.)**

Explores the rich history and cultural diversity of the continent of Africa. The course first examines the historical processes that shaped modern Africa, including the evolution of modern humans in Africa, the origins of agriculture and pastoralism, the formation of indigenous African states, the slave trade, and European colonialism. The course also looks at contemporary African societies, including hunter-gatherer, pastoral, and farming/fishing peoples. In addition, contemporary issues facing modern Africa such as famine and agricultural policy, the status of women, and environmental challenges such as deforestation are discussed. Taught with ANTH 504. Crosslisted with: HIST 404

**ANTH 405 - Native Cultures of North America (3 cr.)**

Description and analysis of the Native peoples north of Mexico.

**ANTH 414 - The Archaeology of Religion (3 cr.)**

Exploration of the methods and theories used by archaeologists to study prehistoric religion.

**ANTH 415 - Applied Anthropology (3 cr.)**

Examines the intellectual roots of applied anthropology and early case studies of anthropologists working as administrators. Examines the ethical and methodological approaches that applied anthropologists employ. Examination of case studies that show role of applied anthropologists in improving human service delivery, cultural preservation, planning and implementing programs of participatory change, advocacy, and economic development. Taught with ANTH 515.

**ANTH 419 - Topics in Prehistoric Archaeology (3 cr.)**

Specific subjects in prehistoric archaeology as announced in the Schedule of Classes. Prerequisite: junior or senior standing. May be repeated for a maximum of 6 credits.

**ANTH 431 - Nutritional Anthropology (3 cr.)**

Evolutionary and cross-cultural perspective on human nutrition.

**ANTH 432 - Anthropology of Religion & Spirituality (3 cr.)**

Cross-cultural overview of spiritual beliefs and practices in societies, where religion and world view are often the same.

**ANTH 433 - Women, Gender, and Culture (3 cr.)**

Survey of the history of ideas about women and gender in the discipline of anthropology and a comparison of gender roles, relations, and ideologies across a range of cultures. Same as W S 433.

**ANTH 434 - Human Evolution (3 cr.)**

Overview of human biological evolution from the emergence of Miocene apes to modern human diaspora. Crosslisted with: BIOL 434. Corequisite(s): ANTH 434 L when offered. Prerequisite(s): ANTH 355 or consent of instructor.

**ANTH 434 L - Human Evolution Laboratory (1 cr. (1P))**

Laboratory in human evolution, includes exercises and activities to learn the human fossil record. Crosslisted with: BIOL 434 L. Corequisite(s): ANTH 434. Prerequisite(s): ANTH 355 or consent of instructor.

**ANTH 449 - Directed Reading (1-6 cr.)**

Comprehensive reading on selected topics. May be repeated for a maximum of 6 credits. Prerequisite(s): Upper division anthropology majors with consent of instructor.

**ANTH 449 H - Directed Reading Honors (1-3 cr.)**

Same as ANTH 449. Additional work to be arranged. May be repeated for a maximum of 6 credits.

**ANTH 455 - Federal Indian Policy (3 cr.)**

Federal Indian policy and its impact on Native Americans. This course will provide basic understanding of how federal Indian policy impacts almost all

activities and situations with Native Americans. Course will also look at issues such as sovereignty and how it impacts most interactions with tribal groups.

**ANTH 458 - Sex, Reproduction and Birth (3 cr.)**

This course examines pregnancy and birth practices cross-culturally, including such topics as gendered roles and responsibilities, pregnancy and birth as rites of passage, cultural concepts of personhood, global family planning initiatives, the medicalization of pregnancy and birth, and developing reproductive technologies. Prerequisite(s): ANTH 201G, ANTH 357V or consent of instructor.

**ANTH 459 - Peru: From Incas to Inca Kola (3 cr.)**

Explores issues of cultural and national identity in Peru from the Incas to the present, focusing on the modern period. Themes include indigenous resistance and adaptation to colonial rule, nationalism, militarism, terrorism, globalization, and the drug trade. Crosslisted with: HIST 459

**ANTH 467 - Archaeology of the American Southwest (3 cr.)**

Description and analysis of prehistoric archaeology of the American Southwest including paleo-environmental reconstruction, culture change, and relations with contemporary cultures. Prerequisite: ANTH 315.

**ANTH 472 - Primate Behavior and Ecology (3 cr.)**

Survey of the social behavior and ecology of nonhuman primates. Crosslisted with: BIOL 472.

**ANTH 473 - Primate Adaptation and Evolution (3 cr.)**

Survey of the adaptations and evolutionary history of nonhuman primates. Crosslisted with: BIOL 423. Corequisite(s): ANTH 473 L when offered. Prerequisite(s): ANTH 355 or consent of instructor.

**ANTH 473 L - Primate Evolution Laboratory (1(1P))**

Laboratory with exercises on non-human primate adaptation and evolution. Consent of instructor required. Prerequisite(s): ANTH 355 or consent of instructor.

**ANTH 474 - Human Osteology (3 cr.)**

A survey of the functional, developmental, and evolutionary biology of the human skeleton. Identifying bones and teeth from hands-on experience with skeletal and dental material. Provides a foundation for human evolutionary studies, bioarchaeology and forensic anthropology. Crosslisted with: BIOL 424. Corequisite(s): ANTH 474L, when offered. Recommended ANTH 355 or equivalent as a Prerequisite(s)/Corequisite(s).

**ANTH 474 L - Human Osteology Lab (1(1P))**

Laboratory for ANTH 474. Experiences and activities related to identifying teeth and bones of the human skeleton. Prerequisites: ANTH 355, 370 or equivalent.

**ANTH 477 - Zooarchaeology (3 cr.)**

Detailed study and analysis of taphonomic processes affecting animal bone recovered from archaeological and paleontological contexts. Prerequisite(s): Either ANTH 315, ANTH 355, or BIOL 330.

**ANTH 485 - Special Research Project (1-3 cr.)**

Anthropological or archaeological field work experience in private, state and federal agencies. Must spend 30 hours in a field setting per credit hour earned. Prerequisite: complete 12 ANTH credits and consent of instructor. May be repeated for a maximum of 6 credits.

**ANTH 486 - Community Engagement and Service Learning (3 cr.)**

Course combines classroom instruction with a local community service project. Formal instruction component will examine social science research findings and perspectives on a locally relevant social issue or problem. In the service learning component, students will be trained and work on a local community service project. Students will develop field experience and methodological skills in community engagement. Projects and social issues may vary for different semesters.

**ANTH 488 - Archaeological Field School Advanced (1-6 cr.)**

For international and multilingual students. Students will build on your prior knowledge of writing in English as a second or additional language by engaging in several genres of writing and reading, including reading responses, discussion posts, formal academic papers (Rhetorical Analysis and Documented Argument), and peer review. Your instructor and classmates will serve as your readers and

will give you helpful and constructive criticism, which will in turn assist you in becoming a more fluent and engaging communicator in English. Fulfills English 111 Gen-ed requirement. Prerequisite(s): CBT/PB score of 500, or IBT score of 61, or SPCD 110, or consent of instructor. Restricted to Las Cruces campus only.

**ANTH 497 - Special Topics (1-6 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits. Prerequisite(s): Junior or above standing.

**ARAB - ARABIC**

**ARAB 111 - Elementary Arabic I (4 cr.)**

Arabic language for beginners.

**ARAB 112 - Elementary Arabic II (4 cr.)**

Arabic language for beginners. Prerequisite: C- or better in ARAB 111.

**ARAB 211 - Intermediate Arabic I (3 cr.)**

Speaking, reading and writing. Prerequisite: C- or better in ARAB 112.

**ARAB 212 - Intermediate Arabic II (3 cr.)**

Speaking, reading and writing. Prerequisite: C- or better in ARAB 211.

**ART - ART**

**ART 101G - Orientation in Art (3 cr. (2+3P))**

A multicultural examination of the principles and philosophies of the visual arts and the ideas expressed through them.

**ART 110G - Visual Concepts (3 cr. (2+4P))**

Introduction to the philosophies of art, visual thinking, and principles of visual organization. Designed to give students a broad view of aesthetic traditions, ideologies, and techniques basic to the creation and evaluation of art. Principles and concepts are taught in a common lecture and applied in parallel small studio sections. For non-art majors only.

**ART 150 - Drawing I (3 cr. (2+4P))**

Introduction to the skill of seeing through exercises that emphasize careful drawing from the still life and utilize a range of drawing materials and techniques. Outside assignments required.

**ART 151 - Drawing II (3 cr. (2+4P))**

Continued emphasis on drawing from observation by focusing on still life and other subject matter. Covers a range of materials, techniques and concepts. Outside assignments. Prerequisite(s): ART 150. Restricted to ART and ANVE/DFM majors.

**ART 155 - 2-D Fundamentals (3 cr.)**

Introduction to two-dimensional space emphasizing visual elements and design principles as they apply to composition. A variety of materials are used in the studio projects and sketchbook exercises. Developing knowledge in vocabulary, color theory and skill in translating ideas into design are encouraged. Restricted to Community Colleges campuses only.

**ART 156 - 3-D Fundamentals (3 cr.)**

Compositional organization of three-dimensional space explored through a broad range of visual exercises. Resourceful and creative problem solving encouraged. Restricted to Community Colleges campuses only.

**ART 157 - Color Theory (3 cr. (2+4P))**

Various color theories as they relate to compositional organization. Required for art education majors.

**ART 160 - Computer-Based Illustration (3 cr. (2+4P))**

Introduction to the principles of computerized drawing and design. Using the basic concepts, drawing tools, and vocabulary of Adobe Illustrator. Prerequisite: ART 150, ART 155, or consent of instructor.

**ART 161 - Digital Imaging I (3 cr. (2+4P))**

Work with basic concepts, tools, and vocabulary of Adobe Photoshop to create effective visual communication. Includes selection tools, cloning, copying and

pasting, color correction, image restoration, filters, and special effects. Community Colleges only.

**ART 163 - Digital Graphics (3 cr. (2+4P))**

Importing and exporting images and text into various desktop publishing formats. Exploring imaging, drawing, and page layout applications. Introduction to typography. Prerequisite: ART 161.

**ART 165 - Web Page Design (3 cr. (2+4P))**

Introduction to the creation of well-designed and organized Web sites. Emphasis on building creative but functional user-friendly sites. Introduction to HTML, Flash, Java Script, and Web-authoring software. Prerequisite: ART 161. Community Colleges only. Same as OEPT 165.

**ART 250 - Introduction to Drawing (3 cr. (2+4P))**

Introduction to drawing with a focus on technical, structural, and methodological skills. Subjects include still life and live figure models.

**ART 252 - Aspects of Drawing (2-3 cr.)**

Continued work in drawing with emphasis on personal creative endeavor. Prerequisites: ART 150, ART 151, and ART 250. Community Colleges only.

**ART 255 - Introduction to Graphic Design (3 cr. (2+4P))**

Introduction to the principles of visual communication and digital media, letterforms, typography and identity marks. Projects produced using conventional and digital tools.

**ART 256 - Introduction to Letter Forms and Typographic Design (3 cr. (2+4P))**

Introduction to letter forms, typography and identify marks. Projects produced using conventional and digital graphic designer tools. Prerequisite(s): ART 155.

**ART 260 - Introduction to Painting (3 cr. (2+4P))**

Introduction to basic skills of painting through various exercises that emphasize working from observation. Prerequisite(s): ART 250 or ART 150.

**ART 261 - Painting Methods, Techniques and Applications (3 cr. (2+4P))**

The investigation of formal aspects of painting, an examination of painting techniques, and an exploration of various methodologies regarding form and content as applied to critical thinking skills through medium of paint. Prerequisite(s): ART 150, ART 260.

**ART 262 - Aspects of Painting (2-3 cr.)**

Varied painting media: continued development of painting skills. Prerequisites: ART 150, ART 155 (for art majors), ART 260, or consent of instructor.

**ART 265 - Introduction to Sculpture (3 cr. (2+4P))**

Beginning sculpture students "explore space" while learning new processes and skills, including mold making, welding and woodworking.

**ART 266 - Go Figure: The Body in Contemporary Art (3 cr. (2+4P))**

Cultivation of individual direction through constant creative action. Emphasis on self-styled assignments. Rotating themes pertinent to contemporary sculpture supplement aesthetic and conceptual awareness. Restricted to: Main campus only.

**ART 267 - Art Portfolio Preparation (3 cr. (2+4P))**

Refine general marketing strategies, personal portfolio and resumes. Define, target, and penetrate personal target markets. Students develop individual promotional packages. Prerequisites: ART 163, ART 269, and ART 272, or consent of instructor.

**ART 269 - Advanced Computer-Based Illustration (3 cr. (2+4P))**

Design custom graphics and create special effects with filtering, special effects on type, graphing, technical illustrations, and three-dimensional drawing using Adobe Illustrator. Prerequisites: ART 157, ART 160, and ART 161, or consent of instructor.

**ART 270 - Introduction to Photography (3 cr. (2+4P))**

Introduction to photography with digital cameras with emphasis on basic camera operation, picture composition, image processing and digital workflow. A DSLR Camera and laptop are required.

**ART 271 - Introduction to Film and Darkroom (3 cr. (2+4P))**

Introduction to silver based photographic materials, film development, enlargement printing and darkroom work. Students will work with a range of cameras including: medium format, toy and pinhole. Emphasis on understanding the syntax of silver halide photographic materials. Development of conceptual vocabulary and the creation of images with thematic unity. May be repeated for a maximum of 6 credits. Prerequisite(s): ART 270.

**ART 272 - Digital Imaging II (3 cr. (2+4P))**

Refining of individual creative styles and technical skills using Adobe Photoshop. Emphasis on input and output predictability, and working with large file productions. Community colleges only. Prerequisite(s): ART 161. Restricted to: Community Colleges only.

**ART 274 - Digital Capture and Output (3-9 cr.)**

Digital workflow, scanning, image processing software, digital printing, color management. Advanced digital printing skills. Emphasis on understanding the syntax of digital photographic processes. Development of conceptual vocabulary and the creation of images with thematic unity. Consent of instructor required. Restricted to ART majors.

**ART 275 - Introduction to Ceramics (3 cr. (2+4P))**

Introduction to the technical processes and conceptual concerns of working with the ceramic material. Students will explore various methods of forming with earthenware to make both functional and expressive works out of clay.

**ART 276 - Ceramics I, B (3 cr. (2+4P))**

Beginning ceramics, complementary half to ART 275. (ART 275 and ART 276 do not need to be taken consecutively.) Basic building techniques of coil, slab, and throwing are introduced. High-fire and low-fire clays are used.

**ART 280 - Introduction to Printmaking (3 cr. (2+4P))**

Introduction to the field of printmaking through projects that focus on specific processes, such as relief, intaglio, collography, paper lithography, and a variety of transfer and stencil techniques. Students engage in several assignments that are collaborative, as well as individual projects designed for development of personal aesthetics.

**ART 281 - Printmaking II (3 cr. (2+4P))**

Printmaking materials and techniques, with emphasis in intaglio and relief procedures. Prerequisites: ART 150, ART 156 (for ART majors) and 280. Corequisite: ART 150.

**ART 285 - Introduction to Metals and Jewelry (3 cr. (2+4P))**

Introduction to fundamental processes, design, and conceptual development for metal fabrication of jewelry and functional/non-functional objects.

**ART 286 - Stained Glass (3 cr. (2+4P))**

Instruction in the fundamental fabrication and design techniques for stained glass. Introduction to visual decision making skills, historical, and critical issues of the medium. Community Colleges only.

**ART 294 - Special Topics in Studio (1-3 cr.)**

Specific subjects and credits to be announced in the Schedule of Classes. No more than 9 credits toward a degree. Prerequisite: consent of instructor.

**ART 295G - Introduction to Art History I (3 cr.)**

An introduction to the principles of art history within a chronological framework of the art of the Western World. All media will be discussed. From prehistoric times to the fourteenth century.

**ART 296G - Introduction to Art History II (3 cr.)**

Continuation of ART 295, Art of the Western World from Late Gothic to the present. Prerequisite(s): ART 295.

**ART 297 - Introduction to Art History III (3 cr.)**

Continuation of ART 296. Art of the Western world from the Enlightenment to the present.

**ART 298 - Writing in Art (3 cr.)**

This reading- and writing-intensive course will introduce students to various approaches of writing about historical art.

**ART 300 - Special Topics in Art History (3 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits. May be repeated up to 12 credits. Prerequisite(s): ART 295G, ART 296G, and ART 298 or consent of instructor. Restricted to Las Cruces campus only.

**ART 302 - The Classical Style in the Western Tradition (3 cr.)**

Analysis of the emergence of Greco-Roman style in the Ancient world and its interpretation and reception in the Western European art tradition up to the contemporary period; taught with ART 504. Prerequisite(s): ART 29G, ART 296G and ART 297 or consent of instructor.

**ART 305 - Medieval Art (3 cr.)**

History of painting, stained glass, sculpture, architecture and manuscript illumination in Europe from the Early Christian period to the end of the Gothic period; taught with ART 505. Prerequisite(s): ART 295G, ART 296G, and ART 298 or consent of instructor.

**ART 306 - Medieval Manuscript Illumination (3 cr.)**

History of manuscript production and illumination in Western Europe from the Early Christian period to the middle of the 16th century; taught with ART 506. Prerequisite(s): ART 295G, ART 296G, and ART 298 or consent of instructor.

**ART 310 - Native American Art (3 cr.)**

Cross-cultural introduction to art of the prehistoric and historic native people of the North, Central, and South Americas. Considers the artistic expression and the function of art in diverse cultural and environmental contexts. Prerequisite(s): ART 295G, ART 296G, and ART 298 or consent of the instructor.

**ART 311 - Art of China (3-4 cr.)**

Survey of the art of China from the Pre-historic period to modern day; taught with ART 511. 4th credit option is for participation in FLiP tour to China in Spring 2014. May be repeated up to 4 credits. Prerequisite(s): ART 295G, 296G, and 298 or HIST 211G and HIST 212G or consent of instructor.

**ART 320 - Art and Architecture in Pre-Columbian Meso-America (3 cr.)**

Analysis of the art and culture of the Mesoamerican peoples before the arrival of Columbus in the New World. Includes an in-depth formal and historical analysis of architecture, sculpture, painting, pottery, and metal works of Mixtec, Toltec, Aztec, Maya, and other cultures and civilizations. Prerequisite(s): ART 295G, ART 296G, and ART 298 or consent of instructor.

**ART 321 - Pre-Columbian Art and Architecture of the Andes (3 cr.)**

Examines the arts and history of pre-Columbian Andean cultures in a cultural context. Analysis of architecture, sculpture, pottery, jewelry, textiles, and feather work. Prerequisite(s): ART 295G, ART 296G, and ART 298 or consent of instructor.

**ART 323 - Italian Renaissance Art (3 cr.)**

History of painting, sculpture and architecture in Italy from the 14th century to the end of the 16th century; taught with ART 523. Prerequisite(s): ART 295G, ART 296G and ART 298 or consent of instructor.

**ART 325 - Northern Renaissance Art (3 cr.)**

History of painting, manuscript illumination and graphics in Northern Europe from the late 14th century to the mid-16th century; taught with ART 525. Prerequisite(s): ART 295G, 296G, and 298 or consent of instructor.

**ART 328 - Baroque Art and Architecture in Northern Europe (3 cr.)**

Study of architecture, painting sculpture in Flanders, Holland, France, England, and Germany as indigenous developments and as reflections of the Italian Baroque. Prerequisite(s): ART 295G, ART 296G, ART 298, or consent of instructor.

**ART 329 - Survey of Western Architecture (3 cr.)**

Survey of history of Western architecture from prehistoric time to the present. Prerequisite(s): ART 295G, ART 296G, and ART 298 or consent of instructor.

**ART 330 - Modern Architecture (3 cr.)**

A survey of the history of Modern Architecture with focus given to major architects, monumental buildings, and building groups stressing construction techniques and style from the 18th century to the present. Prerequisite(s): ART 295G, ART 296G, ART 298, or consent of instructor.

**ART 333 - Baroque Art and Architecture in Italy, Spain, and Hispanic Latin America (3 cr.)**

Concentration of Italian Baroque architecture, painting, and sculpture; and on Spanish painting, sculpture, and architecture, as well as the art and architecture of Spanish vice-royalties of the Americas. Prerequisite(s): ART 295G, ART 296G, ART 298, or consent of instructor.

**ART 336 - Race in Art (3 cr.)**

Traces the visual representation of race and racial stereotypes in the western art world; this course explores issues of identity within social and historical contexts. Consent of Instructor required. Prerequisite(s): ART 295G, ART 296G, and ART 298.

**ART 337 - American Art to 1900 (3 cr.)**

Examines painting, sculpture, architecture and other arts in the United States from the colonial period to 1900 and places them within conceptual and historical contexts. Prerequisite(s): ART 295G, ART 296G, and ART 298.

**ART 338 - Late Eighteenth- and Nineteenth-Century European Art (3 cr.)**

History of painting, sculpture, architecture, and other arts created in Europe from 1789 to 1900. Prerequisite(s): ART 295G, ART 296G, and ART 298.

**ART 339 - History of Photography (3 cr.)**

Course studies history, theory and use of photographic practices in art, especially from formal introduction of the process in 1839 to the present. Prerequisite(s): ART 295G, ART 296G, and ART 298.

**ART 342 - Twentieth-Century Art I, 1900-1945 (3 cr.)**

Examines themes and monuments of the Western world created between 1900 and 1945 and emphasizes the growth of modern and avant garde cultural practices. Prerequisite(s): ART 295G, ART 296G, and ART 298.

**ART 343 - Twentieth-Century Art II, 1945-Present (3 cr.)**

History of painting, sculpture, and other arts in Europe, the United States, and elsewhere from 1945 to the present. Prerequisite(s): ART 295G, ART 296G, and ART 298.

**ART 350 - Intermediate Drawing and Painting (3 cr. (2+4P))**

Intermediate drawing and painting course focusing on the following topics: Realism, Color, Narrative, and Abstraction. Topics will be announced in the course schedule. Each topic may only be taken once. May be repeated up to 12 credits. Prerequisite(s): ART 250 and ART 260.

**ART 354 - History of Graphic Design (3 cr.)**

This course introduces students to the history of graphic design and evolution of visual communication. Course will involve writing and design projects. Prerequisite(s): ART 295G, ART 296G, and ART 298.

**ART 355 - Special Topics in Graphic Design (3 cr. (2+4P))**

Intermediate graphic design course focusing on the following topics: production, packaging, layout, identity and interactive design. Topics will be announced in the course schedule. Each topic may only be taken once. May be repeated up to 12 credits. Prerequisite(s): ART 255.

**ART 356 - Graphic Design and Multicolor Digital Production (3 cr. (2+4P))**

Design and production of multicolor projects using conventional and digital techniques. Prerequisite(s): Grades of B or higher in each of ART 255 and ART 256; prior passage of ART 355 with a grade of C- or higher.

**ART 357 - Digital Graphic Design and Illustration (3 cr. (2+4P))**

Graphic illustrations and icons using vector and bitmap software programs. Emphasis on editorial, information and cultural applications. May be repeated for a maximum of 6 credits. Prerequisite(s): ART 150, ART 255, ART 256.

**ART 359 - Digital Image-Making for Graphic Designers (3 cr.)**

Creation of graphic icons, stylizations and archetypes. Projects produced using vector-based computer programs. Some computer experience required. Prerequisite(s): ART 150, ART 255, ART 256, and CMT 145.

**ART 360 - Innovation and Creativity in Painting (3 cr. (2+4P))**

Innovative and creative solutions to painting within a contemporary context. Prerequisite(s): ART 261.

**ART 361 - Painting IIIB (3 cr. (2+4P))**

Media, materials and technical problems of contemporary painting continued. May be repeated for a maximum of 6 credits. Prerequisite(s): ART 295G and ART 360.

**ART 363 - Images in Sequence and the Photography Book (3 cr.)**

Intermediate to advanced level course for students in junior year. Course addresses project ideation, thematic development and methods for dissemination of visual content. Each student will propose and produce an independent project culminating in publication of a photography book produced through an on-demand book publishing service. Topics addressed will include: narrative content in images; image sequencing; conceptual, thematic and stylistic unity; and choice of image distribution format (gallery, book, web). Regular lectures, readings and critiques will support course objectives. Offered Fall semesters. Prerequisite(s): ART 270, ART 274, ART 277.

**ART 365 - Intermediate Sculpture Special Topics (3 cr. (2+4P))**

Intermediate sculpture students will expand their fabrication skills in metal, wood and mixed media. Assignments incorporate topics such as Pop art, Process Art, and The Body in Contemporary Art. Topics will be announced in the course schedule. Each topic may only be taken once. May be repeated up to 6 credits. Prerequisite(s): ART 265.

**ART 366 - Sculpture II, B Emerging Sensibility (3 cr. (2+4P))**

Additional study of topics covered in ART 365. Prerequisite: ART 265, ART 266 and ART 365.

**ART 367 - Large Format Photo and Advanced Printing (3 cr.)**

Introduction to the 4x5 view camera, advanced printing techniques, zone system and hybrid darkroom/digital practice. Emphasis on development of advanced skills in technical process, ideation, content generation and critical inquiry. Prerequisite(s): ART 270, ART 274, ART 277.

**ART 369 - The Constructed Image (3 cr.)**

Introduction to digital workflow in photography. Topics include digital camera operation, RAW file processing, scanning, color management and printing. Course will emphasize concepts of ideation and thematic coherence. Prerequisite(s): ART 270, ART 274, and ART 277.

**ART 370 - Intermediate Digital Photography (3 cr. (2+4P))**

Development of digital image processing, digital workflow, and digital printing procedures. May be repeated up to 6 credits. Prerequisite(s): ART 270, or consent of instructor.

**ART 373 - Intermediate Analog Photography (3 cr. (2+4P))**

Introduction to skills and techniques of black and white film photography. Emphasis on analog camera work and darkroom procedures. May be repeated up to 6 credits. Prerequisite(s): ART 270, or consent of instructor.

**ART 374 - Intermediate Ceramics: Multiples (Design and Production) (3 cr. (2+4P))**

Intermediate ceramics course focusing on an introduction to the technical processes of throwing, prototyping, mold making, glaze calculation, and alternative firing. May be repeated up to 6 credits. Prerequisite(s): ART 275.

**ART 375 - Intermediate Ceramics: Sculptural Concerns (3 cr. (2+4P))**

Intermediate ceramics course focusing on the refinement of technical skills with an emphasis on conceptual development related to materiality. Prerequisite(s): ART 275 or consent of instructor.

**ART 376 - Museum/Gallery Research Internship (1-9 cr.)**

Research internship in museum or gallery. Requirements determined by instructor in cooperation with supervising museum/gallery professional. For art history credit. Prerequisites: ART156, ART 275 and ART 276. May be repeated for a maximum of 9 credits. Course may not be audited.

**ART 380 - Intermediate Printmaking (3 cr. (2+4P))**

Intermediate printmaking course with emphasis on further investigation of a variety of materials and techniques associated with the print processes of intaglio and relief. Stone lithography, serigraphy and mixed media will be

introduced. May be repeated up to 6 credits. Prerequisite(s): ART 280, or consent of instructor.

**ART 385 - Intermediate Metals: Special Topics (3 cr. (2+4P))**

Intermediate Metals/Jewelry course focusing on the following topics: design and production, materiality and sculptural concern. Techniques may include casting, complex construction, forming, and mix media. Topics will be announced in the course schedule. Each topic may only be taken once. May be repeated up to 6 credits. Prerequisite(s): ART 285.

**ART 387 - Exhibition Studies (3 cr.)**

Exhibition theory through practice. Gallery operations and management: collecting, conversation, exhibiting, and public responsibility.

**ART 389 - Visual Culture of the 1950s (3 cr.)**

Focus on major cultural trends and historical events in 1950's America. Offers analysis of art, films, and pop culture phenomena of the period. Prerequisite(s): ART 295G, ART 296G, and ART 298.

**ART 390 - Visual Culture of the 1960s (3 cr.)**

Focus on major cultural trends and historical events in 1960's America. Offers analysis of art, films, and pop culture phenomena of the period. Prerequisite(s): ART 295G, ART 296G, and ART 298.

**ART 391 - Visual Culture of the 1970s (3 cr.)**

Focus on major cultural trends and historical events in 1970's America. Offers analysis of art, films, and pop culture phenomena of the period. Prerequisite(s): ART 295G, ART 296G, and ART 298.

**ART 392 - Visual Culture of the 1980s (3 cr.)**

Focus on major cultural trends and historical events in 1980's America. Offers analysis of art, films, and pop culture phenomena of the period. Prerequisite(s): ART 295G, ART 296G, and ART 298.

**ART 393 - History of Collage. (3 cr.)**

Examines theory and practice of collage, assembly and montage in 2- and 3-dimensional 20th century art. Emphasis on the art of the Schwitters, Picasso, Cornell, Hoch, Ernst, Ryan, Rauschenberg, and Schapiro. Prerequisite(s): ART 295G, ART 296G, and ART 298.

**ART 394 - Special Topics in Studio (3 cr.)**

Specific subjects and credits to be announced in the Schedule of Classes. No more than 9 credits toward a degree.

**ART 401 - Museum Conservation Techniques I (3 cr. (2+3P))**

Examines the philosophy of museum conservation of works of art in all media and in all contexts. Includes discussions of the theory of conservation as well as student laboratory projects involving testing and conservation objects. Enrollment limited to twelve. First of two consecutive courses. Instructor permission required.

**ART 402 - Museum Conservation Techniques II (3 cr. (2+3P))**

Examines the philosophy of museum conservation of works of art in all media and in all contexts. Includes discussions of the theory of conservation as well as student laboratory projects involving testing and conservation of objects. Enrollment limited to twelve. Second of two consecutive courses. Prerequisite: ART 401 and consent of instructor.

**ART 403 - Preventative Conservation/Collections Care (3 cr.)**

Museum conservation of art work.

**ART 444 - Art and Life in Renaissance Italy (3 cr.)**

Examines how Italian Renaissance textual and visual culture offered Europe new ways of seeing and portraying itself. 1350-1550. Topics include: Florence, Venice, Rome, Leonardo, Michelangelo, titian, humanism, the Medici, and republican and courtly culture. Prerequisite(s): ART 295G, ART 296G, and ART 298.

**ART 449 - Advance Figure Drawing (3 cr. (2+4P))**

Advance figure drawing class with emphasis on developing technical and conceptual skills. Prerequisites: ART 150, ART 151, ART 250 and ART 350.

**ART 450 - Advanced Drawing and Painting: Special Topics (3-6 cr. (4+4P))**

Advanced drawing and painting course focusing on the following topics: Identity, Place, Spirituality, and Body. Topics will be announced in the course schedule. May be repeated up to 12 credits. Prerequisite(s): 12 credits of ART 350.

**ART 451 - Time-Based Media (3 cr.)**

Advance figure drawing class with emphasis on developing technical and conceptual skills. Prerequisite: ART 350. May be repeated up to 27 credits. Restricted to ART majors.

**ART 454 - Design Discourse (3 cr.)**

Discussion of issues related to visual communications and graphic design. Research and semester-long studio project supplement readings and discussion. May be repeated for a maximum of 6 credits. Prerequisite(s): ART 356.

**ART 455 - Advanced Graphic Design Special Topics (3-6 cr.)**

Advanced graphic design course focusing on the following topics: visual communication, system graphics, typography, portfolio preparation, art of the book and professional practice. Topics will be announced in the course schedule. Each topic may only be taken once. May be repeated up to 18 credits. Prerequisite(s): 6 credits of ART 355.

**ART 456 - Advanced Graphic Design: Portfolio Development and Professional Practice (3 cr. (2+4P))**

Advanced graphic design projects with an emphasis on conceptual development, portfolio preparation, and professional practices. Prerequisite: ART 455. May be repeated for a maximum of 12 credits. Restricted to majors.

**ART 457 - Advanced Typographic Design and the Computer (3 cr.)**

Advanced projects exploring use of typography in visual communication. Electronic and conventional print applications emphasized. May be repeated for a maximum of 6 credits. Prerequisite(s): ART 255 and ART 256.

**ART 458 - The New Mexico Studio of Design (3 cr.)**

An advanced graphic design studio providing a design service for nonprofit community organizations. Client-based projects produced by students from concept to completion. May be repeated for a maximum of 6 credits. Prerequisite(s): ART 355.

**ART 460 - Painting Workshop (3 cr.)**

Media, materials and advanced technical problems of contemporary painters. May be taken up to 6 credits. Prerequisite(s): ART 350 and ART 361.

**ART 461 - Painting Workshop II (3 cr. (2+4P))**

Advanced issues in contemporary painting. May be repeated for a maximum of 6 credits. Restricted to majors. Prerequisite(s): ART 460.

**ART 465 - Advanced Sculpture Special Topics (3-6 cr. (4+4P))**

Thematic classes deepen students' knowledge of contemporary sculpture and extended media through a series of interpretive assignments that culminates in a unified body of work. Course topics include: "Artists' Maps", Installation Art/Land Art", "Sculpture and the 1960s", "Sculpture and the 1970's". Topics will be announced in the course schedule. May be repeated up to 18 credits. Prerequisite(s): 3 credits of ART 365 or permission of the instructor.

**ART 470 - Advanced Digital Photography (3-6 cr. (2+4P))**

Advanced photography course focused on digital image processing, digital workflow, and digital printing procedures, with an emphasis on photography as an art medium and development of students' personal photographic practice. May be repeated up to 18 credits. Prerequisite(s): ART 370, ART 373 or consent of instructor.

**ART 471 - Digital Video and Narrative Concepts (3 cr. (2+4P))**

Topics will be announced in the course schedule. Special semester long focus may include a seminar designed to introduce the student to the practice of time-based art, its applications within an interdisciplinary art practice, as well as its historical, critical and theoretical context. May be repeated up to 18 credits. Prerequisite(s): 12 credits at 300 level.

**ART 473 - Advanced Analog Photography (3-6 cr. (2+4P))**

Advanced photography course focused on skills and techniques of black and white film with an emphasis on photography as an art medium and development of students' personal photographic practice. May be repeated up to 15 credits. Prerequisite(s): ART 370 and ART 373, or consent of instructor.

**ART 474 - Advanced Ceramics Design and Production (3-6 cr.)**

Advanced ceramics course focusing on the technical processes of throwing, prototyping, mold making, glaze calculation, and alternative firing. Discussions may also include issues of professional practice, marketing, and branding. May be repeated up to 6 credits. Prerequisite(s): ART 374 and ART 375, or consent of instructor.

**ART 475 - Advanced Ceramics Sculptural Concerns (3-6 cr. (4+4P))**

Advanced ceramics course focusing on conceptual development as it relates the creation of a unified body of work. Topics may include discussions of advanced techniques, professional practices, and contemporary issues in ceramics. May be repeated up to 15 credits. Prerequisite(s): ART 374 and ART 375, or consent of instructor.

**ART 476 - Advanced Museum/Gallery Research Internship (1-9 cr.)**

Advanced research internship in museum or gallery. Requirements determined by instructor in cooperation with supervising museum/gallery professional. For art history credit. Prerequisite: ART 376 and consent of instructor. May be repeated for a maximum of 9 credits. Course may not be audited.

**ART 477 - Independent Research Problems in Art History (1-9 cr.)**

Advanced research on special problems to be conducted under supervision of art history faculty. May be taken up to 12 credits. Consent of instructor required. Prerequisite(s): ART 295G, ART 296G, ART 298 and one 300 level art history course and consent of instructor.

**ART 478 - Seminar: Selected Topics in Art History (3 cr.)**

Reading, research, and discussion of advanced problems. Topics will be announced in the course schedule. Each topic may be only taken once. Non-art/art history majors, contact instructor for consent. Prerequisite(s): ART 295G, ART 296G, and ART 298, and one 300 level art history course.

**ART 479 - Art Theory, Criticism, and Historiography (3 cr.)**

Theories and methodologies in art history and art criticism. Consent of instructor required. Prerequisite(s): ART 295G, ART 296G, ART 298 and one 300 level art history course and consent of instructor.

**ART 480 - Special Topics in Printmaking (3-6 cr.)**

Special topics in printmaking. Emphasizing conceptual approaches to printmaking and development of individual content. Topics will be announced in the course schedule. May be repeated up to 18 credits. Prerequisite(s): 6 credits of ART 380.

**ART 485 - Advanced Metals: Special Topics (3-6 cr. (4+4P))**

Advanced Metals/Jewelry course focusing on the following topics: conceptual development and personal aesthetic and style, professional practices, contemporary issues in Metals/Jewelry, and senior exhibition. Techniques may include enameling, coloring, historical processes, and digital technology. Topics will be announced in the course schedule. Each topic may only be taken once. May be repeated up to 18 credits. Prerequisite(s): 6 credits of ART 385.

**ART 490 - Museum Conservation Internship (1-6 cr.)**

The goal of this internship is to provide a student with a practical learning experience in museum collection conservation so that they can relate their experience to what they learn in the classroom about preventive conservation techniques and policies. It will provide the student an opportunity to learn skills and knowledge needed in working with museum collections. Tasks and projects will be assigned by the instructor.

**ART 494 - Special Topics in Studio (3 cr.)**

Specific subjects and credits to be announced in the Schedule of Classes. No more than 9 credits toward a degree.

**ART 495 - Undergraduate Studio Thesis (3-6 cr.)**

Special research and independent study leading to undergraduate thesis exhibition. May be repeated up to 6 credits. Consent of Instructor required. Prerequisite(s): Consent of instructor.

**ART 496 - Fundamentals of Studio Management (1 cr.)**

Advanced studio course designed to introduce students to the fundamentals of studio management. Includes training in proper tools use and maintenance; safety procedures; and practical experience with studio oversight. Concurrent registration in advanced level studio course of the same media area required. Prerequisite: consent of instructor. May be repeated for a maximum of 3 credits. Restricted to majors. Graded S/U.

**ART 497 - Readings in Art History (3 cr.)**

In-depth study of art historical writing. May be taken up to 12 credits. Consent of instructor required. Prerequisite(s): ART 295G, ART 296G, ART 298 and one 300 level art history course.

**ART 499 - Problems in Studio Art (1-6 cr.)**

Critique class emphasizing conceptual approaches to studio art in the development of individual content. May be repeated up to 6 credits. Consent of Instructor required.

**ASTR - ASTRONOMY****ASTR 105G - The Planets (4 cr. (3+2P))**

Comparative study of the planets, moons, comets, and asteroids which comprise the solar system. Emphasis on geological and physical processes which shape the surfaces and atmospheres of the planets. Laboratory exercises include analysis of images returned by spacecraft. Intended for non-science majors, but some basic math required. This lecture/lab course satisfies the New Mexico Common Core Area III: Lab Sciences requirement

**ASTR 110G - Introduction to Astronomy (4 cr. (3+2P))**

A survey of the universe. Observations, theories, and methods of modern astronomy. Topics include planets, stars and stellar systems, black holes and neutron stars, supernovas and gaseous nebulae, galaxies and quasars, and cosmology. Emphasis on physical principles involving gravity, light and optics (telescopes). Generally non-mathematical. Laboratory involves use of the campus observatory and exercises designed to experimentally illustrate principles of astronomy. This lecture/lab course satisfies the New Mexico Common Core Area III: Lab Sciences requirement.

**ASTR 199 - Introduction to Astronomy Lab, Special (1 cr.)**

This lab-only listing exists only for students who may have transferred to NMSU having taken a lecture-only introductory astronomy class, to allow them to complete the lab requirement to fulfill the general education requirement. Consent of Instructor required. Prerequisite(s): Must have passed Introduction to Astronomy lecture-only (e.g., at some other institution). Restricted to Las Cruces campus only.

**ASTR 301V - Revolutionary Ideas in Astronomy (3 cr.)**

Examines recent fundamental scientific revolutions that have shaped our view of Earth and the universe. Topics in astronomy range from exoplanets to black holes to dark energy and raise questions about the very nature of how we use the scientific method to see the unseen, and how this shapes science research today. Prerequisite(s): Any general education science course.

**ASTR 305V - The Search for Life in the Universe (3 cr.)**

Use of information from several of the sciences to explore the likelihood that life exists elsewhere in the universe. Subjects include an overview of historical ideas about the possibility of life elsewhere in the universe, the chemistry and biology of life on Earth, recent explorations for life within our solar system, and current search strategies for life in the universe and their scientific basis.

**ASTR 308V - Into the Final Frontier (3 cr.)**

Exploration of space: a brief review of the history of space flight, the Apollo program, joint U.S.-Soviet space missions, and unstaffed exploration of the planets. Emphasis on knowledge gained through these efforts. Includes new space initiatives. Same as HON 308V.

**ASTR 330V - Planetary Exploration (3 cr.)**

A current planetary exploration mission is studied within the context of the solar system. The data acquired and principles involved in executing the mission, as well as political and economic implications of planetary exploration, are examined. Same as HON 330V. Main campus only

**ASTR 400 - Undergraduate Research (1-3 cr.)**

Supervised individual study or research. Prerequisite: consent of instructor. May be repeated for a maximum of 6 credits.

**ASTR 401 - Topics in Modern Astrophysics (3 cr.)**

This course is designed for students interested in astrophysics who have some background in math and physics and want to learn about basic astrophysics and interesting current topics. The course will cover basic astrophysical concepts such as orbital mechanics, light, and radiative processes and transfer. These concepts will be applied to the discussion of exciting modern topics involving planets, exoplanets, stars, galaxies, and/or cosmology, with topical emphasis determined by the instructor. Prerequisite(s): MATH 192G and (PHYS 213 or PHYS 215G).

**ASTR 402 - Introduction to Astronomical Observations and Techniques (3 cr.)**

Designed for students interested in astrophysics who have some background in math and astronomy and want to learn about techniques for obtaining and analyzing astronomical data. This course will review the properties of light and discuss the process of experimental design. The course will describe basic observational tools such as telescopes and detectors. It will discuss how data is obtained, and how features of the detector and the Earth's atmosphere can be corrected for. Some topics in basic astronomical data analysis will be discussed, with topical emphasis determined by the instructor. Some simple data analysis projects will be assigned. Prerequisite(s): MATH 191G and (PHYS 214 or PHYS 216G) and (ASTR 105, ASTR 110, or ASTR 401).

**ASTR 405 - Astronomy and Astrophysics I (3 cr.)**

Application of physical principles to problems in modern astronomy. Emphasis on radiation mechanisms and radiation transfer in astronomical systems. Prerequisite: consent of instructor. No S/U grading. Same as ASTR 505 with less advanced work.

**ASTR 406 - Stellar Dynamics and Hydrodynamics (3 cr.)**

Undergraduate cross-listing of graduate class on basic stellar dynamics and principles of hydrodynamics. Consent of Instructor required. Prerequisite(s): Consent of instructor.

**ASTR 435 - Observational Techniques I (3 cr.)**

Up-to-date introduction to modern observational astronomy. Includes computers, data analysis, optical telescopes, optical and infrared photometry, image processing, and detection. Prerequisite: consent of instructor. No S/U grading. Same as ASTR 535 with less advanced work.

**AXED - AGRICULTURAL AND EXTENSION EDUCATION****AXED 100 - Introduction to Agricultural, Extension, and Technology Education (3 cr.)**

Orientation to programs, philosophies, competencies and leadership skills needed by professionals in agricultural and technology education, extension education, agricultural communications, and related career opportunities in industry, governmental agencies, and international organizations.

**AXED 105 - Techniques in Agricultural Mechanization (3 cr. (2+2P))**

Development of competencies in agricultural mechanics including safety, tool identification, operation and maintenance of hand and power tools, cold metal, drafting, and plumbing procedures. Designed for any major wishing to improve mechanical skills needed in agriculturally related occupations in education and industry.

**AXED 200 - Special Topics (1-4 cr.)**

Specific subjects and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester. No more than 6 credits toward degree.



**AXED 201G - Effective Leadership and Communication in Agricultural Organizations (3 cr. (2+2P))**

Theory and practice in leadership and communication for professionals who must work effectively in leadership and supervisory roles with people in agricultural business, industry, government agencies, and education. Course focuses on contemporary leadership theories. Oral communication skills in informative and persuasive speaking, parliamentary procedure, and for small groups are developed.

**AXED 205 - Metal Technology-Fabrication (3 cr. (2+4P))**

Processes and procedures of metal fusion, including gas and electric welding techniques and safety. Designed for any major wishing to improve mechanical skills needed in agriculturally related occupations in education and industry.

**AXED 230 - Early Field-Based Experience in Extension and Industry (0-2 cr.)**

First Hand view of the roles of professional educators through field experiences with Cooperative Extension or other government agencies. Includes 4 weeks of classroom instruction and 30 hours of observation in a work setting. Consent of Instructor required. Restricted to Las Cruces campus only.

**AXED 232 - Early Field-Based Experience in Agricultural and Technology Education (2 cr.)**

First-hand view of the roles of professional educators through field experiences in a secondary agricultural or technology education setting. Includes 4 weeks of classroom instruction and 30 hours of observations in a classroom setting. Consent of Instructor required.

**AXED 240 - Introduction to Agricultural Communication (3 cr.)**

Students will learn about the history and theories of agricultural communications, be introduced to the degree program, explore careers in the field, and examine the role of media in agricultural communications

**AXED 270 - Advanced Topics in Agricultural Leadership (1-3 cr.)**

An in-depth examination of issues, philosophies and challenges in agricultural leadership. Topics vary each semester. Restricted to: Main campus only. Taught with AXED 370

**AXED 300 - Special Topics (1-4 cr.)**

Course addresses specific subjects and issues as identified by department. Topics and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester. No more than 6 credits may be applied to a degree.

**AXED 303 - Small Engine Technology (3 cr. (2+2P))**

Development of competencies in small gasoline engines; theory, operation, design, maintenance and safety. Designed for any major wishing to improve mechanical skills needed in agriculturally related occupations in education and industry.

**AXED 331 - Agricultural Structures (3 cr. (2+3P))**

Selection and use of agricultural building materials. Design, construction, and maintenance of agricultural structures. Development of competencies in carpentry, concrete, electricity, masonry, and safety. Designed for any major wishing to improve mechanical skills needed in agriculturally related occupations in education and industry.

**AXED 348 - Advanced Technology in the Agricultural Industry (3 cr. (2+3P))**

Application of technology in agricultural industry that includes solar energy, irrigation techniques, computer-aided drafting, laser leveling, TIG welding, and water quality and agricultural waste management.

**AXED 360 - Agricultural Communications (3 cr.)**

Principles and practical experience in news writing, radio production, newsletter design, public meeting presentations, video productions, graphics, and public relations activities, especially as related to the fields of agriculture and family and consumer sciences.

**AXED 370 - Advanced Topics in Agricultural Leadership (1-3 cr.)**

An in-depth examination of issues, philosophies and challenges in agricultural leadership. Topics vary each semester. Taught with AXED 270.

**AXED 380 - Philosophy and Methods of Contests (3 cr.)**

Covers the roles that career development events (contests) play in agricultural and technology education and in extension programs. Topics include competition and cooperation, winning and losing, ethics, use of community resources, and academic and employability skills taught through contests. Coaching as a teaching method is introduced and expanded. Students will assist with the coordination of various career development events. Corequisite(s): ANSC 310.

**AXED 400 - The Diffusion and Adoption of Agricultural Innovations (3 cr.)**

Factors that influence the rates of diffusion and adoption of innovations. Consequences of adopting or rejecting innovations. Processes by which change agents influence introduction and adoption of innovations. Same as AXED 500.

**AXED 415 - Youth Program Development and Management (3 cr.)**

Designed for professionals involved in youth group activities. Basic concepts in planning, conducting, and managing educational youth programs in a variety of organizations.

**AXED 430 - Teaching Adults in Nonformal Settings (3 cr.)**

The adult and postsecondary learner; adult learning styles and principles; use of community resources and problem-solving techniques; and learning strategies for adults in formal and nonformal education.

**AXED 436 - Keys for Agricultural and Rural Development (3 cr.)**

Introduction to concepts of development, the process of change, key factors that contribute to agricultural and rural development in a community, and strategies employed to effect change with implications for international students or domestic students planning to work internationally.

**AXED 444 - Planning and Methods in Nonformal Education (3 cr.)**

Identifying trends and resources of a community and planning community-based extension and nonformal education programs. Preliminary methods for teaching and evaluating nonformal education programs.

**AXED 445 - Developing Excellent Programs in Career and Technical Education (3 cr.)**

Students learn to develop excellence in the three components of a successful secondary school program in career and technical education: classroom and laboratory instruction, career and technical student organizations, and career development activities. Community-based program planning, utilizing partners, program marketing, and professional development are addressed as strategies for achieving excellence. Methods of obtaining financing and maintaining accountability for the program are discussed.

**AXED 446 - Methods for Teaching Agricultural and Technology Education (3 cr.)**

Methods of instruction and presentation, selection of teaching aids and support materials, classroom management, development of a complete educational program, and microteaching experiences. Prerequisite: GPA of 2.5 or above. Restricted to AXED Majors

**AXED 447 - Directed Teaching in Agricultural or Technology Education (12 cr.)**

Fourteen-week off-campus professional experience in directed teaching and observation provided in selected centers under secondary agricultural or technology education supervising teachers. Prerequisites: AXED 445, 446 and consent of instructor. Restricted to AXED majors.

**AXED 448 - Directed Teaching in Extension Education (3-12 cr.)**

Four-to-fourteen-week, professional experiences in directed teaching and observation provided in cooperative extension at the county, regional, or state level. Consent of instructor required.

**AXED 449 - Directed Field Experience in Agricultural or Technology Education (3-12 cr.)**

Four-to-fourteen-week, supervised learning experience in an approved teaching setting with application to educational, agricultural, technological, communications, public relations, or environmental practices. Consent of instructor required.

**AXED 456 - Introduction to Research Methods (3 cr.)**

Introduction to research design and methodology in education and behavioral sciences. Overview of common research designs and data collection strategies. Prepares students to critique published research and understand basic skills including hypothesis development and conducting a literature search. Prerequisite: junior standing.

**AXED 460 - Methods in Career and Technical Laboratory Instruction (2 cr.)**

For students planning to teach agricultural or technology education at a secondary or postsecondary level. Focus on planning, delivering, and evaluating instruction in laboratories; and on CPR, first aid, and NCCER certifications. Laboratory safety and tool, equipment, and laboratory management systems are also emphasized. Restricted to AXED Majors.

**AXED 466V - John Muir: Lessons in Sustainability (3)**

This course examines the life of John Muir in the context of sustainability. Muir was a farmer, inventor, explorer, botanist, glaciologist, conservationist, and noted nature author. He was influential in the National Parks movement and in starting the Sierra Club. Living in the natural world influences his faith and philosophy. By examining his life and the themes that shaped it, students will develop an understanding of what it means to live sustainably and to contribute beyond their personal lives to a sustainable past.

**AXED 469 - Experiential Learning in Career/Technical Education for Exceptional Learners in a Diverse Society (3 cr.)**

Addresses the planning, delivering and evaluation of experiential learning activities for students with special needs. Specific strategies for working with students with special needs in a shop or laboratory setting within the Career and Technical Education environment will be included. Taught with AXED 569 and SPED 569. Prerequisite(s): SPED 350. Crosslisted with: SPED 469

**AXED 475 - Leadership On Agricultural and Natural Resource Issues (3 cr.)**

Investigates leadership concepts and group dynamics as they relate to a changing world and complex agricultural and natural resource issues. Topics include emotional intelligence, leading change, political leadership, facilitating agreement, team building, and managing conflict in agricultural and natural resource settings.

**AXED 480 - International Agricultural Development (3 cr.)**

Introduction to Agricultural topics (products, people, environment, culture, etc) that affect international development. Topics provide students with awareness, knowledge and understanding of teaching, research and service opportunities for those seeking experience or careers in international agricultural development. Taught with AXED 580.

**AXED 484 - Methods of Teaching Earth and Physical Sciences in Agriculture (3 cr.)**

Students learn to set up and teach in a modular agriscience laboratory, utilizing a variety of technologies. Modules covered will focus on incorporating physical science into agriculture and may include: Soils and plant nutrients, water quality, water systems, entomology, integrated pest management, and renewable energy applications. Students may develop their own modules and/or experiments. Methods of teaching physical science labs in agriscience will be emphasized

**AXED 485 - Methods of Teaching Biological Science in Agriculture (3 cr.)**

Students learn to set up and teach in a modular agriscience laboratory, utilizing a variety of technologies. Modules covered will focus on incorporating biological science into Agriculture and may include: plant growth, animal and plant anatomy, microscopy, tissue culture, electrophoresis, DNA analysis, microbiology, food science and vermiculture. Students may develop their own modules and/or experiments. Methods of teaching biological agriscience labs will be emphasized. Prerequisite(s): Junior standing or above.

**AXED 486 - Effective Management of Volunteer Programs (3 cr.)**

For individuals currently involved in, or interested in being involved in, the management and supervision of volunteer programs. Emphasis on practical application, utilizing a research and academic base. Explores the roles, functions, and tasks of volunteers and managers of volunteers including recruitment, orientation and training, supervision, evaluation, recognition and retention.

**AXED 488 - 4-H Youth Development (1 cr.)**

On-line course explores 4-H Youth Development as an integral part of the Cooperative Extension Service. Topics to be addressed include mission, philosophy, delivery modes, audiences and partnerships. Course is relevant for anyone interested in pursuing a career in Cooperative Extension.

**AXED 489 - The FFA Organization: An Overview (1 cr.)**

Online course addressing the history, mission, philosophy and structure of the New Mexico and National FFA Organizations and their relationship to supervised agriculture experiences and the agricultural education curriculum. Course is relevant for anyone interested in pursuing a career in agricultural education.

**AXED 490 - Independent Study in Agricultural, Extension, or Technology Education (1-3 cr.)**

Specific subjects are agreed upon by the student and instructor. Prerequisites: junior or senior standing and consent of instructor. May be repeated for a maximum of 6 credits.

**AXED 499 - Undergraduate Research (1-4 cr.)**

Research experience in agricultural, extension, and technology education with applications to selected issues and problems. Prerequisites: consent of instructor, adviser, and department head.

**B A - BUSINESS ADMINISTRATION****B A 104 - Introduction to Business (3 cr.)**

Survey and integration of functions in business organizations within their social and economic environment. Community Colleges only.

**B A 105 - Special Topics (1-3 cr.)**

Current topics in business and economics.

**B A 202 - Small Business Enterprise (3 cr.)**

Appraisal of business functions within the framework of a small business organization.

**B A 291 - Business Administration and Economics Internship and Cooperative Education I (1-3 cr.)**

Introduction and applications of the principles of business administration and economics. Registration in one course allowed per co-op work phase; a minimum of 12 work weeks is required. Open only to students in the College of Business. Option of S/U or a grade. The amount of academic credit (1-3 cr.) will be determined by the academic experience, and not by the work experience.

**B A 302 - Corporate Responsibility and Ethics (3 cr.)**

Introduces business ethics concepts. Explores the complexity of ethical decisions given individual and professional ethical principles, corporate codes of ethics, and stakeholder interests. Critical thinking exercises apply these concepts to challenges that students will likely face as managers.

**B A 305 - Leadership Training for COB Ambassadors (1 cr.)**

Leadership development for volunteers serving as COB student ambassadors, focusing on COB undergraduate business degree programs, NMSU student services, public speaking and public relations.

**B A 391 - Business Administration and Economics Internship and Cooperative Education II (1-3 cr.)**

Applications of the principles of business administration and economics. Registration in one course allowed per co-op work phase; a minimum of 12 work weeks is required. Open only to students in the College of Business. Option of S/U or a grade. The amount of academic credit (1-3 cr.) will be determined by the academic experience and not by the work experience.

**B A 490 - Selected Topics (3 cr.)**

Prerequisites vary according to the seminar being offered.

**B A 491 - Business Administration and Economics Internship and Cooperative Education III (1-3 cr.)**

Applications of the principles of business administration and economics. Registration in one course allowed per co-op work phase; a minimum of 12 work weeks is required. Open only to students in the College of Business. Option of S/U

or a grade. The amount of academic credit (1-3 cr.) will be determined by the academic experience and not by the work experience.

**B A 498 - Independent Study (1-3 cr.)**

Individual studies directed by consenting faculty with the prior approval of the department head. Prerequisite: junior or above standing and consent of instructor. A maximum of 3 credits may be earned.

**BCHE - BIOCHEMISTRY**

**BCHE 140 - Introduction to Biochemistry (1 cr.)**

A description of the nature of inquiry in biochemistry, especially with respect to the interaction of chemistry and biology. Both historical development and topics of current interest will be discussed. Graded S/U.

**BCHE 241 - Introduction to Research in Biochemistry (1-3 cr.)**

Techniques and procedures of biochemical research. Prerequisites: 8 credits of chemistry and 3.0 GPA in chemistry. May be repeated for a maximum of 3 credits.

**BCHE 341 - Survey of Biochemistry (4 cr. (3+3P))**

Basic principles of biochemical processes and the structure/function of the major classes of biomolecules, with introductions to metabolism and the central dogma of biochemistry. The chemical and biological properties of major biomolecules (DNA, proteins, Prerequisite(s): C or better in CHEM 211 or CHEM 313.

**BCHE 395 - Biochemistry I (3 cr.)**

Principles governing chemistry and physics of life processes with emphasis on the relationships between molecular structure and cell function. Basic principles of biochemical processes, enzymology, and the structure/function of the major classes of biomolecules with introductions to metabolism. Introduction to catabolic metabolism. Prerequisite(s): C or better in CHEM 314.

**BCHE 396 - Biochemistry II (3 cr.)**

Introduction to anabolic metabolism and hormonal regulation. Biochemical principles of the mechanism and regulation of replication, transcription, recombination and translation in prokaryotes and eukaryotes. Introduction to DNA-based information technology. Taught with BCHE 396 H. Prerequisite(s): C or better in BCHE 395.

**BCHE 396 H - Biochemistry II Honors (3 cr.)**

Taught with BCHE 396 with additional work required.

**BCHE 397 - Experimental Biochemistry Laboratory (3 cr.)**

Introduction to fundamental techniques used to explore structure and function of biological macromolecules such as proteins, carbohydrates, lipids, and nucleic acid. Course covers analyzing and reporting experimental data; enzymology; quantitative methods to determine biological molecules; basic principles of electrophoresis, chromatography, and spectroscopic immunochemistry. Prerequisite: C or better in BCHE 395. Corequisite: BCHE 396.

**BCHE 432 - Physical Biochemistry (3 cr.)**

This course focuses on modern Biophysical techniques used in protein and nucleic acid research. Topics are covered in some detail at the theoretical level. The course content is delivered entirely by podcast. Podcast contributions are from several different faculty from within their particular area(s) of expertise. Topics covered include (but are not limited to): biomolecular NMR, atomic force microscopy, light scattering, circular dichroism, ultracentrifugation, isothermal titration calorimetry, positron emission tomography, computerized tomography, ultrasound, functional MRI, protein fluorescence, mass spec/ proteomics, protein molecular dynamics simulations, and X-ray diffraction. Course credit qualifies for minor degree in chemistry as a physical-analytical chemistry emphasis. Prerequisite: One semester of undergraduate physical chemistry, e.g. CHEM 431, or CHEM 433.

**BCHE 440 - Biochemistry Seminar (1 cr.)**

Introduction to current literature in biochemistry and molecular biology. Selected topics in the field will be presented by the faculty. Students will present written and oral reports from literature searches. Prerequisite(s): BCHE 395. Restricted to: BCHE majors.

**BCHE 441 - Advanced Research in Biochemistry (1-3 cr.)**

Investigation of biochemical problems and the development of special techniques. Prerequisites: consent of instructor, 16 credits of chemistry and 3.0 GPA in chemistry for nonmajors. May be repeated for a maximum of 3 credits.

**BCHE 446 - Biochemistry III (3 cr.)**

Intermediary metabolism of carbohydrates, lipids, amino acids, and nucleic acids. Metabolic pathways discussed with emphasis on biochemical regulation and mechanistic, structural, functional, and evolutionary basis for existence. Prerequisite(s): BCHE 395 and either BCHE 396 or consent of instructor.

**BCHE 451 - Special Topics (1-3 cr.)**

Same as CHEM 451. Prerequisite: consent of instructor. May be repeated for a maximum of 12 credits.

**BCHE 455 - Independent Studies (1-3 cr.)**

Independent studies directed by consulting faculty. Prerequisite: consent of instructor.

**BCHE 494 - Biochemical Genetics Laboratory (3 cr. (1.25+6P))**

Laboratory techniques required for experimentation with recombinant DNA such as nucleic acid isolation and purification, polymerase chain reaction (PCR), sequence analysis, and directed mutagenesis using genetic material from both prokaryotic and eukaryotic organisms. Consent of Instructor required. Prerequisite(s): C or better in BCHE 395 and BCHE 396 or GENE 315, and consent of instructor.

**BCIS - BUSINESS COMPUTER SYSTEMS**

**BCIS 110 - Introduction to Computerized Information Systems (3 cr.)**

Computerized information systems, their economic, and social implications. Introduction to microcomputer hardware, personal productivity software, and communications.

**BCIS 321 - Introduction to Software Development and Programming (3 cr.)**

Computer algorithm development and programming logic in the context of business information systems using current programming environments. Includes program design, data types, data structures, control structures, arrays, and principles of object oriented programming. Prerequisite(s): C- or better in BCIS 110 or C S 110; and MATH 120.

**BCIS 322 - Advanced Object-Oriented Programming (3 cr.)**

In-depth exposure to object-oriented programming techniques and preliminary enterprise-level programming. Prerequisite: C- or better in BCIS 222.

**BCIS 338 - Business Information Systems I (3 cr.)**

Application, design and use of computerized information systems in business environment. Prerequisite: BCIS 110 or C S 110 or consent of instructor. Not open to IS majors for credit toward major requirements.

**BCIS 350 - Information Systems Analysis and Design (3 cr.)**

Project management, analysis, requirements determination, and logical modeling of business information processing systems. Prerequisite(s): BCIS 222 or C S 187 or E T 262 or concurrent enrollment.

**BCIS 450 - Systems Design, Development and Implementation (3 cr.)**

Design, development and implementation of business information processing systems. Includes maintenance, evaluation and system management considerations. Prerequisite: C- or better in BCIS 350.

**BCIS 455 - Design of On-Line Business Systems (3 cr.)**

Covers analysis, design, and development of on-line, real-time computerized business-information systems. Prerequisite: C- or better in BCIS 350; and BCIS 322 or concurrent enrollment or consent of instructor.

**BCIS 458 - Knowledge Management and Decision Support (3 cr.)**

Design, evaluation and implementation of computerized decision systems. IS majors may not use this course to satisfy IS major requirement. Prerequisite(s): C- or better in BCIS 338 or consent of instructor.

**BCIS 470 - Object-Oriented Systems Development Techniques (3 cr.)**

Design and implementation of n-tier information systems in the object-oriented environment, including web-based interfaces, business logic, and database communication. Prerequisite: C- or better in BCIS 350; and BCIS 322 or concurrent enrollment or consent of instructor.

**BCIS 475 - Database Management Systems (3 cr.)**

Design, development, and use of database management systems in the business environment. Prerequisite: C- or better in BCIS 350 or consent of instructor.

**BCIS 480 - E-Commerce Security (3 cr.)**

Introduction to securing network-based applications from internal and external threats. Fundamentals of network security, including TCP/IP, firewalls, intrusion detection, and vulnerability. Prerequisite(s): C- or better in BCIS 350 or ET 377 or consent of instructor.

**BCIS 482 - Management of Information Security (3 cr.)**

Provides management overview of information security and thorough examination of administration of information security. Surveys field of information security including planning, policy and programs, protection and people relative to information security. Prerequisite: BCIS 110 or equivalent. Taught with BCIS 575.

**BCIS 485 - Enterprise Resource Planning (3 cr.)**

This course covers concepts in enterprise resource planning (ERP). Topics include how ERP integrates business processes across functional areas--such as the procurement process and the sales order process--and how businesses use ERP information systems in day-to-day operations as well as for performance monitoring. SAP R/3 software will be used in several hands-on examples of ERP software as a real-world example of an ERP system. Prerequisite(s): C- or better in BCIS 338 or BCIS 350 or ACCT 351.

**BCIS 490 - Selected Topics (1-3 cr.)**

Current topics in business systems analysis. Prerequisites vary according to topics being covered. May be repeated for a maximum of 12 credits under different subtitles.

**BCIS 495 - Enterprise Information Portals (3 cr.)**

Enterprise information portal (EIP) is a framework for integrating information, people and processes across organizational boundaries using web-based technologies. In this class, you will explore the wide range of options (EIP's) (e.g. SAP Netweaver Portal) provided to integrate ERP solutions, third-party applications, legacy systems, databases, unstructured documents, internal and external Web content, and collaboration tools. Taught with BCIS 565. Prerequisite(s): BCIS 485.

**BCIS 498 - Independent Study (1-3 cr.)**

Individual studies directed by consenting faculty with prior approval of the department head. Prerequisites: junior or above standing and consent of instructor. May be repeated for a maximum of 3 credits.

**BIL - BILINGUAL EDUCATION****BIL 489 - Topics (3 cr.)**

Course subtitled in the Schedule of Classes. May be repeated three times for a maximum of 9 credits.

**BIOL - BIOLOGY****BIOL 101G - Human Biology (3 cr.)**

Introduction to modern biological concepts. Emphasis on relevance to humans and their relationships with their environment. Cannot be taken for credit after successful completion of BIOL 111G or BIOL 211G. Appropriate for non-science majors. Requires successful completion of BIOL 101GL in order to meet the NM Common Core Area III Laboratory Science requirements.

**BIOL 101GL - Human Biology Laboratory (1 cr. (3P))**

Laboratory for BIOL 101G. Laboratory experiences and activities exploring biological concepts and their relevance to humans and their relationship with their environment. Prerequisite(s)/Corequisite(s): BIOL 101G.

**BIOL 110G - Contemporary Problems in Biology (4 cr. (3+3P))**

Fundamental concepts of biology will be presented using examples from relevant problems in ecology, medicine and genetics. For nonscience majors only. Community Colleges only.

**BIOL 111G - Natural History of Life (3 cr.)**

Survey of major processes and events in the genetics, evolution, and ecology of microbes, plants and animals, and their interactions with the environment. Appropriate for nonscience majors. Must be taken with BIOL 111GL to meet general education requirements.

**BIOL 111GL - Natural History of Life Laboratory (1 cr. (3P))**

Laboratory experiments, demonstrations and exercises on interrelationships among organisms, biodiversity, processes of evolution, and interaction of organisms and their environment. Prerequisite(s)/Corequisite(s): BIOL 111G.

**BIOL 150 - Topics in Biology (1-3 cr.)**

Introductory level coverage of biological topics. May be repeated up to 9 credits.

**BIOL 154 - Introductory Anatomy and Physiology (4 cr. (3+3P))**

Survey of human structure and function (does not replace BIOL 190, BIOL 111G, or BIOL 211G as a prerequisite for advanced courses in biology). Restricted to: Community Colleges only.

**BIOL 211G - Cellular and Organismal Biology (3 cr.)**

Principles of cellular structure and function, genetics, and physiology of microbes, plants, and animals. Suitable for nonmajors with sufficient chemistry. Must be taken with BIOL 211L to meet general education requirements. Pre/Corequisite(s): CHEM 110G or CHEM 111G or CHEM 115.

**BIOL 211GL - Cellular and Organismal Biology Laboratory (1 cr. (3P))**

Laboratory demonstrations, experiments and exercises on molecular and cellular biology and organismal physiology. Must have passed BIOL 211G or be concurrently enrolled in BIOL 211G and BIOL 211L. Pre/Corequisite(s): CHEM 110G or CHEM 111G or CHEM 115.

**BIOL 219 - Public Health Microbiology (3 cr.)**

The characteristics of pathogenic microorganisms and the diseases that they cause. Will not meet the microbiology requirements for biology or medical technology majors. Prerequisite: BIOL 211G and BIOL 211GL.

**BIOL 221 - Introductory Microbiology (3 cr. (3P))**

Principles of isolation, taxonomy, and physiology of microorganisms. Prerequisite: CHEM 112G, equivalent or consent of instructor. Corequisite: BIOL 221L. Community Colleges only.

**BIOL 221 L - Introductory Microbiology Laboratory (1 cr. (3P))**

A laboratory course to accompany BIOL 221 or BIOL 219. Prerequisite: BIOL 221 or BIOL 219 or concurrent enrollment.

**BIOL 225 - Human Anatomy and Physiology I (4 cr. (3+3P))**

The first in a two-course sequence that covers the structure and function of the human body, including terminology of the human gross anatomy, chemistry overview, cell structure, cell physiology (including DNA, protein synthesis and cell division). The organization of cells and tissues and their metabolic and homeostatic processes and regulation are also covered. Physical and chemical operation of organs and systems of the human body include the integumentary, skeletal, muscular, and nervous systems. Pre/Corequisite(s): CHEM 110G or CHEM 111G. Restricted to: Community Colleges only.

**BIOL 226 - Human Anatomy and Physiology II (4 cr. (3+3P))**

The second in a two-course sequence that covers the structure and function of the human body. Includes the physical and chemical operation of the organs and systems of the human body, including endocrine, cardiovascular, lymphatic, immune, respiratory, digestive, urinary and reproduction system. Concepts of nutrition, metabolism, energy, fluid and electrolyte balance, heredity pregnancy and human embryonic and fetal development are also covered. Prerequisite(s): BIOL 225, CHEM 110G or CHEM 111G. Restricted to: Community Colleges only.

**BIOL 227 - Pathophysiology (3 cr.)**

A study of the structure and function of the human body with specialized emphasis on disease processes. Prerequisite(s): AHS 153 or BIOL 225

Corequisite/Prerequisites(s): AHS 154 or BIOL 226 Restricted to: Community Colleges only.

**BIOL 250 - Special Topics (1-3 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated for a maximum of 6 credits. Community Colleges only.

**BIOL 253 - Human Anatomy (4 cr. (3+3P))**

Detailed presentations of human anatomy, with laboratory. For nursing, prenursing, and human nutrition and food science majors only. Prerequisite(s): Grade of C- in BIOL 211G and either CHEM 111G or CHEM 110G. Restricted to: HNFS, PNUR majors.

**BIOL 254 - Human Physiology (3 cr.)**

Physical and chemical operation of the organs and systems of the human body. Not open to students who have passed BIOL 354 or BIOL 381. Prerequisite(s): Grade of at least C- in BIOL 211G; BIOL 211GL; CHEM 111G or CHEM 110G.

**BIOL 254 L - Human Physiology Laboratory (1 cr. (3P))**

Laboratory to accompany BIOL 254. BIOL 254 must be taken concurrently or in an earlier semester. Community Colleges only.

**BIOL 260 - Human Genetics (3 cr.)**

Human genetics for science and nonscience majors. Major topics include cell division, transmission genetics, sex-linked inheritance, pedigree analysis, inheritance of complex traits, cytogenetics, development and sex determination, DNA structure and replication, gene expression, mutation, epigenetics, genetics of cancer, genetic technology, genomics, genetics of immunity, genetics of behavior, and population genetics. Prerequisite(s): grade of C- or higher in BIOL 101G or BIOL 111G or BIOL 211G. Restricted to Community Colleges campuses only.

**BIOL 260 L - Human Genetics Laboratory (1 cr. (1+3P))**

Laboratory course to accompany BIOL 260 Human Genetics. Prerequisite(s)/Corequisite(s): BIOL 260. Restricted to Community Colleges campuses only.

**BIOL 262 - Human Pathophysiology I (3 cr.)**

The first in a two-course sequence that covers changes in body physiology that result from disease or injury. Includes a general introduction to pathophysiology as well as an overview of altered cellular and tissue biology, injury, inflammation, and neoplasia. Students will also explore deviation from fluid, hemodynamic, and endocrinologic balance. Topics related to the science of pathophysiology, including pathology, pathogenesis, etiology, epidemiology, and clinical manifestations, are also discussed throughout the course where relevant. Prerequisite(s): Grade of C- or higher in BIOL 225 and BIOL 226. Grade of C- or higher in microbiology is recommended. Restricted to Community Colleges campuses only.

**BIOL 263 - Pathophysiology II (3 cr.)**

The second in a two-course sequence that covers changes in body physiology that result from disease or injury. This course focuses on the pathophysiology of the nervous, cardiovascular, lymphatic, respiratory, digestive, urinary, and reproductive systems. Topics related to the science of pathophysiology, including pathology, pathogenesis, etiology, epidemiology, and clinical manifestations, are also discussed throughout the course where relevant. Prerequisite(s): Grade of C- or higher in BIOL 225, BIOL 226, and BIOL 262. Grade of C- or higher in microbiology is recommended. Restricted to Community Colleges campuses only.

**BIOL 264 - Medical Genetics (3 cr.)**

Overview of the central concepts of medical genetics. Designated for biology students, pre-nursing/nursing students, pre-professional students, and students in the allied health sciences. Major topics include basic cell biology, genetic variation, autosomal dominant and recessive inheritance, sex-linked and nontraditional modes of inheritance, clinical cytogenetics, biochemical genetics, immunogenetics, developmental genetics, cancer genetics, multifactorial inheritance, genetic testing, and genetic counseling. Prerequisite(s): Grade of C- or higher in BIOL 211G. Restricted to Community Colleges campuses only.

**BIOL 301 - Principles of Ecology (3 cr.)**

A survey of ecology including general theory, the adaptations of organisms, population dynamics, species interactions, and the structure and function of natural communities and ecosystems. MATH 191G and A ST 311 recommended. Same as E S 301. Crosslisted with: E S 301. Prerequisite(s): BIOL 111G, MATH 121G.

**BIOL 302 - Molecular Biology Techniques Laboratory (3 cr. (6P))**

This combined lecture and laboratory course emphasizes molecular biology laboratory practices through the hands-on application of commonly applied techniques, protocols, and equipment. The topics covered include both the fundamental development of empirical data as well as data analysis using stand-alone and web-based resources. Consent of instructor required. Prerequisite(s): BIOL 211G or equivalent, and MATH 121G.

**BIOL 305 - Principles of Genetics (3 cr.)**

Covers fundamental principles of reproduction, variation, and heredity in plants and animals. Crosslisted with: HORT 305 and AGRO 305. Prerequisite(s): BIOL 111G and BIOL 211G, or BIOL 211G and BCHE 140, either CHEM 111G or CHEM 115, and MATH 121G.

**BIOL 309 - Guided Biological Research Lab (3 cr.)**

This laboratory course provides a guided experience to hands-on research in biology. It is intended for early-career undergraduates who have finished the introductory sequence of Biology courses. Topics will vary with instructor. Prerequisite(s): BIOL 111G, BIOL 211G, and MATH 121G.

**BIOL 311 - General Microbiology (3 cr.)**

Principles of physiology, molecular biology, ecology, and taxonomy of microorganisms. Prerequisite(s): BIOL 211G and MATH 121G.

**BIOL 311 L - General Microbiology Laboratory (2 cr. (4P))**

Microbiology techniques and procedures, including isolation and identification of microorganisms and biotechnology procedures that employ microorganisms. Prerequisite(s)/Corequisite(s): BIOL 219 or BIOL 311. Prerequisite(s): BIOL 211G and MATH 121G.

**BIOL 312 - Plant Taxonomy (3 cr. (2+3P))**

Classification and identification of representative plant families and local plants. Emphasis on ability to use technical sources. Saturday field trips may be recommended. Prerequisite(s): BIOL 111G and MATH 121G.

**BIOL 313 - Structure and Function of Plants (3 cr. (2+3P))**

Structure, function, and survey of plants. BIOL 211G recommended. Prerequisite(s): BIOL 111G, MATH 121G, and sophomore-level standing.

**BIOL 314 - Plant Physiology (3 cr.)**

Photosynthesis, respiration, water relation of plants, minerals and organic nutrition, growth and development. Prerequisite(s): BIOL 211G and CHEM 112G.

**BIOL 322 - Zoology (3 cr. (2+3P))**

Structure, function, and survey of animals. BIOL 211G recommended. Prerequisite(s): BIOL 111G, MATH 121G, and at least sophomore-level standing.

**BIOL 330 - Comparative Anatomy and Embryology (4 cr. (3+3P))**

The developmental and evolutionary basis for the diversity and homology of body plans within the classes of vertebrate organisms. Laboratories will emphasize comparative dissection. BIOL 322 recommended. Prerequisite(s): BIOL 111G, BIOL 211G, and MATH 121G.

**BIOL 350 - Special Topics (1-4 cr.)**

Specific subjects announced in Schedule of Classes and offered as scheduled courses. May be repeated for unlimited credit.

**BIOL 351 - Biology Internship (1-6 cr.)**

Substantial off-campus experience in biology selected by student in consultation with regular biology faculty member. Internship must be approved by faculty member. Student will supply mutually agreed upon documentation of internship activities after the internship is completed. May be repeated up to 6 credits. Prerequisite(s): 45 college credits, 2.5 or better GPA, consent of instructor. Restricted to: BIOL, MBIO, CEC, GEBT majors. S/U Grading (S/U, Audit).

**BIOL 353 - Pre-Professional Human Anatomy (4 cr.)**

Pre-professional clinically-oriented survey of human anatomy. Designed primarily for pre-nursing majors. Provides comprehensive anatomical training for students planning careers in health and allied health sciences, such as medicine, dentistry, nursing, physical therapy, physicians aid, human nutrition, and food science. Suitable as a biology elective. Concurrent enrollment in BIOL 354L is recommended but not required. Prerequisite(s): BIOL 211G and either CHEM 110G, CHEM 111G, or CHEM 115.

**BIOL 353 L - Pre-Professional Human Anatomy Laboratory (1 cr. (3P))**

Laboratory experience in human anatomy using anatomical models and cat dissections. Designed as a learning aid to support and augment BIOL 353 pre-professional Human Anatomy. For students planning careers in health and allied health sciences such as medicine, dentistry, nursing, physical therapy, physicians aid, human nutrition, and food science. Prerequisite(s)/Corequisite(s): BIOL 253 or BIOL 353. Prerequisite(s): BIOL 211G and either CHEM 110G, CHEM 111G, or CHEM 115.

**BIOL 354 - Physiology of Humans (3 cr.)**

Principles of integrative functions in humans. A systems approach emphasizing tissues, organs, and their regulation. Prerequisite(s): BIOL 211G and MATH 121G.

**BIOL 354 L - Laboratory of Human Physiology (1 cr. (3P))**

Laboratory to accompany BIOL 354. Prerequisite(s): MATH 121G and either BIOL 254, BIOL 381, BIOL 354, or concurrent enrollment in BIOL 354.

**BIOL 373 - Fungal Biology (3 cr. (3+2P))**

Same as EPWS 372. Prerequisite: EPWS 310 or BIOL 311 or consent of instructor.

**BIOL 377 - Cell Biology (3 cr.)**

Fundamentals of eukaryotic cell structure, organization, and function. Emphasis on membranes, subcellular organelle systems, cytoskeleton, and cell cycle. Includes basic aspects of molecular biology. Prerequisite(s): BIOL 211G, BIOL 305, and MATH 121G. BIOL 111G recommended.

**BIOL 381 - Animal Physiology (3 cr.)**

Principles of integrative function in animals, emphasizing tissues, organs, organ systems, and regulation. Includes adaptations of animals to their environments. BIOL 111G and BIOL 377 recommended. Prerequisite(s): BIOL 211G and junior-level standing, MATH 121G.

**BIOL 382 - Plant Signalling and Development (3 cr.)**

This is a course that introduces plant signalling pathways and their role in development to students. The lectures are structured to facilitate in-class discussions on the current state and future directions in this field. Topics will cover a wide range of biological questions and the methods used to study them. Prerequisite(s): BIOL 305 or GENE 315, and MATH 121G.

**BIOL 385 - An Introduction to Cancer (3 cr.)**

This course will cover 3 areas of cancer research and their interdisciplinary connections: clinical cancer research, epidemiology and public health, and basic cancer research. Prerequisite(s): BIOL 305 or equivalent and MATH 121G.

**BIOL 398 - Biology Research Programs (1-3 cr.)**

Directed studies and research experiences, by arrangement with instructor. May be repeated for a maximum of 6 credits.

**BIOL 402 - Biology Honors Thesis (1-3 cr.)**

Provides guidance in how to write a scientific paper in the sciences. Students will produce an honors thesis based on previous independent research. Consent of instructor required. Prerequisite(s): MATH 121G and consent of instructor.

**BIOL 408 - Ecology of Plants (3 cr.)**

Controlling factors, succession, community dynamics, and the classification of vegetation. Prerequisite(s): BIOL 301 and MATH 121G.

**BIOL 412 - Seminar in Microbiology (1 cr.)**

Seminar to aid students in assessment and presentation of current topics in microbiology. Graded: S/U. Prerequisite(s): BIOL 311, BIOL 311L, and MATH 121G.

**BIOL 423 - Primate Adaption and Evolution (3 cr.)**

Survey of the adaptations and evolutionary history of non-human primates. Consent of Instructor required. Crosslisted with: ANTH 473. Corequisite(s): BIOL 423L when offered. Prerequisite(s): ANTH 355 or consent of instructor.

**BIOL 423 L - Primate Evolution Laboratory (1 cr. (1P))**

Laboratory with exercises on non-human primate adaptation and evolution. Crosslisted with: ANTH 473 L. Corequisite(s): BIOL 423. Prerequisite(s): ANTH 355 or consent of instructor.

**BIOL 424 - Human Osteology (3 cr.)**

A survey of the functional, developmental, and evolutionary biology of the human skeleton. Identifying bones and teeth from hands-on experience with skeletal and dental material. Provides a foundation for human evolutionary studies, bioarchaeology and forensic anthropology. Crosslisted with: ANTH 474. Corequisite(s): BIOL 424L when offered. Prerequisite(s)/Corequisite(s): Recommend ANTH 355 or equivalent.

**BIOL 424 L - Human Osteology Lab (1 cr. (1P))**

Laboratory for ANTH 474. Experiences and activities related to identifying teeth and bones of the human skeleton. Crosslisted with: ANTH 474 L. Corequisite(s): BIOL 424. Prerequisite(s): Recommend ANTH 355 or equivalent.

**BIOL 427 - Symbiosis (3 cr.)**

In-depth treatment of the ecology, evolution, and mechanisms that are found in symbiotic systems. Prerequisite(s): BIOL 111G, BIOL 211G, and MATH 121G.

**BIOL 434 - Human Evolution (3 cr.)**

Overview of human biological evolution from the emergence of Miocene apes to the modern human diaspora. Crosslisted with: ANTH 434. Corequisite(s): BIOL 434L when offered. Prerequisite(s): ANTH 355 or consent of instructor.

**BIOL 434 L - Human Evolution Laboratory (1 cr. (1P))**

Laboratory in human evolution, includes exercises and activities to learn the human fossil record. Crosslisted with: ANTH 434 L. Corequisite(s): BIOL 434. Prerequisite(s): ANTH 355 or consent of instructor.

**BIOL 435 - Cell Biology Current Topics (2 cr.)**

Seminars and discussions on current topics in cell biology. May be repeated for a maximum of 8 credits. Prerequisite(s): MATH 121G.

**BIOL 436 - Disease Vector Biology (3 cr.)**

Fundamentals of disease vector biology with emphasis on molecular biology. Explores an overview of vector borne diseases, insect endocrinology, insect immunity, olfaction, vector genome projects and transgenic insect techniques. Includes student presentations and literature discussions. Prerequisite(s): BIOL 211G, BIOL 305, and MATH 121G. Crosslisted with: BIOL 536

**BIOL 442 - Genomics Technology (3 cr.)**

The course introduces current genomic techniques in genome sequencing, transcriptome analysis, detection of genetic variation, and metagenomics. Prerequisite(s): BIOL 211G, BIOL 305 or BIOL 478 or GENE 315, and MATH 121G.

**BIOL 446 - Bioinformatics and NCBI Database (3 cr.)**

The course discusses how to use NCBI database and bioinformatic tools for research with genomics approaches. The topics include nucleotide and protein sequence analysis, similarity search with blast algorithms, gene/genome annotation, protein structure analysis, gene expression analysis, and metagenomic study. Prerequisite(s): BIOL 211G, BIOL 305 or BIOL 478 or GENE 315, and MATH 121G.

**BIOL 447 - Ornithology (4 cr. (3+3P))**

Morphology, life histories, systematics, ecology, and behavior of birds. Prerequisite(s): MATH 121G.

**BIOL 450 - Special Topics (1-3 cr.)**

Specific subjects announced in the Schedule of Classes and offered as scheduled courses. May be repeated for unlimited credit.

**BIOL 451 - Physiology of Microorganisms (3 cr.)**

Aspects of cellular physiology unique to prokaryotes. BCHE 395 recommended. Prerequisite(s): C- or better in BIOL 311, MATH 121G.

**BIOL 455 - Biometry (3 cr.)**

Biometry is the analysis of biological data using mathematical and statistical models. The course will cover basic theories of probability and statistics and will introduce principles of sampling, estimation, experimental design, and hypothesis testing. Students will analyze biological data using computer programs and will perform tests for goodness-of-fit, independence, analysis of variance, correlation, and regression. Prerequisite(s): BIOL 111G or BIOL 211G, and MATH 121G.

**BIOL 459 - Darwinism Versus Creationism (3 cr.)**

This course examines the debate regarding Creationism versus Darwinism as explanations for the origin and diversification of life on Earth. Topics covered include the nature and philosophy of science, new-world creationism, old-world creationism, intelligent design, history of evolutionary thought, modern evolutionary theory, and the Creationism-Darwinism debate at the societal, political, and educational interfaces. The course structure will include formal lectures and in-class discussion of assigned readings. Prerequisite(s): BIOL 111G or BIOL 211G, and MATH 121G.

**BIOL 462 - Conservation Biology (3 cr.)**

Examination of the value of biological diversity, the natural processes that control biological diversity, and the ways in which human activities have resulted in the loss of biological diversity, both regionally and globally. Prerequisite(s): BIOL 301 and either MATH 142G or MATH 191G.

**BIOL 465 - Invertebrate Zoology (4 cr. (3+3P))**

Survey, ecology, behavior and physiology. BIOL 322 recommended. Prerequisite(s): MATH 121G, BIOL 111G, and junior-level standing.

**BIOL 466 - Invertebrate Zoology Field Trip (1 cr.)**

A one-week field trip for the study of marine invertebrates. Registrants must provide own camping gear. Graded: S/U. Prerequisite(s): MATH 121G, BIOL 465 or equivalent (or concurrent enrollment) or consent of instructor.

**BIOL 467 - Evolution (3 cr.)**

Covers theory, historical background, population variation, natural selection, adaptation, speciation. Prerequisite(s): BIOL 111G, BIOL 305 or GENE 320, and MATH 121G.

**BIOL 469 - Biology of Emerging Infectious Diseases (3 cr.)**

This class will investigate the evolutionary and ecological drivers of disease emergence. The effect of emerging diseases on human health will be addressed throughout the class, but the class will also consider the consequences of disease emergence for the health of wildlife and plant populations. Additionally, the class will consider the mechanisms used to control disease emergence and why they succeed or fail. Prerequisite(s): MATH 121G, Introductory Genetics (BIOL 305 or equivalent) or consent of the instructor.

**BIOL 470 - Developmental Biology (3 cr.)**

The purpose of this course is to introduce students to the principles that govern the development of a single fertilized egg cell into a complex multicellular organism. These principles, and often the molecular mechanisms by which they are accomplished, appear to be universal for all multicellular organisms including both plants and animals. We will explore issues such as: how cells become committed to particular cell fates and how this commitment is maintained; how organs acquire particular shapes, sizes and positions; the developmental causes of some human diseases; how the environment affects development; and, how changes in development provide the material basis for evolutionary change. Prerequisite(s): BIOL 211G, BIOL 305, and MATH 121G.

**BIOL 471 - Molecular and Cellular Mycology (3 cr.)**

Exploration of the world of fungi with emphasis on fungal molecular biology and development. Including discussion of fungal taxonomy and genomics. Prerequisite(s): MATH 121G and BIOL 311 required, BCHE 341 or BCHE 395 recommended, or consent of instructor.

**BIOL 472 - Primate Behavior and Ecology (3 cr.)**

Survey of the social behavior and ecology of nonhuman primates. Crosslisted with: ANTH 472.

**BIOL 473 - Ecology of Microorganisms (3 cr. (2+3P))**

The metabolic interactions of microorganisms in the environment, with emphasis on their roles in ecological processes. Prerequisite(s): MATH 121G, BIOL 311 or consent of instructor.

**BIOL 474 - Immunology (3 cr.)**

Basic concepts of the immune response. Prerequisite(s): MATH 121G, BIOL 305, and CHEM 211 or CHEM 313.

**BIOL 475 - Virology (3 cr.)**

Mechanisms of viral infections of animals and man. BCHE 395 or BIOL 305 are recommended. Prerequisite(s): BIOL 311 and MATH 121G.

**BIOL 476 - Soil Microbiology (3 cr.)**

Nature and physiology of soil microorganisms, how they affect plant growth and recycle nutrients. Land framing, bioremediation, and other environmental problems as influenced by soil microorganisms. SOIL 252 and BIOL 311 recommended. Same as SOIL 476.

**BIOL 476 L - Soil Microbiology Laboratory (1(3P))**

Enumeration of soil microorganisms, their activities, and transformations they mediate. Same as SOIL 476L. Prerequisite(s)/Corequisite(s): BIOL 476.

**BIOL 477 - Applied and Environmental Microbiology (4 cr.)**

A lecture-laboratory course on the microorganisms and the reactions they mediate which either impact the environment or have industrial applications. Reading of current literature will be emphasized. Topics include bioremediation, water quality, and aspects of industrial and food microbiology. Prerequisite(s): MATH 121G, BIOL 311, and 311 L, or consent of instructor.

**BIOL 478 - Molecular Biology of Microorganisms (3 cr.)**

The biochemical basis for gene mutation, recombination, and expression with emphasis on prokaryotes. Includes fundamentals of recombinant DNA technology. BIOL 305 and BCHE 395 recommended. Prerequisite(s): BIOL 311 and MATH 121G.

**BIOL 479 - Medical Microbiology (3 cr.)**

An in-depth overview of microbial pathogens associated with human infectious disease. Etiological agents, pathogenesis, and processes leading to the disease state and the therapies of infectious disease. Prerequisite(s): MATH 121G and BIOL 311 required, BIOL 474 recommended.

**BIOL 479 L - Medical Microbiology Laboratory (1 cr.)**

Overview of common procedures used by medical microbiologists to identify agents of disease or microbial pathogen traits. Prerequisite(s): MATH 121G, BIOL 311. Pre/Corequisite(s): BIOL 479.

**BIOL 480 - Animal Behavior (3 cr.)**

A survey of the field of animal behavior. BIOL 322 recommended. Prerequisite(s): MATH 121G, BIOL 111G, and junior-level standing.

**BIOL 480 L - Animal Behavior Laboratory (1(2P))**

Laboratory and field experiences in animal behavior. Corequisite(s): BIOL 480. Prerequisite(s): BIOL 111G, MATH 121G, and junior-level standing. BIOL 322 recommended.

**BIOL 484 - Animal Communication (3 cr.)**

An examination of how animals produce and perceive signals, what factors influence the form of signals in different sensory modalities, and how conflicts between senders and receivers affect signaling strategies. Weekly discussion from the primary literature and group research products. Prerequisite(s): BIOL 111G or consent of instructor, and MATH 121G.

**BIOL 488 - Principles of Conservation Genetics (3 cr.)**

Fundamentals of the genetics of small populations. Genetic technologies used in studying small populations. Application of genetics and evolution to the conservation of biological populations. Prerequisite(s): MATH 121G and BIOL 305.

**BIOL 489 - Genetic Aspects of Population Biology (3 cr.)**

Basic theory of population genetics and how that theory has guided, and been influenced by, studies of natural populations. Prerequisite(s): MATH 121G and BIOL 305 or equivalent.

**BIOL 490 - Neurobiology (3 cr.)**

Fundamentals of neurobiology with an emphasis on properties of neurons and glia, principles of synaptic transmission, development of nervous system and organization of motor and sensory systems. Prerequisite: BIOL 211, BIOL 305, MATH 142G, or MATH 191G, and CHEM 211 or CHEM 313.

**BIOL 498 - Biology Research Programs (1-3 cr.)**

Directed studies and research experiences, by arrangement with instructor. May be repeated for a maximum of 6 credits.

**BLAW - BUSINESS LAW****BLAW 230 - Business Law (3 cr.)**

Introduction to law in general and application to business specifically; comprehensive study of the law of contracts; and the principal and agent relationship. Offered at all NMSU Community Colleges except Dona Ana Community College. Credit may not be earned in both BLAW 230 and BLAW 317.

**BLAW 313V - Sports and the Law (3 cr.)**

Introduction to legal concepts related to sports and business including an introduction to U. S. law and the civil practice, agency, sports contracts, sport torts, sport crimes, pertinent federal legislation such as Title IX, drugs and sports, international sports issues, pertinent antitrust issues, intellectual property, ethics and alternative dispute resolution.

**BLAW 316 - Legal Environment of Business (3 cr.)**

Survey of business law including: the legal system (court systems, sources and types of law, litigation and dispute resolution), ethics and corporate social responsibility, administrative law, tort law, contract law, agency and employment law, business structure and governance, securities regulations, and international law. Students may not receive credit for both BLAW 316 and BLAW 317.

**BLAW 325 - Real Estate Principles and Law I (3 cr.)**

Same as FIN 325.

**BLAW 385V - Consumers and the Law (3 cr.)**

Study of the interrelationships between business, legal, and ethical aspects of consumer issues and their attendant civil liability and remedies in domestic and international markets.

**BLAW 418 - Advanced Business Law Topics (3 cr.)**

Property, advanced contract law, debtor-creditor relations, bankruptcy and Uniform Commercial Code topics including sales, negotiable instruments, secured transactions and documents of title. Students who have taken BLAW 318 may not receive credit for BLAW 418. Prerequisite: BLAW 316.

**BLAW 430V - American Indian Law and Policy (3 cr.)**

Explores the principles, doctrines, and texts governing the legal relations between the United States and Indian tribes, the history of federal Indian law and policy, tribal property, treaty rights and sovereignty, congressional plenary power, the trust doctrine, jurisdiction in Indian country, and tribal government. Topic specifically examined in the course include tribal lawmaking powers, gaming and economic development in Indian country, protection of Indian religious rights and cultural property, water rights, fishing, hunting and other treaty-based rights.

**BLAW 490 - Selected Topics (1-3 cr.)**

Prerequisites vary according to the seminar being offered.

**BLAW 498 - Independent Study (1-3 cr.)**

Individual studies directed by consenting faculty with the prior approval of the department head. Prerequisites: junior or above standing and consent of instructor and department head.

**BUSA - BUSINESS ADMINISTRATION AND ECONOMICS****BUSA 111 - Business in a Global Society (3 cr.)**

Overview of the global environment of business and the development of business as an integrative, cross-disciplinary activity.

**C D - COMMUNICATION DISORDERS****C D 221 - Introduction to Communication Disorders (3 cr.)**

Basic information about speech, language, and hearing disorders; orientation to the professions of speech-language pathology and audiology.

**C D 301 - Language Acquisition (3 cr.)**

Normal development of communication across the age span. Includes language sampling. Taught with C D 509. Pre/Corequisite(s): C- or better in C D 221. Restricted to C D majors.

**C D 321 - Clinical Methods (3 cr.)**

Introduction to clinical methods and supervised clinical observation of speech, language, and hearing services. Prerequisite(s): C- or better in C D 221, B or better in C D 301/C D 509, C D 302/C D 593 and minimum 3.0 GPA. Restricted to C D majors.

**C D 322 - Anatomy and Physiology of Speech Mechanisms (3 cr.)**

Structure and function of systems underlying human speech sound production and processing including nervous, respiratory phonatory, and articulatory components. Taught with C D 502. Prerequisite(s): C- or better in C D 221 and B or better C D 301/CD 509, C D 302/C D 593 and minimum 3.0 GPA. Restricted to C D majors.

**C D 323 - Phonetics (3 cr.)**

The science of phonetics, including work with the International Phonetic Alphabet. Taught with C D 501. Prerequisite(s): C- or better in C D 221. B or better in C D 301/C D 509, C D 302/C D 593 and minimum 3.0 GPA. Restricted to C D majors.

**C D 324 - Introduction to Speech Science (3 cr.)**

Basic concepts and theories in acoustics, speech production and speech perception. Includes laboratory experience with instrumental measurement and analysis of speech systems. Taught with C D 503. Prerequisite(s): C- or better in C D 221, B or better in C D 301/C D 509, C D 302/C D 593, C D 321, C D 322/C D 502, C D 323/C D 501 and minimum 3.0 GPA. Restricted to C D majors.

**C D 325 - Language Disorders (3 cr.)**

Bases, symptoms, etiologies, and treatment of language disorders. Includes review of normal language acquisition. Prerequisite(s): C- or better in C D 221. B or better in C D 301/C D 509, C D 302/C D 593, C D 321, C D 322/C D 502, C D 323/C D 501, and minimum 3.0 GPA. Restricted to C D majors.

**C D 326 - Clinical Procedures (3 cr.)**

Guidelines and procedures associated with the clinical and supervisory processes. Provide opportunities to complete the supervised clinical observation requirement for participation in clinical practicum. Prerequisite(s): C- or better in C D 221. B or better in C D 301/C D 509, C D 302/C D 593, C D 321, C D 322/C D 502, C D 323/C D 501 and minimum of 3.0 GPA. Restricted to C D majors.

**C D 365 - Language Acquisition for Educators (3 cr.)**

This course covers the development of language from birth through young adulthood. The course focuses on providing future educators with foundational knowledge of language development, delays, differences and disorders. Course content prepares educators to analyze the linguistic demands of academic course content and effective bridge gaps between students' linguistic skills and the demands of the curriculum

**C D 374 - American Sign Language I (3 cr.)**

Introduction to the basics of ASL including questions, commands, sentence types, time, subjects and objects, classifiers, locative case, pluralization, and temporal and distributional aspects.

**C D 375 - American Sign Language II (3 cr.)**

Continuation of C D 374, ASL I. Emphasis on ASL grammar, spatial referencing, detailed descriptions, and deaf culture. Features dialogues, short stories, narratives. Prerequisite: C D 374 or consent of instructor.

**C D 421 - Speech Disorders (3 cr.)**

Bases, symptoms, etiologies, and clinical management of issues related to disorders of articulation, phonology, voice and resonance, and fluency. Prerequisite(s): C- or better in C D 221. B or better in C D 301/C D 509, C D 302/C D



593, C D 321, C D 322/C D 502, C D 323/C D 501, C D 324/C D 503, C D 325, C D 326 and minimum 3.0 GPA. Restricted to C D majors.

**C D 422 - Audiology (3 cr.)**

Anatomy and physiology of the auditory system, bases of auditory disorders, and basic audiometric procedures. Prerequisite(s): C- or better in C D 221. B or better in C D 301/C D 509, C D 302/C D 593, C D 321, C D 322/C D 502, C D 323/C D 501, C D 324/C D 503, C D 325, C D 326 and minimum of 3.0 GPA. Restricted to C D majors.

**C D 423 - Neural Bases of Communication Disorders (3 cr.)**

Study of the neuroanatomy and neurophysiology of communication and communication disorders. Includes review of the central nervous system and peripheral nervous system relationship to speech motor control, language, and hearing. Prerequisite(s): C- or better in C D 221. B or better in C D 301/C D 509, C D 302/C D 593, C D 321, C D 322/C D 502, C D 323/C D 501, C D 324/C D 503, C D 325, C D 326, C D 421, C D 422 and minimum 3.0 GPA. Restricted to C D majors.

**C D 424 - Aural Rehabilitation (3 cr.)**

Overview of hearing aids and amplification devices including cochlear implants. Review of the bases and psychosocial aspects of hearing loss. Clinical management of hearing loss consistent with ASHA's scope of practice for SLPs. Prerequisite(s): C or better in C D 221. B or better in C D 301/C D 509, C D 302/C D 593, C D 321, C D 322/C D 502, C D 323/C D 501, C D 324/C D 503, C D 325, C D 326, C D 421, C D 422 and minimum of 3.0 GPA. Restricted to C D majors.

**C D 425 - Professional Reasoning and Scientific Thinking (3 cr.)**

Overview of constructive thinking, problem solving, and decision making theories and strategies associated with professional reasoning and scientific thinking that are to be used academically and clinically in the transition from student to scholar to professional. Taught with C D 593. Prerequisite(s): C- or better in C D 221. Restricted to: C D, C DS majors.

**C D 476 - American Sign Language III (3 cr.)**

Continuation of C D 375, ASL II. Focus on more complex grammatical features. Students will comprehend and generate medium length stories, narratives, and discussions including culturally significant topics. Prerequisite: C D 375.

**C D 491 - Selected Topics (1-6 cr.)**

Individual and/or group study of selected topics. To be identified by subtitle. Prerequisite: prior arrangement with faculty. May be repeated for a maximum of 12 credits.

**C E - CIVIL ENGINEERING**

**C E 109 - Computer Drafting Fundamentals (3 cr. (2+2P))**

Same as DRFT 109, E T 109, SUR 109.

**C E 141 - Mathematics and Hydraulic Engineering (3 cr.)**

A combination of physical, mathematical, and computer simulation models will be developed to explore topics in hydraulic engineering that are central to environmental engineering applications. Same as MATH 151. Prerequisite: MATH 121G or consent of instructor.

**C E 151 - Introduction to Civil Engineering (3 cr.)**

Problem solving and use of computer software for civil engineering applications. Corequisite(s): MATH 190. Prerequisite(s): ENGR 100.

**C E 160 - Geology for Engineers (4 cr. (3+3P))**

Basic concepts of geology, earth materials, and earth processes as they relate to engineering practice.

**C E 198 - Special Topics (1-3 cr.)**

May be repeated for a maximum of 6 credits. Prerequisite: consent of department head.

**C E 231 - Introduction to Fluid Mechanics (3 cr. (2+3P))**

Introduction to basic fluid mechanics. Prerequisite(s)/Corequisite(s): C E 233. Prerequisite(s): . Restricted to: C E majors.

**C E 233 - Mechanics-Statics (3 cr.)**

Engineering mechanics using vector methods. Prerequisites: MATH 192G and cumulative GPA of 2.0. Corequisite: PHYS 215G.

**C E 256 - Environmental Engineering and Science (3 cr.)**

Principles in environmental engineering and science: physical chemical systems and biological processes as applied to pollution control. Prerequisite(s): CHEM 111 and MATH 191G. Crosslisted with: E S 256

**C E 256 L - Environmental Science Laboratory (1 cr. (1P))**

Laboratory experiments associated with the material presented in C E 256. Corequisite: C E 256. Same as E S 256L.

**C E 298 - Special Topics (1-3 cr.)**

May be repeated for a maximum of 6 credits. Prerequisite: consent of department head.

**C E 301 - Mechanics of Materials (3 cr.)**

Stress, strain, and elasticity of materials. Prerequisite: C E 233.

**C E 311 - Civil Engineering Materials (3 cr. (2+3P))**

Introduction to the structure, physical properties, testing and mechanical behavior of civil engineering materials and components made from these materials. Prerequisite: C E 301.

**C E 315 - Structural Analysis (4 cr. (3+3P))**

Classical analysis of determinate and indeterminate structures; introduction to modern methods of structural analysis using computer programs. Prerequisite(s): C E 301.

**C E 330 - Environmental Management Seminar I (1 cr.)**

Survey of practical and new developments in environmental management field, hazardous and radioactive, waste management, and related health issues, provided through a series of guest lectures and reports of ongoing research. Restricted to: Main campus only. Crosslisted with: CHME 330, E E 330, E S 330, E T 330, I E 330, M E 330 and WERC 330

**C E 331 - Hydraulic Engineering (3 cr.)**

Fundamentals and theory of compressible and incompressible flow of fluids in open and closed conduits. Prerequisite: C E 231. Restricted to majors.

**C E 355V - Technology and the Global Environment (3 cr.)**

A scientific basis for understanding changes in the global environment that result through the complex interactions of natural phenomena and the impacts of the activities of man. Prerequisites: junior or senior standing, and the general education requirements for math and natural sciences.

**C E 356 - Fundamentals of Environmental Engineering (3 cr.)**

Introduction to water treatment and water pollution and the analysis and design of selected treatment processes. Prerequisite(s): C E 256.

**C E 357 - Soil Mechanics (3 cr. (2+3P))**

Engineering properties of soils, consolidation settlement, compaction, water flow through soils, geostatic stresses, soil shear strength, lateral earth pressure, and soil laboratory testing. Prerequisite(s): C E 160 or GEOL 111G, and C E 301.

**C E 365 - Intermediate Structural Analysis (1 cr.)**

Classical analysis of indeterminate structure; introduction to matrix method of structural analysis. Prerequisite(s): C E 301 and C E 315.

**C E 382 - Hydraulic Systems Design (3 cr.)**

Engineering design of hydraulic systems, including pipe networks, open channels, regulating structures, and pumping systems. Prerequisite: C E 331.

**C E 398 - Special Topics (1-3 cr.)**

May be repeated for a maximum of 6 credits. Prerequisite: consent of department head.

**C E 430 - Environmental Management Seminar II (1 cr.)**

Survey of practical and new developments in environmental management field, hazardous and radioactive, waste management, and related health issues, provided through a series of guest lectures and reports of ongoing research. Restricted to: Main campus only. Crosslisted with: CHME 430, E E 430, E S 430, E T 430, I E 430, M E 430 and WERC 430

**C E 444 - Elements of Steel Design (3 cr.)**

Analysis and design of tension members, beams, columns, and bolted and welded connections. Prerequisite(s)/Corequisite(s): C E 311. Prerequisite(s): C E 315.

**C E 445 - Reinforced Concrete Design (3 cr.)**

Design and mechanics of structural reinforced concrete members. Prerequisite(s)/Corequisite(s): C E 311. Prerequisite(s): C E 315.

**C E 450 - Engineering Economy and Law (3 cr.)**

Discounted cash flows, economics of engineering projects, contracts and specifications. Prerequisite: senior standing.

**C E 450 H - Engineering Economics Honors (3)**

Discounted cash flows, economics of engineering projects, contracts, and specifications. Prerequisite: senior standing and the University Honors Program.

**C E 452 - Geohydrology (3-4 cr. (3+1P))**

Origin, occurrence, and movement of fluids in porous media and assessment of aquifer characteristics. Development and conservation of ground water resources, design of well fields. Crosslisted with: E S 452 and GEOL 452. Prerequisite(s): Junior or Senior.

**C E 454 - Wood Design (3 cr.)**

Theory and design of wood structural members and systems subjected to gravity and lateral loads. Taught every other year, alternates with C E 455, Masonry Design. Prerequisite(s)/Corequisite(s): C E 311. Prerequisite(s): C E 315.

**C E 455 - Masonry Design (3 cr.)**

Theory and design of masonry structural members and systems subjected to gravity and lateral loads. Taught every other year, alternates with C E 454, Wood Design. Prerequisite(s)/Corequisite(s): C E 311. Prerequisite(s): C E 315.

**C E 457 - Foundation Design (3 cr. (2+3P))**

Application of principles of classical soil mechanics to the design of shallow and deep foundations, and the fundamentals of geotechnical site investigation. Prerequisite(s): C E 357.

**C E 459 - Geomechanics and Rock Engineering (3 cr. (2+3P))**

Application of rock mechanics principles to the design and construction of structures in and on rock, including design of rock support systems, rock slopes and blasting/excavation techniques. Prerequisite(s): C E 357. Pre/Corequisite(s): C E 457.

**C E 460 - Site Investigation (3 cr. (2+2P))**

Investigation and characterization of surficial and subsurface geologic materials and ground water for civil engineering projects. Includes exploration program, drilling and sampling, rock and soil classification and logging, groundwater monitoring, profiles, and preparation of geotechnical reports. Prerequisite(s): C E 357. Pre/Corequisite(s): C E 457.

**C E 469 - Structural Systems (3 cr. (2+3P))**

Design of structural systems for building and bridges. Prerequisite: C E 444. Pre/Corequisite: C E 445.

**C E 470 - Design of Municipal and Hazardous Waste Landfills (3 cr.)**

Solid waste and application of geotechnical engineering principles and methods to the site selection and design of municipal and hazardous waste landfills. Prerequisite(s): C E 357 and C E 452, or consent of instructor.

**C E 471 - Transportation Engineering (3 cr.)**

Highway and traffic design and systems. Prerequisite(s): MATH 291.

**C E 477 - Engineering Economics and Construction Management (3 cr.)**

Engineering economics, construction and project management. Corequisite(s): C E 357. Prerequisite(s): STAT 371.

**C E 479 - Pavement Analysis and Design (3 cr.)**

Covers stresses and deflections in pavement layers, material characterization, flexible and rigid pavement design by AASHTO, and rehabilitation concepts. Prerequisite(s): C E 357.

**C E 481 - Civil Engineering Capstone Design (3 cr.)**

Culminating multidisciplinary project-oriented capstone design. Ethics, professional development, global issues. Prerequisite(s)/Corequisite(s): C E 457, C E 471, C E 477. Prerequisite(s): C E 356, C E 382, and either C E 444 or C E 445.

**C E 482 - Civil Engineering Capstone Design (3 cr.)**

Culminating multidisciplinary project-oriented capstone design. Prerequisite(s)/Corequisite(s): C E 457, C E 471, C E 477. Prerequisite(s): C E 311, C E 315, C E 356, C E 382.

**C E 483 - Surface Water Hydrology (3 cr.)**

Hydrologic cycle and relationships between rainfall and surface water runoff. Prerequisite: C E 331 or consent of instructor.

**C E 485 - Design of Earth Dams (3 cr.)**

Engineering design applied to site selection, foundation inspection and treatment, hydrology and hydraulics, stability, and seepage analysis. Economic and environmental factors. Prerequisite(s): C E 357.

**C E 498 - Special Topics (1-3 cr.)**

Prerequisite: consent of department head. May be repeated for a maximum of 9 credits.

**C EP-COUNSELING AND EDUCATIONAL PSYCHOLOGY****C EP 110G - Human Growth and Behavior (3 cr.)**

Introduction to the principles of human growth and development throughout the life span.

**C EP 199 - Academic Excellence (1-3 cr.)**

Academic curriculum of excellence that includes the development of collaborative learning and student success environment, learning diverse learning styles and multiple intelligences, and developing multi-contextual academic communication styles. May be repeated up to 6 credits.

**C EP 210 - Educational Psychology (3 cr.)**

Psychological foundations as they apply to the learner in the class room setting.

**C EP 215 - The Preschool Child (3 cr.)**

Survey of psychological development from conception to age five.

**C EP 240 - Adolescence in School Settings (3 cr.)**

Survey of psychological development during the adolescent years.

**C EP 298 - Exploration of Counseling & Community Psychology (3 cr.)**

An exploration of careers, activities, techniques in counseling, school, and community psychology.

**C EP 299 - Academic Excellence Classes (1-6 cr.)**

Academic curriculum of excellence that includes the development of collaborative learning and student success environment, learning diverse learning styles and multiple intelligences, and developing multi-contextual academic communication styles.

**C EP 300V - Human Relations Training (3 cr.)**

Gain skills, knowledge, and sensitivity for living and working with others.

**C EP 310 - Student Leadership (3 cr.)**

Organizational theory, leadership styles, decision-making techniques, and communication skills with an opportunity to apply learning during class discussions.

**C EP 320 - Sex Roles in Education (3 cr.)**

Physiological, psychological, and political aspects of sex role socialization and the effects of these factors on personal development.

**C EP 420 - Introduction of Mindfulness Practice (3 cr.)**

Students will learn about contemplative practices through learning and participation in various mindfulness practices. Engages students in a practice or experience that leads to reflection and, thus, acquired knowledge about themselves, others, and group functioning.

**C EP 451V - Introduction to Counseling (3 cr.)**

Principles of counseling for nonmajors.

**C EP 455 - Addictions Prevention and Recovery (3 cr.)**

Understanding addictions process, prevention, and recovery, including biological, interpersonal and sociological influences, and intervention strategies. Taught with C EP 555.

**C EP 461 - Family Guidance (3 cr.)**

Systems based guidance procedures for enhancing family strengths and development, and application of family guidance procedures for prevention and remediation of problems. Taught with C EP 561.

**C EP 490 - The Art & Science of Mindfulness (1-3 cr.)**

In this course students will learn about contemplative practices by learning about and participating in various mindfulness practices for self-care and to increase well-being. Students will learn about psychological theories and research that support the use of mindfulness in helping others increase their well-being. Students will learn how to teach mindfulness to others.

**C EP 495 - Psychology, Multiculturalism and Counseling (3 cr.)**

Understanding social identities such as race, ethnicity, sexual orientation, age, social class and spirituality as it relates to psychosocial development, academic achievement and counseling.

**C EP 498 - Internship in Counseling & Community Psychology (1-6 cr.)**

Students will explore in more depth the fields of counseling, community, and school psychology professions by completing an internship. Through the completion of the internship students will gain hands on work experience, enhance sensitivity for respect with working with diverse populations, and hone their interpersonal skills needed to succeed in the counseling, community, and school psychology professions. May be repeated up to 6 credits. Consent of Instructor required. Restricted to: CCP majors.

**C EP 499 - Independent Study (1-6 cr.)**

Individual study directed by consenting faculty.

**C J - CRIMINAL JUSTICE****C J 101G - Introduction to Criminal Justice (3 cr.)**

Examination of crime and justice within the broader social and cultural context of U.S. society from interdisciplinary social science perspectives. Includes critical analysis of criminal justice processes and the ethical, legal, and political factors affecting the exercise of discretion by criminal justice professionals.

**C J 199 - Special Topics in Criminal Justice I (1-3 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated under different topics for a maximum of 6 credits.

**C J 201 - Independent Study (3 cr.)**

Directed, individual studies and projects. Consent of instructor required.

**C J 205 - Criminal Law I (3 cr.)**

Rules, principles, and doctrines of criminal liability in the United States. The historical development, limits, and functions of the substantive criminal law.

**C J 206 - Criminal Law II (3 cr.)**

Legal problems associated with the investigation of crime. Commencement of criminal proceedings, prosecution and defense of charges, sentencing and appeal. Prerequisite: C J 205. Community Colleges only. (Note: students completing C J 206 may not take C J 306.)

**C J 210 - The American Law Enforcement System (3 cr.)**

Historical and philosophical foundations of law and order. An in-depth examination of the various local, state, and federal law enforcement agencies.

**C J 221 - Fundamentals of Criminal Investigation (3 cr.)**

Investigation procedures from crime scene searches, collection of evidence, and case preparation. Community Colleges only. (Note: students completing C J 221 may not take C J 321.)

**C J 230 - Introduction to Corrections (3 cr.)**

Development of correctional philosophy, theory, and practice. Instructional and non-institutional alternatives available in the corrections process.

**C J 250 - Courts and the Criminal Justice System (3 cr.)**

Structures and functions of American courts. Roles of attorneys, judges, and other court personnel; operation of petit and grand juries, trial and appellate courts.

**C J 293 - Field Experience in Criminal Justice (3-6 cr.)**

Field experience in a public criminal justice agency or equivalent private sector organization. Supervised internship experience, conferences, and observations. Prerequisites: C J 101G, prior arrangement and consent of instructor and a GPA of 2.0 or better in major. Restricted to majors. Community Colleges only.

**C J 300 - Introduction to Criminal Justice Research (3 cr.)**

Overview and evaluation of criminal justice research. Selection of research topics, methods of data selection and collection, analysis techniques, and presentation of findings. Prerequisite: restricted to majors or consent of instructor.

**C J 301 - Advanced Research Methods (3 cr.)**

Study of selected quantitative and qualitative skills and their application to criminal justice research. Prerequisite: Restricted to majors or consent of instructor.

**C J 302 - Crime, Justice and Society (3 cr.)**

Through critical analysis students build a rich understanding of the role of crime in our contemporary landscape and explore ideas and practices associated with justice, victimization, criminality, morality and righteousness. The course cultivates knowledge & awareness of the interactions between socially constructed phenomena (race, class, power, ethnicity, economic structures) and popular beliefs, policies, and practices associated with crime, punishment, and formal social control. It is recommended that you complete three of the following English courses before enrolling in this class: ENGL 111G, ENGL 203G, ENGL 211G, ENGL 218G & ENGL 311G. Restricted to: Criminal Justice majors.

**C J 303 - Introduction to Criminological Theory (3 cr.)**

Defining and measuring crime, crime causation, and the criminal behavior system, and their linkage to criminal justice policies, procedures, and practices. Corequisite(s): Must be enrolled or have completed third English writing class. Completed two of the following: ENGL 111G, ENGL 203G, ENGL 211G, ENGL 218G or ENGL 311G. Prerequisite(s): Restricted to majors or consent of the instructor and must have completed C J 300. Restricted to: C J majors.

**C J 304 - Historical Perspectives of Criminal Justice Systems (3 cr.)**

Examines the precursors to and development of three distinct systems associated with crime and punishment in the United States: the Courts, the Police, & Corrections. By studying the historical context and socio-political backdrop in which these institutions emerged and expanded students will come to a richer understanding of them and their attendant policies, practices, conventions, and assumptions. It is recommended that you complete three of the following English courses before enrolling in this class: ENGL 111G, ENGL 203G, ENGL 211G, ENGL 218G & ENGL 311G. Prerequisite(s): C J 300. Restricted to: Criminal Justice majors.

**C J 306 - Criminal Procedural Law (3 cr.)**

Legal analyses of the rights of criminal defendants; legal duties and responsibilities of criminal justice personnel in the processing of criminal defendants. Prerequisite: Restricted to majors or consent of instructor.

**C J 307 - Law of Evidence (3 cr.)**

Evidentiary rules and concepts and their application in a criminal trial. Prerequisite: Restricted to majors or consent of instructor.

**C J 321 - Criminal Investigation and Intelligence (3 cr.)**

Principles of criminal investigation and intelligence production; processing cases from complaint through crime scene search, identification and collection of evidence, interviewing and interrogation, and case preparation for courts. Prerequisite: restricted to majors or consent of instructor.

**C J 322 - Organized Crime (3 cr.)**

Study of national and international criminal organizations and organized crime core groups. Examination of criminal and legitimate enterprises of organized criminal syndicates. Study of tactics to combat organized crime. Current policy implications. Prerequisite: restricted to majors or consent of instructor.

**C J 331 - American Correctional Institutions (3 cr.)**

Structure, organization, and operations of United States jails and prisons. Overview of correctional standards and classification systems, emphasizing current theory and practice. Prerequisite: restricted to majors or consent of instructor.

**C J 332 - Correctional Law (3 cr.)**

Federal and state laws and rules of post-conviction procedures; rights of the convicted related to sentencing, appeals, clemency, and restoration of rights. Prerequisite: restricted to majors or consent of instructor.

**C J 333 - Juvenile Corrections (3 cr.)**

Development and implementation of juvenile facilities and community programs. Effectiveness of current corrections practices. Restricted to majors.

**C J 345 - Victimology (3 cr.)**

Study of risk factors in crime victimization, the impact of crimes upon victims, and the role of the victim in the criminal justice system. Prerequisite: restricted to majors or consent of instructor.

**C J 346 - Psychology and the Justice System (3 cr.)**

Analysis of psychological underpinnings of criminal behavior and the implications of these psychological principles for criminal justice policy. Restricted to majors.

**C J 347 - Sex Crimes (3 cr.)**

Dynamics of sex crimes for victims and offenders, plus consideration of the legal and correction systems' response to sex crimes. Restricted to majors.

**C J 348 - Serial Killers (3 cr.)**

Overview and critical assessment of serial homicide and its relevance for contemporary U.S. society. Focus on factors influencing definitions and cultural understanding of serial homicide. Prerequisite(s): 60 credit hours.

**C J 360 - The Juvenile Justice System (3 cr.)**

History, development, and philosophy behind a separate juvenile justice system. Role of the juvenile court, evaluation of juvenile law and procedure, and the processing of juvenile offenders. Prerequisite: restricted to majors or consent of instructor.

**C J 391 - Special Readings in Criminal Justice (1-3 cr.)**

Individually chosen subject areas not readily available in other courses. Prerequisites: at least a 2.5 GPA and consent of instructor. May be repeated for a maximum of 6 credits under different subtitles. Restricted to majors.

**C J 393 - Internship in Criminal Justice (1-12 cr.)**

Field experience in a local, state, or federal criminal justice or private security agency. Includes orientation, observation, conferences, and work experience. Credits limited to six if student has taken C J 293. Prerequisites: consent of instructor and GPA of 2.5 or better. May be repeated for a maximum of 12 credits. Restricted to majors. Graded S/U.

**C J 399 - New Mexico Law (3 cr.)**

Same as GOVT 399, JOUR 399, SOC 399, and HIST 399.

**C J 400 - Practicum in Criminal Justice Research (1-3 cr.)**

Execution of a research project in criminal justice; nature and planning of a project, sampling design, data collection and analysis, and research reporting. Prerequisite: 2.5 GPA and consent of instructor. May be repeated for a maximum of 6 credits. Restricted to majors.

**C J 405 - Juvenile Courts and Law (3 cr.)**

History, development, and current status of juvenile courts. Legal status of juveniles in court and constitutional protections afforded them. Restricted to majors.

**C J 410 - Criminal Justice Administrative Systems (3 cr.)**

Administrative structures in criminal justice agencies and institutions; relationship of administrative structures to practical police, courts, and corrections problems. Prerequisite: restricted to majors or consent of instructor.

**C J 412 - Introduction to Security Technology and Loss Prevention (3 cr.)**

Private and public responses to security problems, including employee theft, perimeter security, and domestic or foreign terrorism; reviews related law and management practices.

**C J 414 - Race, Crime and Justice (3 cr.)**

Historical and contemporary analysis of the relationship between race and crime in the United States with emphasis upon human equality and fairness. Overview of racial and ethnic social categorizations and how they impact law and order.

**C J 416 - Global Perspectives on Youth and Drug Use (3 cr.)**

Overview of global drug use among young people, comparative legal structures, formal and informal responses. Restricted to C J, ANTH, GOVT, SOC, W S, S WK majors.

**C J 417 - Drugs In Our World (3 cr.)**

Comparative analysis of patterns and theories of drug use, formal government mitigation strategies.

**C J 418 - Documentary Production Stories of Justice I (3 cr.)**

Introductory examination of documentary genre. Survey of documentary film making theory and history. Creation of proposal for student documentary project. Restricted to C J, ANVE, and DFM majors.

**C J 419 - Documentary Productions Stories of Justice II (3 cr.)**

Follow up to C J 418. Students shoot, edit, and publish work from proposal of C J 418. Prerequisite(s): C J 418. . Restricted to ANVE, DFM, and C J majors. Crosslisted with: CMI 319

**C J 420 - Girls, Women & Crime (3 cr.)**

Critical social science analysis of concepts of violence and justice as experienced by women impacted by the criminal justice system. Restricted to C J / W S majors. Crosslisted with: W S 420

**C J 424 - Forensic Law (3 cr.)**

Overview of the rules and issues related to the use of scientific information in the legal process. Prerequisite: C J major or consent of instructor. Restricted to majors.

**CJ 425 - Issues in Ethics, Law, and Criminal Justice (3)**

Examination of the key ethical and decision-making dilemmas facing professionals working in the field of law and criminal justice. Prerequisite: restricted to majors or consent of instructor.

**C J 425 - Issues in Ethics, Law, and Criminal Justice (3 cr.)**

Examination of the key ethical and decision-making dilemmas facing professionals working in the field of law and criminal justice. Prerequisite: restricted to majors or consent of instructor.

**C J 426 - Race and Environmental Justice (3 cr.)**

Analysis of concepts of justice and social justice responses across the 20th and 21st centuries to environmental degradation affecting communities of differing racial and ethnic backgrounds. Prerequisite(s): 60 credit hours.

**C J 427 - Race and Crime in Film (3 cr.)**

Critical analysis of film where messages relating race and crime are present, with emphasis on how this imagery informs problem definition, policies, and practice within the criminal justice system. Prerequisite(s): 60 credit hours.

**C J 428 - Mexican-American and Issues of Social Justice (3 cr.)**

In this course we will explore and discuss social issues related to the Mexican American community in the U.S., with special emphasis on their collective historical struggles and contributions to society. We will discuss the political, economic and cultural forces that exemplify their experience as a whole. Prerequisite(s): Students must have completed C J 300 or research methods equivalent or consent from the instructor.

**C J 429 - Immigration & Justice (3 cr.)**

This course is designed to introduce undergraduate students to the complexities of immigration in the United States through a social justice lens. Students will explore the intersections of race, ethnicity, gender, and class in immigration through different groups historical and contemporary experiences, including immigrants' experience with the criminal justice system. Prerequisite(s): Student must have completed C J 300 or Research Methods equivalent or consent of the instructor.

**C J 432 - Issues in Criminal Justice (3 cr.)**

Seminar on problems and conflicts encountered in major criminal justice issues. Topics announced in the Schedule of Classes. May be repeated for unlimited credits under different subtitles.

**C J 434 - Probation, Parole, and Community Corrections (3 cr.)**

Structure, organization, and operation of probation, parole, and other community-based correctional programs in the U.S. Overview of historical and recent trends in the supervision of offenders in the community and in the development of alternatives to incarceration. Analysis of issues related to community correctional policies and practices. Restricted to majors.

**C J 435 - Political Penology (3 cr.)**

Comparative analysis of incarceration and sanctions as punishment for crimes of conscience, religious intolerance, and dissidence.

**C J 440V - Comparative Criminal Justice Systems (3 cr.)**

Cross-national study of selected Western and non-Western legal systems. Comparison of structures and functions of police, court systems, and corrections in different systems.

**C J 449 - Senior Seminar (3 cr.)**

Problems and conflicts encountered in major attempts to control crime. Restricted to majors. Prerequisite(s): C J 101, C J 205, C J 210, C J 230, C J 250, C J 300, C J 301, 90 credit hours completed.

**C J 451 - Border Violence and Justice (3 cr.)**

Critical analysis of violence and systems of justice along border regions. Examines causes and correlates of violence experienced by those living in border regions and the social responses to that violence.

**C J 452 - Upper World Crime (3 cr.)**

Corporate crime, white collar crime and political abuse and corruption; executive and corporate criminal behavior, and violations of the public trust by elected and appointed officials. Prerequisite: restricted to majors or consent of instructor.

**C J 453 - Women and Justice (3 cr.)**

Critical analysis of the impact of the criminal justice system, race and class upon the lives of women. Restricted to majors.

**C J 454 - Human Trafficking (3 cr.)**

Study of global human trafficking, its causes and costs, and mitigation strategies. Restricted to C J, GOVT, SOC, W S, S WK majors.

**C J 455 - Feminist Research Methods (3 cr.)**

Feminist research practices and methodologies utilized in various disciplines. Definitions of research, what constitutes valid inquiry, how research can be feminist, and what it means to do interdisciplinary work. Same as W S 455.

**C S - COMPUTER SCIENCE****C S 110 - Computer Literacy (3 cr.)**

This course provides a broad introduction to computing, including computer and information technology concepts; economic and social implications of technology; database management, spreadsheet, word processing, and presentation applications.

**C S 111 - Computer Science Principles (4 cr. (3+2P))**

This course provides a broad and exciting introduction to the field of computer science and the impact that computation has today on every aspect of life. It focuses on exploring computing as a creative activity and investigates the key foundations of computing: abstraction, data, algorithms, and programming. It looks into how connectivity and the Internet have revolutionized computing and

demonstrates the global impact that computing has achieved, and it reveals how a new student in computer science might become part of the computing future. Prerequisite(s): MATH 120 or higher.

**C S 117 - Introduction to Computer Animation (3 cr.)**

Introductory course for learning to program with computer animation as well as learning basic concepts in computer science. Students create interactive animation projects such as computer games and learn to use software packages for creating animations in small virtual worlds using 3D models. Recommended for students considering a minor/major in computer science or simply interested in beginning computer animation or programming.

**C S 157 - Topics in Software Programming and Applications (3 cr. (2+2P))**

Current topics in computer programming and software applications. Topic announced in the Schedule of Classes. May be repeated if subtitle is different.

**C S 167 - C Programming (3 cr. (2+2P))**

Programming in the C language. Prerequisite(s): MATH 120 or higher.

**C S 171G - Introduction to Computer Science (4 cr. (3+2P))**

Computers are now used widely in all area of modern life. This course provides understanding of the theoretical and practical foundations for how computers work, and provides practical application and programming experience in using computers to solve problems efficiently and effectively. The course covers broad aspects of the hardware, software, and mathematical basis of computers. Weekly labs stress using computers to investigate and report on data-intensive scientific problems. Practical experience in major software applications includes an introduction to programming, word processing, spreadsheets, databases, presentations, and Internet applications. Prerequisite(s): MATH 210G or MATH 120 or higher.

**C S 172 - Computer Science I (4 cr. (3+2P))**

Computational problem solving; problem analysis; implementation of algorithms. Recursive structures and algorithms. Crosslisted with: C S 460. Prerequisite(s): MATH 121G or higher; C S 111 or successful placement.

**C S 177 - C++ Programming (3 cr. (2+2P))**

Introduction to object-oriented programming in the C++ language. Prerequisite(s): MATH 120 or higher.

**C S 187 - Java Programming (3 cr. (2+2P))**

Programming in the Java language. Prerequisite(s): MATH 120 or higher.

**C S 209 - Special Topics. (1-3 cr.)**

May be repeated for a maximum of 12 credits.

**C S 271 - Object Oriented Programming (4 cr. (3+2P))**

Introduction to problem analysis and problem solving in the object-oriented paradigm. Practical introduction to implementing solutions in the C++ language. Hands-on experience with useful development tools. Prerequisite(s): C- or better in C S 172 or E E 161.

**C S 272 - Introduction to Data Structures (4 cr. (3+2P))**

Design, implementation, use of fundamental abstract data types and their algorithms: lists, stacks, queues, deques, trees; imperative and declarative programming. Internal sorting; time and space efficiency of algorithms. Prerequisite(s): At least a C- in C S 172, or placement.

**C S 273 - Machine Programming and Organization (4 cr. (3+2P))**

Computer structure, instruction execution, addressing techniques; programming in machine and assembly languages. Prerequisite(s): At least a C- in C S 171 or E E 161.

**C S 278 - Discrete Mathematics for Computer Science (4 cr. (3+2P))**

Discrete mathematics required for Computer Science, including the basics of logic, number theory, methods of proof, sequences, mathematical induction, set theory, counting, and functions. Crosslisted with: MATH 278. Prerequisite(s): At least C- in C S 172.

**C S 370 - Compilers and Automata Theory (4 cr. (3+2P))**

Methods, principles, and tools for programming language processor design; basics of formal language theory (finite automata, regular expressions, context-free grammars); development of compiler components. Prerequisite(s): At least a C- in C S 271, C S 272, C S 273, and C S 278.

**C S 371 - Software Development (4 cr. (3+2P))**

Software specification, design, testing, maintenance, documentation; informal proof methods; team implementation of a large project. Prerequisite(s): At least a C- in C S 271 and C S 272.

**C S 372 - Data Structures and Algorithms (4 cr. (3+2P))**

Introduction to efficient data structure and algorithm design. Order notation and asymptotic run-time of algorithms. Recurrence relations and solutions. Abstract data type dynamic set and red-black trees. Classic algorithm design paradigms: divide-and-conquer, dynamic programming, greedy algorithms. Prerequisite(s): At least a C- in CS 272 and C S 278.

**C S 409 - Independent Study (1-3 cr.)**

Faculty supervised investigation, to culminate in a written report. Prerequisite: written agreement with faculty supervisor. May be repeated to a maximum of 6 credits.

**C S 477 - Digital Game Design (3)**

An introductory to digital game design. Topics include design, develop, and playtest games. The course is structured to use team-based learning. Not for C S graduate students.

**C S 477 - Digital Game Design (3 cr.)**

An introductory to digital game design. Topics include design, develop, and playtest games. The course is structured to use team-based learning. Not for C S graduate students.

**C S 419 - Computing Ethics and Social Implications of Computing (1 cr.)**

An overview of ethics for computing majors includes: history of computing, intellectual property, privacy, ethical frameworks, professional ethical responsibilities, and risks of computer-based systems. Corequisite(s): C S 448 or C S 449. S/U Grading (S/U, Audit).

**C S 448 - Senior Project (4 cr.)**

Capstone course in which C S majors work in teams and apply computer science skills to complete a large project. Consent of Instructor required. Corequisite(s): C S 419. Prerequisite(s): Senior standing. Restricted to: C S majors.

**C S 449 - Senior Thesis (4 cr.)**

Capstone course in which C S majors apply computer science skills to complete a research project, culminating in a written thesis report. Consent of Instructor required. Corequisite(s): C S 419. Prerequisite(s): Consent of thesis adviser. Restricted to: C S majors.

**C S 450 - C Programming (3 cr. (2+3P))**

Programming in the C language. More advanced than C S 167. Recommended for nonmajors only. Prerequisite(s): Graduate standing. Restricted to: Main campus only.

**C S 451 - C++ Programming (3 cr.)**

Programming in the C language. More advanced than C S 177. Recommended for nonmajors only. Prerequisite(s): Graduate standing.

**C S 452 - Java Programming (3 cr. (2+2P))**

Programming in the Java language. More advanced than C S 187. Recommended for nonmajors only. Prerequisite(s): Graduate standing.

**C S 457 - Topics in Software Programming and Applications (3 cr. (2+2P))**

Current topics in computer programming and software applications. Topic announced in the Schedule of Classes. More advanced than C S 157. recommended for non-majors only. May be repeated if subtitle is different. Prerequisite(s): Graduate standing.

**C S 460 - Computer Science I Transition (3 cr.)**

Computational problem solving; problem analysis; implementation of algorithms. Recursive structures and algorithms. For C S graduate students only; cannot be used to meet a C S student's program of study. Taught with C S 172. Consent of Instructor required. Crosslisted with: C S 172.

**C S 462 - Object Oriented Programming Transition (3 cr.)**

Introduction to problem analysis and problem solving in the object-oriented paradigm. Practical introduction to implementing solutions in the C++ language. Hands-on experience with useful development tools. Cannot be used in a C S student's program of study. Consent of Instructor required. Prerequisite(s): At least a C- in C S 172 or C S 460 or consent of instructor.

**C S 463 - Introduction to Data Structures Transition (3 cr.)**

Design, implementation, use of fundamental abstract data types and their algorithms: lists, stacks, queues, dequeues, trees; imperative and declarative programming. Internal sorting; time and space efficiency of algorithms. Cannot be used in a C S student's program of study. Consent of Instructor required. Prerequisite(s): At least a C- in C S 172 or C S 460 or consent of instructor.

**C S 464 - Machine Programming and Organization Transition (3 cr.)**

Computer structure, instruction execution, addressing techniques; programming in machine and assembly languages. Cannot be used in a C S student's program of study. Consent of Instructor required. Prerequisite(s): At least a C- in C S 172 or C S 460 or consent of instructor.

**C S 465 - Discrete Math for Computer Science Transition (3 cr.)**

Logical connectives, sets, functions, relations, graphics, trees, proofs, induction, and application to computer science. Cannot be used in a C S student's program of study. Consent of Instructor required. Prerequisite(s): At least a C- in C S 172 or C S 460 or consent of instructor.

**C S 466 - Compilers and Automata Transition (3 cr.)**

Methods, principles, and tools for programming language processor design; basics of formal language theory (finite automata, regular expressions, context-free grammars); development of compiler components. For C S graduate students only; cannot be used in a students program of study. Consent of instructor required. Prerequisite(s): At least a C- in C S 271 or C S 462, in C S 272 or C S 463, in C S 273 or C S 464, in C S 278 or C S 465, or consent of instructor.

**C S 468 - Software Development Transition (3 cr.)**

Software specification, design, testing, maintenance, documentation; informal proof methods; team implementation of a large project. Cannot be used in a C S student's program of study. Consent of Instructor required. Prerequisite(s): At least a C- in C S 271 or C S 462, in C S 272 or C S 463, or consent of instructor.

**C S 469 - Data Structure and Algorithms Transition (3 cr.)**

Introduction to efficient data structure and algorithm design. Order notation and asymptotic run-time of algorithms. Recurrence relations and solutions. Abstract data type dynamic set and red-black trees. Classic algorithm design paradigms: divide-and-conquer, dynamic programming, greedy algorithms. Cannot be used in a C S student's program of study. Consent of Instructor required. Prerequisite(s): At least a C- in C S 272 or C S 463, in C S 278 or C S 465, or consent of instructor. Restricted to: C S majors.

**C S 470 - Functional Programming (3 cr.)**

Applicative programming techniques: higher order functions, infinite data structures, lambda calculus, universal functions. Survey of functional languages including Miranda and ML. Prerequisite(s): At least a C- in C S 272 and C S 278.

**C S 471 - Programming Language Structure I (3 cr.)**

Syntax, semantics, implementation, and application of programming languages; abstract data types; concurrency. Not for C S graduate students. Prerequisite(s): C- or better in C S 370 and C S 371.

**C S 472 - Logic and Constraint Logic Programming (3 cr.)**

Declarative programming techniques; foundations of logic programming; programming in Prolog; constraint logic programming; applications of logic and constraint programming. Not for C S graduate students. Prerequisite(s): At least C- in C S 272 and C S 278.

**C S 473 - Architectural Concepts I (3 cr.)**

Comparison of architectures to illustrate concepts of computer organization; relationships between architectural and software features. Not for C S graduate students. Prerequisite(s): At least a C- in C S 273 and C S 370.

**C S 474 - Operating Systems I (3 cr.)**

Operating system principles and structures, and interactions with architectures. Not for C S graduate students. Prerequisite(s): At least a C- in C S 273, C S 371, and C S 372.

**C S 475 - Artificial Intelligence I (3 cr.)**

Fundamental principles and techniques in artificial intelligence systems. Intelligent Agents; solving problems by searching; local search techniques; game-playing agents; constraint satisfaction problems; knowledge representation and reasoning. Further selected topics may also be covered. Not for C S graduate students. Prerequisite(s): At least a C- in C S 272 and C S 278.

**C S 476 - Computer Graphics I (3 cr.)**

Languages, programming, devices, and data structures for representation and interactive display of complex objects. Not for C S graduate students. Prerequisite(s): At least C- in C S 370 or C S 371.

**C S 478 - Computer Security (3 cr.)**

Introduction to the art and science of computer security. Fundamentals of computer security including elementary cryptography, authentication and access control, security threats, attacks, detection and prevention in application software, operating systems, networks and databases. Prerequisite(s): At least a C- in C S 273 or consent of instructor.

**C S 479 - Special Topics (1-6 cr.)**

Topic announced in the Schedule of Classes. May be repeated if subtitle is different. Not for C S graduate students. May be repeated up to 6 credits.

**C S 480 - Linux System Administration (3 cr.)**

Basic system administration for Linux environments. Topics include user managements, file systems, security, backups, system monitoring, kernel configuration and other relevant aspects of system administration. Not for Computer Science graduate students.

**C S 481 - Visual Programming (3 cr.)**

Design and implementation of programs using visual (i.e. dataflow or diagrammatic) programming techniques, with an emphasis on real-time data processing. Students will learn how to design visual programs, including how to handle cycles and state maintenance, and will learn to process audio, video, and other data using visual programs. Not for C S graduate students. Prerequisite(s): C- or better in C S 272 and C S 278.

**C S 482 - Database Management Systems I (3 cr.)**

Database design and implementation; models of database management systems; privacy, security, protection, recovery. Not for C S graduate students. Prerequisite(s): At least a C- in C S 272 and C S 278.

**C S 483 - Introduction to Robotics (3 cr.)**

Basic AI-based robotic architecture and concepts, with an emphasis on building and programming mobile robots. Not for C S graduate students. Consent of Instructor required. Prerequisite(s): At least a C- in C S 272 and C S 273.

**C S 484 - Computer Networks I (3 cr.)**

Fundamental concepts of computer communication networks: layered network architecture, network components, protocol stack and service. Example of application, transport, network and data link layers, protocols primarily drawn from the Internet (TCP, UDP, and IP) protocol multimedia networks; network management and security. Not for C S graduate students. Consent of Instructor required. Prerequisite(s): At least a C- in C S 272 and CS 273.

**C S 485 - User Interface Design (3 cr.)**

Interface design, conceptual models formed by users, computer aided instruction, natural and query languages, graphical representations. Not for C S graduate students. Prerequisite(s): At least C- in C S 371.

**C S 486 - Bioinformatics (3 cr.)**

Introduction to bioinformatics and computational biology. Computational approaches to sequences analysis, protein structure prediction and analysis, and selected topics from current advances in bioinformatics. Not for C S graduate students. Prerequisite(s): At least a C- in C S 272 and C S 278.

**C S 488 - Introduction to Data Mining (3 cr.)**

Techniques for exploring large data sets and discovering patterns in them. Data mining concepts, metrics to measure its effectiveness. Methods in classification, clustering, frequent pattern analysis. Selected topics from current advances in data mining. Taught with C S 508. Prerequisite(s): At least a C- in C S 272 and C S 278.

**C S 489 - Bioinformatics Programming (3 cr.)**

Application of computer programming languages to address data processing and analysis problems in modern molecular biology. R/Perl/Python programming; Web API programming. Automatic manipulation of next generation sequence data, analysis of large gene expression tables, access to online biological databases, performing statistical analysis, and visualization of data and results. Taught with C S 509. Prerequisite(s): At least a C- in C S 272 and C S 278.

**C S 491 - Parallel Programming (3 cr.)**

Programming of shared memory and distributed memory machines; tools and languages for parallel programming; techniques for parallel programming; parallel programming environments. Not for C S graduate students. Prerequisite(s): C- or better in C S 370 or consent of instructor.

**CAST - CHILD ADVOCACY STUDIES****CAST 301V - Introduction to Child Advocacy (3 cr.)**

Historical review and evolution of child welfare policies, initiatives and factors that influence child welfare service. Child welfare policies and services specific to the state of New Mexico are infused throughout the course. Taught with MSW 590. Cannot receive credit for CAST 301 and MSW 590.

**CAST 302 - Professional and Systems Responses to Child Maltreatment (3 cr.)**

Course examines the professionals and systems that respond to allegations of child abuse and neglect. Includes the differences between civil and criminal proceedings; components of a court-worthy child abuse and neglect investigation; basic child forensic interviewing; an overview of child sex offenders; current research and controversial issues effecting the field. Students majoring in social work, criminal justice, education, sociology, psychology, nursing, and other areas will enhance their capacity to strengthen the safety net that protects children. Prerequisite(s): CAST 301.

**CAST 303 - Prevention, Trauma Informed Treatment and Advocacy (3 cr.)**

The purpose of this course is to prepare students to recognize the effects of child maltreatment and to apply intervention strategies for children and their families. Multidisciplinary approaches to prevention, advocacy, and treatment of child maltreatment survivors will be presented and discussed. Topics include violence prevention research, interdisciplinary family programs, how to advocate for survivors of child abuse, short- and long-term effects of child abuse, case management, working with families, mental health services and controversial issues. Prerequisite(s): CAST 301. Crosslisted with: FCS 300

**CHEM - CHEMISTRY****CHEM 100 - Basic Chemistry (3 cr.)**

For students whose preparatory science or math training has been deficient. Does not meet the chemistry requirement in any curriculum. Prerequisite: Enhanced ACT composite score of at least 18 or a grade of C- or better in CCDM 114N.

**CHEM 101 - General Supplemental Instruction I (1 cr.)**

Collaborative workshop for students in General Chemistry I. Course does not count toward departmental degree requirements. Corequisite: CHEM 111G. May be repeated for a maximum of 2 credits.

**CHEM 102 - General Supplemental Instruction II (1 cr.)**

Collaborative workshop for students in General Chemistry II. Course does not count toward departmental degree requirements. Corequisite: CHEM 112G. May be repeated for a maximum of 2 credits.

**CHEM 103 - Principles of Supplemental Instruction III (1 cr.)**

Collaborative workshop for students in CHEM 110G, Principles and Applications of Chemistry. Course does not count toward departmental degree requirements. Co-requisite: CHEM 110G. May be repeated for maximum of 2 credits.

**CHEM 110G - Principles and Applications of Chemistry (4 cr. (3+3P))**

A survey of the properties and uses of the elements and their compounds. In addition to classical chemistry, attention is paid to the materials from which consumer products are made, to the production of energy, and to environmental considerations. Prerequisite: 3 years of high school math or CCDM 114N.

**CHEM 111G - General Chemistry I (4 cr. (3+3P))**

Descriptive and theoretical chemistry. Prerequisite: (1) grade of C- or better in MATH 120 or a Mathematics Placement Exam Score adequate to enroll in mathematics courses beyond MATH 120; and (2) one of the following: B or better in a second semester high school chemistry course, or grade of at least C- in CHEM 100, or an enhanced ACT score of at least 22. CHEM 111G/112G are General Education alternative to CHEM 110G.

**CHEM 112G - General Chemistry II (4 cr. (3+3P))**

Descriptive and theoretical chemistry. CHEM 111G/112G are General Education alternative to CHEM 110G. Prerequisite(s): CHEM 111G.

**CHEM 114 - General Chemistry for Engineers (4 cr. (3+3P))**

An accelerated one-semester course covering the basic principles of chemistry. May not be taken for credit by students who have taken CHEM 111G.

**CHEM 115 - Principles of Chemistry I (4 cr. (3+3P))**

Detailed introduction to analytical, inorganic and physical aspects of chemistry; both descriptive and theoretical explanations. Structured for chemistry and biochemistry majors but appropriate for other physical and life science students. CHEM 115/116 are General Education alternatives to CHEM 110G. Prerequisite: Eligible to take MATH 190G and an ACT composite score of 22 or higher.

**CHEM 116 - Principles of Chemistry II (4 cr. (3+3P))**

Recommended for chemistry majors and other qualified students. CHEM 115/116 are General Education alternatives to CHEM 110G. Prerequisites: grade of C- or better in CHEM 115.

**CHEM 210 - Chemistry for the Allied Health Sciences (3 cr.)**

Discussion and application of the established facts and concepts of general organic chemistry and biochemistry to acquire a molecular understanding of a variety of health related issues, from atmospheric ozone holes to human nutrition. Prerequisite: CHEM 110G or CHEM 111G.

**CHEM 211 - Organic Chemistry (4 cr. (3+3P))**

A one-semester survey for students requiring a brief coverage of important classes of organic compounds. Prerequisite: CHEM 112G or CHEM 114.

**CHEM 217 - General Chemistry III (3 cr. (2+3P))**

Quantitative aspects of general chemistry: solid state structure, equilibrium, thermodynamics, and kinetics. Required of chemical science majors who have taken CHEM 111G/112. Prerequisite: CHEM 112G.

**CHEM 241 - Introduction to Research (1-3 cr. (3+9P))**

Techniques and procedures of chemical research. Prerequisites: 8 credits of chemistry and a 3.0 GPA in chemistry. May be repeated for a maximum of 3 credits.

**CHEM 242 - Explorations in Chemistry (1 cr.)**

Historical and current developments, careers in chemistry, computer applications and use of the library by chemists. To be completed before the end of the sophomore year. Graded S/U.

**CHEM 251 - Special Topics in Chemistry (1-6 cr.)**

Specific subjects in Chemistry. These subjects will be announced in the 'Schedule of Classes'. It may be repeated under different topics for a maximum of 12 credits.

**CHEM 303 - Organic Supplemental Instruction I (1 cr.)**

Collaborative workshop for students in Organic Chemistry I. Course does not count toward departmental degree requirements. Corequisite: CHEM 313. May be repeated for a maximum of 2 credits.

**CHEM 304 - Organic Supplemental Instruction II (1 cr.)**

Collaborative workshop for students in Organic Chemistry II. Course does not count toward departmental degree requirements. Corequisite: CHEM 314. May be repeated for a maximum of 2 credits.

**CHEM 310V - Chemistry and Society (3 cr.)**

The impact of chemistry on modern society. Does not satisfy chemistry elective requirements for B.S. chemistry majors. Prerequisite: CHEM 110G or consent of instructor.

**CHEM 313 - Organic Chemistry I (3 cr.)**

Nomenclature, uses, basic reactions, and preparation methods of the most important classes of aliphatic and aromatic compounds. Prerequisite: CHEM 112G or CHEM 116.

**CHEM 314 - Organic Chemistry II (3 cr.)**

Nomenclature, uses, basic reactions, and preparation methods of the most important classes of aliphatic and aromatic compounds. Prerequisite: C or better in CHEM 313.

**CHEM 315 - Organic Chemistry Laboratory (2 cr. (6P))**

Techniques, preparative and analytical methods in organic chemistry. Prerequisite: C- or better in CHEM 313 or consent of instructor. Corequisite: CHEM 314.

**CHEM 351 - Special Topics (1-3 cr.)**

Specific subjects to be announced in the Schedule of Classes. Prerequisite: consent of instructor. May be repeated for a maximum of 12 credits.

**CHEM 356 - Descriptive Inorganic Chemistry (3 cr.)**

Occurrence and properties of the elements and the chemistry of their compounds. Prerequisites: CHEM 112G and CHEM 116; and CHEM 211 or CHEM 313.

**CHEM 357 - Synthetic Inorganic Laboratory (2 cr. (6P))**

Explores synthesis and analysis of main group and transition metal inorganic compounds. Inorganic laboratory and spectroscopic techniques will be used. Prerequisites: CHEM 356.

**CHEM 360 - General Geochemistry (3 cr.)**

Same as GEOL 360.

**CHEM 371 - Analytical Chemistry (4 cr. (2+6P))**

The fundamentals of quantitative chemical analysis. Prerequisite: CHEM 112G.

**CHEM 421 H - Instrumental Analysis - Honors (4 cr. (3+3P))**

Same as CHEM 421. Additional work to be arranged.

**CHEM 422 - Environmental Chemistry (3 cr.)**

Chemistry of organic and metal ion pollutants in the environment and principles important to their remediation including bioremediation. Prerequisite(s): CHEM 112G and either CHEM 211 or CHEM 313. Restricted to: Main campus only. Crosslisted with: E S 422

**CHEM 424 - Soil Chemistry (3 cr.)**

Same as SOIL/GEOL 424.

**CHEM 431 - Physical Chemistry (3 cr.)**

Principles that govern the physical and chemical behavior of matter. May not be counted toward Bachelor of Science degree in Chemistry. Prerequisite(s): CHEM 116 or CHEM 217; MATH 192G; PHYS 212 or PHYS 222G or PHYS 214 or PHYS 216G.



**CHEM 431 H - Physical Chemistry Honors (3 cr.)**

Same as CHEM 431. Additional work to be arranged. Prerequisite(s): CHEM 116 or CHEM 217; MATH 192G; PHYS 212G or PHYS 222G or PHYS 214 or PHYS 216G.

**CHEM 433 - Physical Chemistry I (3 cr.)**

Laws and theories underlying chemical phenomena. Prerequisite(s): CHEM 116 or CHEM 217; MATH 192G; PHYS 214 or PHYS 216G, or consent of instructor.

**CHEM 433 H - Physical Chemistry I Honors (3 cr.)**

Same as CHEM 433. Additional work to be arranged. Prerequisite(s): CHEM 116 or CHEM 217; MATH 192G; PHYS 214 or PHYS 216G, or consent of instructor.

**CHEM 434 - Physical Chemistry II (3 cr.)**

Laws and theories underlying chemical phenomena. Prerequisite: CHME 302 or CHEM 433.

**CHEM 435 - Physical Chemistry Laboratory (2 cr. (6P))**

Prerequisite: concurrent registration in CHEM 434.

**CHEM 441 - Advanced Research (1-3 cr. (3+9P))**

Investigation of chemical problems and the development of special techniques. Prerequisites: consent of instructor, 16 credits of chemistry and 3.0 GPA in chemistry for nonmajors. May be repeated for a maximum of 3 credits.

**CHEM 443 - Senior Seminar (1 cr.)**

Discussions of current chemical research, impact of chemistry on society and/or ethics as applied to chemists. Each student will present a written and an oral report on an approved topic. Prerequisite: CHEM 431 or CHEM 433.

**CHEM 444 - Senior Thesis (2 cr.)**

A writing project for students wishing to prepare a more extensive report than that required for CHEM 443. The thesis may cover independent research, a topic from current chemical literature, or the impact of chemistry on society. May be taken concurrently with CHEM 443. Prerequisite: CHEM 431 or CHEM 433.

**CHEM 451 - Special Topics (1-3 cr.)**

Specific subjects to be announced in the Schedule of Classes. Prerequisite: consent of instructor. May be repeated for a maximum of 12 credits.

**CHEM 455 - Independent Studies (1-3 cr.)**

Independent studies directed by consulting faculty. Prerequisite: consent of instructor.

**CHEM 456 - Inorganic Structure and Bonding (3 cr.)**

Theoretical principles and a systematic study of the periodic table. Prerequisite: CHEM 356 or CHEM 431 or CHEM 433.

**CHEM 466 - Advanced Organic Chemistry (3 cr.)**

Recent developments in synthesis and theoretical principles of organic chemistry. Prerequisite: CHEM 314.

**CHEM 466 H - Advanced Organic Chemistry Honors (3)**

Same as CHEM 466. Additional work to be arranged.

**CHEM 471 - Instrumental Methods of Analysis (4 cr. (3+3P))**

Analytical techniques, including optical and procedures. Prerequisites: CHEM 371 and either PHYS 212G or PHYS 216G.

**CHEM 472 - Analytical Methods for Toxic Organics and Metal Ions in the Environment (3 cr. (2+3P))**

Laboratory course with lectures on principles of analytical techniques related to environmental monitoring of pollutants and waste management. Prerequisite: CHEM 371 or C E 462 or consent of instructor.

**CHIN - CHINESE****CHIN 111 - Elementary Chinese I (4 cr.)**

Mandarin Chinese for beginners.

**CHIN 112 - Elementary Chinese II (4 cr.)**

Mandarin Chinese for beginners. Prerequisite: C- or better in CHIN 111.

**CHIN 211 - Intermediate Chinese I (3 cr.)**

Speaking, reading and writing Mandarin Chinese. Prerequisite(s): C- or better in CHIN 112. Restricted to Las Cruces campus only.

**CHIN 212 - Intermediate Chinese II (3 cr.)**

Speaking, reading and writing Mandarin Chinese. Prerequisite(s): C- or better in CHIN 211. Restricted to Las Cruces campus only.

**CHIN 311 - Advanced Chinese Language I (3 cr.)**

This course emphasizes the development of advanced oral, aural, reading and writing skills in Mandarin Chinese. Expanding of vocabulary and development of reading comprehension will be through different genres of authentic texts. Students will be trained to write short essays on a variety of topics. Prerequisite(s): Grade of C or better in CHIN 211 and CHIN 212.

**CHIN 312 - Advanced Chinese Language II (3 cr.)**

This course emphasizes the development of advanced oral, aural, reading and writing skills in Mandarin Chinese. Expanding of vocabulary and development of reading comprehension will be through different genres of authentic texts. Students will be trained to write short essays on a variety of topics. Prerequisite(s): Grade of C or better in CHIN 311.

**CHME - CHEMICAL & MATERIALS ENGINEERING****CHME 100 - Basics of Chemical Engineering (1)**

Development of chemical engineering and introduction to chemical engineering education and practice.

**CHME 102 - Material Balances (3 cr.)**

Chemical Engineering basic problem-solving skills; unit conversions; elementary stoichiometry; material balances; sources of data. Chemical engineering majors must earn C- or better in this course. Prerequisite(s)/Corequisite(s): CHEM 111G or CHEM 115. Prerequisite(s): MATH 121G.

**CHME 111 - Introduction to Computer Calculations in Chemical Engineering (3 cr.)**

Introduction to the use of computer software to solve engineering problems. Chemical engineering majors must earn a C- or better. Prerequisite(s): MATH 121G or MPL greater than or equal to 4.

**CHME 201 - Energy Balances (3 cr.)**

Chemical Engineering energy balances; combined energy and material balances including those with chemical reaction, purge and recycle; thermochemistry; application to unit operations. Sources of data. Introduction to the first law of thermodynamics and its applications. Chemical engineering majors must earn C- or better in this course. Prerequisite(s): CHME 102, CHEM 115 or CHEM 111G, and MATH 192G. Restricted to: CH E, CHME majors. Restricted to Las Cruces campus only.

**CHME 201 H - Material and Energy Balances - Honors (4 cr.)**

Same as CHME 201. Additional work to be arranged. Restricted to CHME majors. Prerequisites: CHEM 115 or CHEM 111G, CHME 111 and MATH 192G.

**CHME 301 - Chemical Engineering Thermodynamics I (3 cr.)**

Applications of the first and second law to chemical process systems, especially phase and chemical equilibria and the behavior of real fluids. Development of fundamental thermodynamic property relations and complete energy and entropy balances. Chemical engineering majors must earn C- or better in this course. Prerequisite: CHME 201 and MATH 291G. Restricted to majors.

**CHME 302 - Chemical Engineering Thermodynamics II (2 cr.)**

Continuation of CHME 301. Chemical engineering majors must earn C- or better in this course. Prerequisite(s): CHME 301 AND (CHME 392 OR MATH 392). Restricted to: CHME majors.

**CHME 302 L - Thermodynamic Models of Physical Properties (1 cr. (3P))**

Computational analysis of thermodynamic models in a chemical process simulator, and comparison to experimental data. Specification of pseudo-components. Generation of physical properties by group contribution methods. Prerequisite(s)/Corequisite(s): CHME 302.

**CHME 305 - Transport Operations I: Fluid Flow (3 cr.)**

Theory of momentum transport. Unified treatment via equations of change. Shell balance solution to 1-D problems in viscous flow. Analysis of chemical engineering unit operations involving fluid flow. General design and operation of fluid flow equipment and piping networks. Chemical engineering majors must earn C- or better in this course. Prerequisite(s)/Corequisite(s): CHME 392. Prerequisite(s): CHME 201, PHYS 215G, MATH 291G. Restricted to: CHME majors.

**CHME 306 - Transport Operations II: Heat and Mass Transfer (4 cr.)**

Theory of heat and mass transport. Unified treatment via equations of change. Analogies between heat and mass transfer. Shell balance solution to 1-D problems in heat and mass transfer. Analysis of chemical engineering unit operations involving heat transfer. Design principles for mass transfer equipment. Chemical engineering majors must earn C- or better in this course. Prerequisite(s): CHME 305 and (CHME 392 or MATH 392). Restricted to: CHME majors.

**CHME 307 - Transport Operations III: Staged Operations (3 cr.)**

Theory of mass transport. Mass transfer coefficients. Analysis of chemical engineering unit operations involving mass transfer and separations. Equilibrium stage concept. General design and operation of mass-transfer equipment and separation sequences. Chemical engineering majors must earn C- or better in this course. Prerequisite(s): CHME 302, CHME 306. Restricted to: CHME majors.

**CHME 311 - Engineering Data Analysis (3 cr.)**

Methodology and techniques associated with analyzing engineering data. Extensive spreadsheet use to analyze data and develop statistically significant conclusions based on the data. Data sets range from single variable experiments to multifactor regression analysis. Prerequisite: MATH 192G.

**CHME 322 L - Instrumentation & Transport Phenomena Laboratory (2 cr. (6P))**

Design of lab experiments that demonstrate the principles of process measurement and instrumentation through the determination of thermodynamic properties, transport phenomena properties, and heat and mass transfer coefficients. Treatment of data to include regression techniques, calculation of measurement error, and statistical analysis of variance. Written and oral reports. Corequisite(s): CHME 441, CHME 307. Prerequisite(s): Area 1b, Area 1c, CHME 311, CHME 306.

**CHME 323 L - Transport Operations and Instrumental Laboratory I (1 cr. (3P))**

Design of laboratory experiments that demonstrate the principles of process measurement and instrumentation through the determination of thermodynamic properties, transport phenomena properties, and heat and mass transfer coefficients. Treatment of data to include regression techniques, calculation of measurement error, and statistical analysis of variance. Corequisite(s): CHME 306. Prerequisite(s): CHME 305, CHME 311. Restricted to: CHME majors.

**CHME 324 L - Transport Operations and Instrumentation Laboratory II (1 cr. (3P))**

Design of laboratory experiments that demonstrate the principles of process measurement and instrumentation through the determination of thermodynamic properties, transport phenomena properties, and heat and mass transfer coefficients. Treatment of data to include regression techniques, calculation of measurement error, and statistical analysis of variance. Prerequisite(s): CHME 306, CHME 323. Restricted to: CHME majors.

**CHME 330 - Environmental Management Seminar I (1 cr.)**

Survey of practical and new developments in environmental management field, hazardous and radioactive, waste management, and related health issues, provided through a series of guest lectures and reports of ongoing research. Restricted to: Main campus only. Crosslisted with: C E 330, E E 330, E S 330, E T 330, I E 330, M E 330 and WERC 330

**CHME 352 L - Simulation of Unit Operations (1 cr. (3P))**

Definition, specification, and convergence of basic unit operations in a process simulator. Course will cover pipe networks, pressure changers, heat exchangers, distillation columns, and chemical reactors. Prerequisite(s)/Corequisite(s): CHME 307, CHME 441. Restricted to: CHME majors.

**CHME 361 - Engineering Materials (3 cr.)**

Bonding and crystal structure of simple materials. Electrical and mechanical properties of materials. Phase diagrams and heat treatment. Corrosion and environmental effects. Application of concepts to metal alloys, ceramics, polymers, and composites. Selection of materials for engineering design. Prerequisite(s): CHEM 111G or CHEM 114, or CHEM 115; MATH 190G.

**CHME 391 - Industrial Employment (1-2 cr.)**

Employment in chemical, petroleum, food, biotechnology, materials, environmental or pharmaceutical industry with opportunity for professional experience and training in chemical engineering. Requires written report covering work period approved by employer. Prerequisites: consent of instructor and department head. Course subtitled. May be repeated for a maximum of 6 credits. Arrangements must be made prior to employment. Restricted to majors.

**CHME 392 - Numerical Methods in Engineering (3 cr.)**

Study and application of numerical methods in solving problems commonly encountered in engineering. The numerical methods are motivated by engineering problems rather than by mathematics. However, sufficient mathematical theory will be provided so that students can appreciate the insight into the techniques and their shortcomings of different methods. MATLAB will be used as the working environment for implementing and performing the numerical methods in computers. This course is an engineering elective open to all engineering majors. Prerequisite(s): MATH 192.

**CHME 395V - Brewing Science and Society (3 cr.)**

An overview of the science of brewing and the interrelationships between society, technology, business, and the evolution of the current beer market. Topics covered are history of brewing and the interrelationships between societal attitudes, technology, and cultural preferences; beer styles and evaluation techniques; production and characteristics of ingredients used in brewing; brewing unit operations; biochemistry of malting, mashing, and fermentation; engineering in the brewery; homebrewing; and societal and health issues related to beer and alcohol. Students must be at least 21 years of age by the first day of instruction of the semester to enroll in this course.

**CHME 412 - Process Dynamics and Control (3 cr.)**

Process modeling, dynamics, and feedback control. Linear control theory and simulation languages. Application of Laplace transforms and frequency response to the analysis of open-loop and closed-loop process dynamics. Dynamic response characteristics of processes. Stability analysis and gain/phase margins. Design and tuning of systems for control of level, flow, and temperature. Prerequisites: CHME 441.

**CHME 422 L - Unit Operations and Process Control Laboratory (2 cr. (6P))**

Experiments with chemical engineering unit operations including the use of computer data acquisition and closed-loop process control. Covers control system instrumentation, development of empirical models from process data, and PID controller design and tuning. Includes written and oral reports. Prerequisite(s): CHME 307 and CHME 322L. Restricted to: CHME majors.

**CHME 423 L - Unit Operations Laboratory I (1 cr. (3P))**

Experiments with chemical engineering unit operations including the use of computer data acquisition. Covers control system instrumentation and development of empirical models from process data. Includes written and oral reports. Prerequisite(s): CHME 307, CHME 441, CHME 324L. Restricted to: CHME majors.

**CHME 424 L - Process Control Laboratory (1 cr. (3P))**

Experiments with chemical engineering process control including the use of computer data acquisition and closed-loop process control. Covers control system instrumentation. Includes written and oral reports. Prerequisite(s): CHME 412, CHME 423L. Restricted to: CHME majors.

**CHME 430 - Environmental Management Seminar II (1 cr.)**

Survey of practical and new developments in environmental management field, hazardous and radioactive, waste management, and related health issues, provided through a series of guest lectures and reports of ongoing research. Restricted to: Main campus only. Crosslisted with: C E 430, E E 430, E S 430, E T 430, I E 430, M E 430 and WERC 430

**CHME 436 - Environmental Process Design I (3 cr. (9P))**

Environmental clean-up and/or waste treatment process design. Participation in team solution to the WERC environmental contest problem, or equivalent, according to rules of contest. Design, construction, and operating demonstration of a bench or pilot scale facility to clean up a specified environmental problem. Written and oral reports covering work required. Open to all science, engineering, and business majors. Prerequisite: consent of instructor. May be repeated for a maximum of 6 credits. Same as CH E 536.

**CHME 437 - Environmental Process Design II (3 cr. (9P))**

Continuation of CHME 436. Prerequisite: consent of instructor. May be repeated for a maximum of 6 credits.

**CHME 439 - Environmental Modeling (3 cr.)**

Environmental transport processes in water, groundwater and the atmosphere; mathematical models to account for simultaneous chemical reaction and transport in the environment; models of chemical fate; aquatic chemistry; metals migration in soils; atmospheric deposition and global change; metals deposition. Prerequisite(s): MATH 392 or CHME 201.

**CHME 441 - Chemical Kinetics and Reactor Engineering (3 cr.)**

Analysis and interpretation of kinetic data and catalytic phenomena. Applied reaction kinetics; ideal reactor modeling; non-ideal flow models. Mass transfer accompanied by chemical reaction. Application of basic engineering principles to design, operation, and analysis of industrial reactors. Chemical engineering majors must earn C- or better in this course. Prerequisite(s): CHEM 313, CHME 302 and CHME 306. Corequisite(s): CHME 307.

**CHME 443 - Industrial Catalysis (3 cr.)**

Fundamentals of catalytic processes, including chemistry, catalyst preparation, properties and reaction engineering. Addresses heterogeneous catalytic processes employed by industry. Detailed analysis of existing catalysts and catalytic reactions, and process design in chemical engineering. Prerequisite: CHME 441

**CHME 448 - Industrial Safety (3 cr.)**

An introduction to the fundamentals of chemical process safety, including toxicology, industrial hygiene, source models, fires and explosions, relief systems, hazard identification, risk assessment, environmental fate and transport, hazardous waste generation, pollution prevention, and regulatory requirements. Chemical engineering majors must earn C- or better in this course. Crosslisted with: CHME 448. Prerequisite(s): CHEM 115 or CHEM 111G.

**CHME 449 - Intellectual Property for Engineers and Scientists (3 cr.)**

An overview of intellectual property with an emphasis on patents. Terminology, patentability requirements, invention disclosures, inventorship, scope of claims, patent application content and the patent prosecution process, and post-allowance matters including infringement and enforcement Prerequisite(s): CHEM 110G, 111G or CHEM 115; and senior standing in engineering or a fundamental science major; or consent of instructor.

**CHME 452 - Chemical Process Design & Economic Evaluation (3 cr.)**

Concepts in chemical engineering process design, including: capital and manufacture cost estimation; discounted cash flows; interest; taxes; depreciation; profitability analysis; project specifications. Prerequisite(s): CHME 307 and CHME 441.

**CHME 452 L - Chemical Process Simulation (1(3P))**

Construction and convergence of chemical processes in a process simulator. Students will understand how to access variables, define and converge design specifications and converge tear/recycle streams. Prerequisite(s)/Corequisite(s): CHME 452. Prerequisite(s): CHME 352L. Restricted to: CHME majors.

**CHME 455 - Chemical Plant Design (3 cr.)**

Design and analysis of integrated process plants. Consideration given to optimizing performance, operability, reliability, safety, control, energy integration, and cost effectiveness. Requires written report covering solution of a capstone design problem. Prerequisite(s): CHME 452.

**CHME 455 L - Chemical Plant Simulation (1(3P))**

Construction, convergence, and optimization of chemical processes in a process simulator. Dynamic process simulation and control. Prerequisite(s)/Corequisite(s): CHME 455. Prerequisite(s): CHME 412, CHME 452L. Restricted to: CHME majors.

**CHME 456 - Advanced Chemical Process Simulation (3 cr.)**

Advanced techniques in computational simulation of chemical processes using process simulation software. Restricted to CHME majors. Prerequisite: CHME 452L or consent of instructor.

**CHME 461 - Calculation of Material and Molecular Properties (3 cr.)**

The aim is to describe and apply techniques for computing common properties of materials and molecules: optimized geometries, transition states, vibrational spectra, energies (electronic, internal energy, enthalpy, and Gibbs free energy), heat capacities, net atomic charges, atomic spin moments, and effective bond orders. These techniques allow one to estimate the thermodynamic properties of a chemical, as well as to compute the mechanisms and energy barriers for chemical reactions and catalytic processes, and to quantify the electronic, magnetic, and chemical ordering in materials. The theory behind these techniques will be described and students will perform hands-on computer exercises using common computational chemistry programs. Prerequisite(s): CHEM 116, MATH192G, (PHYS 214 or PHYS 216).

**CHME 463 - Soft Matter (3 cr.)**

Bulk soft matter assemblies including polymers, macromolecules, colloids, gels, vesicles, emulsions, surfactants, micelles, suspensions and liquid crystals. Self-assembly including molecular self-organization, supramolecular systems, encapsulation, self-assembled films and monolayers. Biological aspects of soft matter including biomacromolecules, cells and soft tissues. Surfaces, interfaces and interactions including thin films, Langmuir monolayers and wetting/dewetting. Physicochemistry and characterization of soft matter. Crosslisted with: CHME 563. Prerequisite(s): CHME 302, CHME 305, CHME 361.

**CHME 464 - Polymer Science (3 cr.)**

Synthesis, structure, property relationships of synthetic polymers. Taught with CHME 546. Prerequisite(s): CHME 361.

**CHME 466 - Fuel Cell and Hydrogen Technology (3 cr.)**

Introduction to fundamentals and applications. Includes the thermodynamics; electrochemical kinetics and fuel cell electrode catalyst; systems and design and reforming; hydrogen production, storage, and safety; applications of fuel cells in stationary power generation, portable power, and automobiles. Taught with CHME 566. Crosslisted with: WERC 466. Prerequisite(s): CHEM 111G and PHYS 215.

**CHME 467 - Nanoscience and Nanotechnology (3 cr.)**

This is a lecture/laboratory course designed to present the basic concepts, the techniques and the tools to synthesize and characterize nanometer scale materials, and the latest achievements in current and future nanotechnology applications in engineering, materials, physics, chemistry, biology, electronics and energy. It is intended for a multidisciplinary audience with a variety of backgrounds. This course should be suitable for graduate students as well as advanced undergraduates. Topics covered will include: nanoscience and nanotechnology, nanofabrication, self-assembly, colloidal chemistry, sol-gel, carbon nanotubes, graphene, thin film, lithography, physical vapor deposition, chemical vapor deposition, quantum dots, lithium batteries, X-ray diffraction, scanning electron microscopy, transmission electron microscopy, nanoelectronics, nanophotonics and nanomagnetism, etc. Taught with PHYS 520 and CHME 567. Crosslisted with: PHYS 467 and PHYS 520. Prerequisite(s): (CHEM 116 or CHEM 112G) AND (PHYS 211 or PHYS 215) AND (EH&S Safety training to include the courses: (1) Employee & Hazard Communication Safety (HazCom); (2) Hazardous Waste Management; and (3) Laboratory Standard.).

**CHME 468 - Adsorption (3 cr.)**

Introduction to adsorption science and technology, which includes adsorption equilibrium and kinetic theories, adsorbent materials and characterization, adsorption processes and design. Selected applications of adsorption processes in chemical and pharmaceutical industries and environmental protections will also be discussed. Taught with CHME 568. Prerequisite(s): CHME 201. Restricted to: CHME majors.

**CHME 469 - Thermal, Optical, and Electronic Properties of Materials (3 cr.)**

Fundamentals that dictate the thermal, optical, and electronic properties and their transport phenomena in materials focused on their governing principles. Transport phenomena at the nanometer/quantum scale stressing the differences with bulk systems will be considered. A laboratory component of this course will also be included. Prerequisite(s): CHME 306, CHME 361.

**CHME 470 - Introduction to Nuclear Energy (3 cr.)**

Atomic and nuclear structure, nuclear stability and radioactivity, nuclear reactions, detection and measurement of radiation, interaction of radiation with matter, radiation doses and hazard assessment, principles of nuclear reactors, and applications of nuclear technology. Prerequisite(s): CHEM 111G, MATH 192G.

**CHME 471 - Health Physics (3 cr.)**

Introduction to radiation protection, radiation/radioactivity, radioactive decay/fission, interactions of radiation and matter, biological effects of radiation, radiation measurement and statistics, sampling for radiation protection, radiation dosimetry, environmental transport, radiation protection guidance, external and internal radiation protection, and hazards analysis. Prerequisite(s): MATH 192G, CHME 470.

**CHME 473 - Nuclear Regulations and Compliance Practices (3 cr.)**

Introduction, through the use of case studies, to the best technical compliance practices for regulations governing the siting, licensing, constructing, operating and decommissioning of nuclear fuel cycle facilities. Consent of instructor required. Prerequisite(s): MATH 191G and (CHEM 111G or CHEM 115). Crosslisted with: WERC 473

**CHME 474 - Power Plant Design (3 cr.)**

Principles of electric power generation. Review of DC and AC systems, energy sources, and prime movers. Analysis of hydroelectric, fossil fuel, nuclear, and alternative power systems. Environmental and economic considerations. Prerequisite(s): MATH 191G, CHEM 111G.

**CHME 475 - Nuclear Reactor Theory (3 cr.)**

An overview of the properties of nuclei, nuclear structure, radioactivity, nuclear reactions, fission, resonance reactions, moderation of neutrons, will be followed by mathematical treatment of the neutronics behavior of fission reactors, primarily from a theoretical, one-speed perspective. Criticality, fission product poisoning, reactivity control, reactor stability and introductory concepts in fuel management, slowing down and one-speed diffusion theory. Corequisites: MATH 392. Prerequisites: CHEM 112G, PHYS 215G, MATH 291G.

**CHME 476 - Nuclear Fuel Cycles (3 cr.)**

Physical and chemical processes in the conventional nuclear fuel cycle: uranium mining and milling, conversion, enrichment, fuel fabrication, reactor operations, interim storage, reprocessing and recycling, waste treatment and disposal. Alternative fuel cycles and future prospects. Prerequisite(s): CHME 470.

**CHME 479 - Corrosion and Degradation of Materials (3 cr.)**

Failure of engineering materials in aggressive environments. Chemical and electrochemical mechanisms of corrosion. Influence of chemical composition and microstructure on corrosion behavior. Types of corrosion and chemical attack, including uniform corrosion, galvanic corrosion, pitting and other forms of localized corrosion, stress corrosion cracking, and corrosion fatigue. Methods of corrosion mitigation including cathodic protection, coatings, passivation, and corrosion inhibitors. Corrosion in nuclear reactors and nuclear waste repositories. Prerequisite(s): CHME 361.

**CHME 481 - Biomedical Engineering and Engineering Healthcare (3 cr.)**

Orientation to solving human and world health issues with biological engineering systems, tools, and analysis methods. Introduces general concepts including applied biology for engineers, biophotonics, biosensing, bioinstrumentation, tissue and biomaterials engineering, biomedical engineering research practices, and physical bioanalytical methods. Taught with CHME 581. Prerequisite(s): CHEM 116 AND CHME 201. Restricted to: CHME majors.

**CHME 485 - Materials from Biorenewable Resources (3 cr.)**

Types, sources, composition and properties of biomass. Production, processing, and applications of biomass materials with energy, water, cost, sustainability,

and waste management considerations. Crosslisted with: AGRO 485, HORT 486, E S 485 and SOIL 485. Prerequisite(s): CHEM 211 or CHEM 313 or permission of instructor.

**CHME 486 - Biofuels (3 cr.)**

Introduction to the fundamentals and applications of biofuels and bioenergy produced from biomass; renewable feedstocks, their production, availability and attributes for biofuel/bioenergy production; types of biomass-derived fuels and energy; thermochemical conversion of biomass to heat, power, and fuel; biochemical conversion of biomass to fuel; biodiesel production; environmental impacts of biofuel production; economics and life-cycle analysis of biofuel; value-added processing of biofuel residues; term paper of selected topics relevant to biofuels. Taught with CHME 586. Consent of Instructor required. Prerequisite(s): admitted to MBA Program or consent of course department.

**CHME 489 - Introduction to Modern Materials (3 cr.)**

Structure and mechanical, thermal, electric, and magnetic properties of materials. Modern experimental techniques for the study of material properties. Crosslisted with: PHYS 489. Prerequisite(s): PHYS 315 or engineering equivalent.

**CHME 490 - Senior Seminar (1 cr.)**

Orientation to professional practice. Oral presentations by invited speakers, faculty, and students. Prerequisite: senior standing. Restricted to CHME majors.

**CHME 491 - Special Topics (1-4 cr.)**

Lecture and/or laboratory instruction on special topics in chemical engineering. May be repeated to a maximum of 6 credits under different subtitles listed in the Schedule of Classes. Restricted to majors.

**CHME 498 - Undergraduate Research (1-3 cr. (6+9P))**

Provides an opportunity for undergraduate students to work in research or areas of special interest such as design problems and economic studies under the direction of a faculty member. Written report and oral presentation in CHME 490, Senior Seminar, covering work required. Prerequisite: consent of instructor and department head. Approval of written application. Maximum of 3 credits per semester. May be repeated for a maximum of 6 credits.

**CHSS - COMMUNITY HEALTH AND SOCIAL SCIENCES****CHSS 101 - Overview of Health and Community Services (3 cr.)**

Health and community service professions with emphasis on public health, community health education, and environmental/occupational health.

**CHSS 216 - Ethical and Research Issues in Human and Community Service (3 cr.)**

Ethical and legal responsibilities of health personnel with emphasis on research applications. May not receive credit for both CHSS 216 and CHSS 316. Community Colleges only.

**CHSS 295 - Leadership/Mentorship Training for the CHSS Ambassadors Program (1 cr.)**

Leadership development for volunteers serving as CHSS ambassadors. Focus on public relations and CHSS undergraduate degree programs. Prerequisite: consent of instructor. Graded S/U.

**CHSS 299 - Service Learning Experience in Human and Community Services (3 cr.)**

Exploration of contemporary social, civic, economic and ethical problems that require student participation in collaborative efforts within the community. Requires 30 clock hours of community based service for each credit. Graded: S/U. Prerequisite(s): CHSS 101, PHLS 150G and PHLS 275 or consent of instructor. Corequisite(s): PHLS 295 or CHSS 216. Contact instructor for approval.

**CMI-CINEMA & FILM/VIDEO PRODUCTION****CMI 100 - Introduction to the Creative Media Industry (3 cr.)**

This class is an introductory course for students interested in learning about the creative media industry and the Creative Media Institute. It offers a broad view of the entire industry including Marketing, Production, Budgets, Jobs, New Media Literacy, and Industry Standards. Students will listen to experts in the field, and become involved in open discussions about the industry and use new information

to complete hands-on assignments in the laboratory. Restricted to Las Cruces campus only.

**CMI 200 - Sound Design 1 (3 cr.)**

Focuses on the techniques for creating, recording and manipulating sounds through challenging sound design projects. Crosslisted with: CMT 206. Restricted to: ANVE, DFM majors. Restricted to Las Cruces campus only.

**CMI 205 - Cinematography I (3 cr.)**

Theories and techniques of visual design in videography and the aesthetics of lighting. Crosslisted with: CMT 205. Prerequisite(s)/Corequisite(s): CMI 100. Restricted to: ANVE, DFM majors. Restricted to Las Cruces campus only.

**CMI 216 - Editing I (3 cr.)**

Focuses on individual editing skills including capture, interface, basic cuts, and transitions. Crosslisted with: CMT 195. Restricted to: ANVE, DFM majors. Restricted to Las Cruces campus only.

**CMI 220 - Drawing for Animation (3(2+4P))**

Introductory study of the human body and animal form in relation to animation. Students learn fundamentals and exaggeration of the figure, as related to proportion, rhythm, mechanics and motion. Areas of focus are: basic form, proportion, shape, contour, gesture, anatomy, portraiture, perspective, clothing effects and drawing from observation. Restricted to: ANVE, DFM, CMT majors.

**CMI 231 - History of Animation (3 cr.)**

Explores the history of Animation as an art form and industry through readings, screenings, lecture and periodic guest speakers. Restricted to: Main campus only. Restricted to DFM, ANVE majors.

**CMI 232 - Storyboarding (3 cr.)**

Examines effective writing principles for creating storyboards that communicate the overall picture of a project. There are timing, scene complexity, emotion and resource requirements. Crosslisted with: CMT 232 and ENGL 232. Restricted to: DFM, ANVE majors. Restricted to Las Cruces campus only.

**CMI 233 - Light, Shade, Render (3 cr.)**

This course will explore the theory and practice of 3D lighting and rendering methodologies. Techniques covered will implement cameras, lighting sources, textures, surface-mapping and algorithmic rendering to produce stylized and photo realistic images. Topics covered will include direct and indirect lighting, shaders that simulate physical substances and effects, rendering multiple passes and simulating physical lens effects. Prerequisite(s): CMI 260, CMI 280, or Consent of Instructor. Restricted to: Main campus only. Restricted to DFM, ANVE majors.

**CMI 235 - Narrative: Principles of Story Across the Media (3 cr.)**

Examines the various strategies of written and visual storytelling: narrative structure and its principle components (plot, theme, character, imagery, symbolism, point of view), with an attempt to connect them to elements of contemporary forms of media expression, including screenwriting, playwriting, writing for documentaries and animation, etc. Crosslisted with: ENGL 235. Restricted to Las Cruces campus only.

**CMI 240 - Digital Illustration (3 cr.)**

Introductory course examining traditional artistic expressions and translating visual art experiences into a digital art medium to enhance visual storytelling. Students acquire basic principles of drawing and painting through hands-on experience manipulating tonal value, composition, form development, light and shadow, color theory, rendering realism, and graphic design. Restricted to: ANVE, DFM majors. Restricted to Las Cruces campus only.

**CMI 250 - Beginning 2-D Animation (3 cr.)**

Learn the basics of digital 2D animation by creating an animated short from a storyboarded scene using professional animation, imaging, and editing software. Prerequisite(s): ART 150. Restricted to: ANVE, DFM majors. Restricted to Las Cruces campus only.

**CMI 260 - Foundations of 3D Animation (3 cr.)**

The objective of this course is to provide a hands-on overview of the 3D animation production process. Students will be introduced to basic story development and the creation of computer generated assets and cinematic

sequences. The course will survey specialty areas of digital animation and various software and techniques applied in entertainment and information media. Prerequisite(s): CMI 235, CMI 232 or consent of instructor. Restricted to: Main campus only. Restricted to ANVE, DFM majors.

**CMI 270 - Rigging for 3D Animation (3 cr.)**

This course will introduce principles and practices of current 3D animation rigging. Students will develop fundamental methods necessary to create character rigs. Students will learn aesthetic, technical, and optimization concepts as they apply to organic and mechanical designs. Topics will include: hierarchies, constraints, deformation rigging, skeleton creation, skinning, forward and inverse kinematics, controls, body and facial rigging. Prerequisite(s): CMI 260. Restricted to: ANVE, DFM majors.

**CMI 271 - Rigging for 2D Animation (3 cr.)**

Students will learn how to build and animate digital cut-out characters using several different techniques including bones, puppet pins, and keyframing. This technique, also referred to as flash style, has established itself as an increasingly popular alternative to cell based character animation in film, TV, and web production studios all over the world. Prerequisite(s): CMI 250. Restricted to: Main campus only. Restricted to ANVE, DFM majors.

**CMI 280 - Modeling (3 cr.)**

This course will introduce 3D modeling methods and current practices. Students will learn preliminary and detailed modeling techniques using industry standard software. Methods will emphasize formal and functional aspects of modeling as they apply to mechanical, organic, and sculpted topology for application in animation, games, and information media. Restricted to: Main campus only. Restricted to ANVE, DFM majors.

**CMI 290 - 3-D Animation (3 cr.)**

Overview of the essentials and principles of 3D animation; creative methods for using industry standard tools to produce the illusion of movement for storytelling. Topics include, keyframe and curve animation, kinematics, cycle animation, camera animation, deformers, and constraints. Prerequisite(s): CMI 260, CMI 250 or consent of instructor. Restricted to: Main campus only.

**CMI 300 - History of Cinema (3 cr.)**

Application of computer programming languages to address data processing and analysis problems in modern molecular biology. R/Perl/Python programming; Web API programming. Automatic manipulation of next generation sequence data, analysis of large gene expression tables, access to online biological databases, performing statistical analysis, and visualization of data and results. Taught with C S 509. Prerequisite(s): At least a C- in C S 272 and C S 278.

**CMI 301 - Sound Design II (3 cr.)**

Mixing and balancing dialogue, sound effects and music in postproduction. Study the role of sound effects, foley, soundtrack choices, and music supervision. Prerequisite: CMI 200

**CMI 303 - Cinema Review and Critique (3 cr.)**

This course is for the student who wants to learn to be a more active, intelligent film viewer. It encourages critical thinking about films and educates students on how to write a film review. Students will meet in the movie theater to watch essential films that serious movie watchers should see from classic motion pictures, to current release major motion pictures, independent films and world cinema features. The course will serve as a guide to the illuminating process of evaluating, analyzing, and reviewing movies. Students' reviews will be published publicly.

**CMI 305 - Business of Filmmaking/ Animation (3 cr.)**

Explores the roles of unions, basic contracts, legal arrangements, and the economics of the production process, distribution, and financing. Prerequisite: CMI 235.

**CMI 308 - Writing for Animation (3 cr.)**

This class explores methods for, and approaches to, writing for animation. Students study and produce scripts for a range of animation outlets while engaging in writing exercises based on character and story development. Prerequisite(s): CMI 235, CMI 309 or consent of instructor.

**CMI 309 - Screenwriting I (3 cr.)**

Writing intensive. Students learn the craft of screenwriting, honing skills in writing dialogue and visual narrative, crafting dynamic characters and dramatic action. Original student scripts will be performed and discussed in class. Prerequisite(s): ENGL/CMI 235 or consent of instructor. Crosslisted with: ENGL 309 and THTR 306.

**CMI 310 - Cinematography II (3 cr.)**

Advanced tools of the cinematographer, lighting and composition techniques. Artistic and technological elements of cinematography. Prerequisite(s): CMI 205, CMT 205. Restricted to DFM, ANVE majors.

**CMI 311 - Editing II (3 cr.)**

Advanced techniques in digital films using professional non-linear editing systems. Prerequisite(s): CMI 216. Restricted to: ANVE, DFM majors.

**CMI 314 - Acting for Film (3 cr.)**

Techniques for film and television acting. In-depth analysis of film performance creation among actor, director, writer, cinematographer, and editor. Prerequisite(s): CMI 100, AND CMI 235. Restricted to: DFM, THTR majors, or Consent of Instructor.

**CMI 315 - Adventures in Genre (3 cr.)**

Students learn storytelling strategies for the screen by studying various structural genres and components of screenplays and films. Utilizing these strategies, students develop a number of their own original screenplay ideas. Additionally, pitch workshops are held and students learn to present their ideas in various, practical situations. Prerequisite(s): CMI 235. Restricted to DFM, ANVE majors.

**CMI 318 - Documentary Production (3 cr.)**

Survey of theory and history of documentary film making including viewings and discussions of notable films and directors. Class works with actual documentary project. May be repeated up to 6 credits. Prerequisite(s): CMI 216, CMI 205. Restricted to: ANVE, DFM majors.

**CMI 328 - Producing (3 cr.)**

Examines the role of the Producer, essential to every film production. The course will revolve around the best practices in organizational design, the production process, the budgeting process, financial controls, scheduling, insurance and distribution. Prerequisite(s)/Corequisite(s): CMI 200, 216, 235. Restricted to: ANVE, DFM majors.

**CMI 329 - Studies in Drama (3 cr.)**

Students will draw on a group of related American and European dramatic works to examine various areas of 20th century culture. Topics will vary. Restricted to DFM, ANVE, ENGL, THTR majors. Crosslisted with: ENGL 329 and THTR 329

**CMI 332 - 3-D Character Animation (3 cr.)**

Essentials and principles of 3D character animation. Techniques and craft of breathing life into characters through movement, including dynamic poses, blocking action, run and walk cycles, lip synching and realism. THTR 110, Acting and CMI 200, Sound Design are recommended. Prerequisite(s): THTR 105 (or CMI 214 or CMI 348), CMI 260 and CMI 290 or consent of instructor. Restricted to: ANVE, DFM majors.

**CMI 340 - Animated Project Development (0-3)**

Theories and elements of animated project production and development. Concept, story, and story and character development, storyboarding, layout, sound, voice recording and basic editing addressed. Prerequisite(s): CMI 235. Restricted to: ANVE, DFM, ART, ENGL majors.

**CMI 341 - Visual Effects I (3 cr.)**

Fundamentals and principles of live action footage and computer generated imagery integration, including 3D animation, matchmoving, green screen setup, keying and compositing. Prerequisite(s): CMI 205, CMI 260, 280 (or consent of instructor). Restricted to: ANVE, DFM majors.

**CMI 348 - Acting and Directing for Voiceover (3 cr.)**

Students will explore methods for approaching voiceover and for improving acting and directing skills. Exercises will promote ease with collaboration in the

studio setting, written work will focus on viewing voiceover in an analytical and discerning light. Restricted to ANVE, DFM majors.

**CMI 350 - Intermediate 2-D Animation (3 cr.)**

Learn the more refined aspects of motion for character animation by focusing on Disney's 12 Principles of Animation, practicing these advanced drawing techniques in exercises and incorporating them into a brief final short. Prerequisite(s): CMI 250.

**CMI 360 - Previsualization (3 cr.)**

Implements 3D animation tools in preproduction shot and sequence design for motion picture and broadcast industries; including 3D storyboarding, technical planning and editing basics. LC Campus Only. Prerequisite(s): CMI 260, CMI 280, and CMI 290 or consent of instructor. Restricted to ANVE, DFM majors.

**CMI 361 - After Effects: 2D Compositing and EFX (3 cr. (3+3P))**

The purpose of this course is to familiarize students with the powerful compositing and special effects tools of Adobe After Effects for 2D, traditional animation. Students will learn how to assemble an existing un-rendered animation into a final piece with advanced 3D lighting, spacing, and digital effects so that it can achieve a dynamic, professionally rendered look.

**CMI 365 - Character Design and Development (3 cr.)**

Digital character design for the entertainment industry. Provides insight into the process of creating iconic characters. Traditional and contemporary character designers are explored. Industry workflow is introduced and necessary skills are developed to design detailed 3D characters from concept through production. Prerequisite(s): CMI 250, CMI 260 and CMI 280, or consent of instructor. Restricted to ANVE, DFM majors.

**CMI 395 - Directing I (3 cr.)**

Study and application through short scene work of the basic tools of a director and relationships with actors, designers, playwright, and stage managers. Interpreting as well as organizing. Prerequisite(s): CMI 205, AND CMI 214, AND CMI 216, AND CMI 232, AND CMI 235. Restricted to: ANVE, DFM majors.

**CMI 396 - Directing II (3 cr.)**

Addresses pre-production concerns including script breakdown, casting ground plans and coverage. The criteria employed when selecting the creative team including a director of photography, art director, light, sound and wardrobe designers. Introduction to budgeting, scheduling, and script breakdowns. Prerequisite: CMI 395

**CMI 397 - Practicum (1-3 cr. (2P))**

Practical application of the student's field of study in a project environment. May be repeated up to 9 credits. Consent of Instructor required.

**CMI 398 - Special Topics (3 cr.)**

This course addresses specific subjects and issues as identified by the department. Topics and credits to be announced in the Schedule of classes. May be repeated up to 12 credits.

**CMI 400 - Directed Studies (1-6 cr.)**

Directed study course in CMI under the supervision of a CMI faculty member. May be repeated up to 9 credits.

**CMI 401 - Motion Capture Techniques (3 cr.)**

Implement industry standard motion capture techniques to capture and integrate performance for movie making, 3D animation and game production. Prerequisite(s): CMI 260, CMI 290 and CMI 270 (or consent of instructor). Restricted to: ANVE, DFM majors.

**CMI 420 - Short Film Production (3 cr.)**

Students work in teams with rotating crews to write, produce, direct and edit individual and group projects-ultimately demonstrating growing confidence with production equipment and professional practices. May be taken up to 6 credits. Consent of instructor required. Prerequisite(s): CMI 200, CMI 216, CMI 205, CMI 235, CMI 309 and CMI 395. Pre/Corequisite(s): CMI 328. Restricted to ANVE, DFM majors.

**CMI 433 - 3-D Sets and Environments (3 cr.)**

Digital environment design and creation for movies and games from concept to production; including illustration, modeling, matte painting, texturing, lighting, rendering, integration, and camera projection. Prerequisite(s): CMI 260, CMI 280, and CMI 233 or consent of instructor. Restricted to ANVE, DFM majors.

**CMI 441 - Visual Effects II (3 cr.)**

Advanced integration of live action footage and computer generated imagery, including high dynamic range imagery, photogrammetry, compositing, 3D animation and rendering. Consent of Instructor required. Prerequisite(s): CMI 341 (or consent of instructor). Restricted to: ANVE, DFM majors.

**CMI 450 - Advanced 2-D Animation (3 cr.)**

Advanced techniques in two dimensional animation including motion graphics and integration of live action. Prerequisite(s): CMI 350. Restricted to: ANVE, DFM majors.

**CMI 470 - Short 2-D Animation Production (3 cr.)**

This is a full-scale animation production class where students will be divided into teams according to the animation skills they have demonstrated in the beginning, intermediate, and advanced classes. Each team member will specialize in one important facet of the production process: character animation, background painting, technical direction, coloring, or story development and storyboarding. 4 to 8 minute animated shorts will be produced. Prerequisite(s): CMI 450, CMI 361. Restricted to: ANVE, DFM majors.

**CMI 480 - Screenwriting II (3 cr.)**

Students will write 2 short scripts, 10-15 pages each throughout the semester. Focus will be on learning how to take notes and rewrite. Script analysis will be in a workshop format. Scripts will be read and discussed, scenes performed and reactions analyzed to consider effect of dialogue, character development, etc. Prerequisite(s): ENGL 309 or CMI 309 or THTR 306 or consent of instructor. Restricted to ENGL, DFM, ANVE majors. Crosslisted with: ENGL 480

**CMI 490 - Advanced Screenwriting (3 cr.)**

Students will prepare a 30-60 page screenplay. Script analysis will be in an advanced workshop format. Scripts will be read and discussed, scenes performed and reactions analyzed to consider effect of dialogue, character development, etc. This course is aimed at preparing writers for the professional market. Consent of instructor required. Restricted to ENGL, DFM, ANVE majors. Crosslisted with: ENGL 491

**CMI 495 - Internship (1-12 cr.)**

Placement in a production facility and supervised experience required. With CMI advisor approval only. May be repeated up to 18 credits. Consent of Instructor required. Restricted to: ANVE, DFM majors. S/U Grading (S/U, Audit).

**CMI 496 - Media Law/Ethics (3 cr.)**

Overview of legal & ethical issues in creative media elements of business and commercial law. This class will focus on the fundamentals of entertainment law by exploring the business and legal relationships within film industries, and animation. Learn to anticipate and avoid legal problems prior to production. Key issues in the area of copyright law, sources of financing, distribution agreements; insurance and union consideration will be discussed. Restricted to ANVE, DFM majors.

**CMI 497 - Portfolio Design and Development (3 cr.)**

Advanced graphic design projects with an emphasis on conceptual development, portfolio preparation, and professional practices. Refine general marketing strategies, personal portfolio, and resumes. Define, target, and penetrate personal target markets. Students develop individual promotional/demo packages. Prerequisite(s): Consent of instructor. Restricted to: ANVE, DFM majors.

**CMI 498 - Final Year Senior Project I: Production and Post Production (3-6 cr.)**

Senior Project I is the first half of a year long concentration on a pre-approved creative project guided by a faculty member. Projects are narrative-driven and have an end product: screen-play, short film, documentary, 2-D or 3-D animated short, or pilot with treatment for television. Consent of Instructor required. Prerequisite(s): Consent of instructor. Restricted to: ANVE, DFM majors.

**CMI 499 - Final Year Senior Project II: Production and Post Production (3-6 cr.)**

Senior Project II is the second half of a year long concentration on a pre-approved project, guided by a faculty member. Projects are narrative driven and have an end product: short film, documentary, 2-D or 3-D animated short, or pilot and treatment for television. May be repeated up to 9 credits. Prerequisite(s): CMI 498 and Consent of Instructor. Restricted to: ANVE, DFM majors.

**COMM - COMMUNICATION****COMM 253G - Public Speaking (3 cr.)**

Principles of effective public speaking, with emphasis on preparing and delivering well-organized, logical, and persuasive arguments adapted to different audiences.

**COMM 265G - Principles of Human Communication (3 cr.)**

Study and practice of interpersonal, small group, and presentational skills essential to effective social, business and professional interaction.

**COMM 285 - Survey of Communication Theory (3 cr.)**

Exploration of major theories, concepts and methods of research in the study of human communication. Primarily for majors.

**COMM 290 - Independent Study (1-3 cr.)**

Individualized, self-paced projects for students with a special interest in communication topics. Prerequisites: COMM 265G and sophomore standing. May be repeated for a maximum of 6 credits.

**COMM 291 - Special Topics (1-3 cr.)**

Specific subjects and credits to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits.

**COMM 305 - Communication Research Methods (3 cr.)**

Introductory course in communication research. Emphasis on how to be an effective consumer of research.

**COMM 351 - Persuasion Theory and Practice (3 cr.)**

Training in understanding and applying the principles and techniques of argumentation and persuasion.

**COMM 353 - Advanced Public Speaking (3 cr.)**

This is an advanced course in the composition and delivery of speeches. It extends the concepts taught in COMM 253G. Prerequisite: COMM 253G or COMM 265G, or consent of instructor.

**COMM 370 - Organizational Communication (3 cr.)**

Communication strategies and patterns of private and governmental organizations, including research on the communication process.

**COMM 376 - Communication and Culture (3 cr.)**

Cultural and intercultural communication theory and behavior, with a concentration on the development of specific communication skills which should facilitate effective intercultural communication.

**COMM 377 - Conflict Management (3 cr.)**

Communication strategies to manage and negotiate conflict in intrapersonal, interpersonal, group, and organizational settings.

**COMM 384 - Interpersonal Communication (3 cr.)**

Theories of interpersonal communication and relational communication including study of relevant models, contexts and constructs.

**COMM 425 - Small Group Communication (3 cr.)**

Principles and methods of modern group discussion with emphasis on the role of the group in problem solving.

**COMM 440 - Political Communication (3 cr.)**

Presidential and congressional campaigns, political persuasion techniques, political advertising, power in language, and media aspects of political information. Ideology, resistance to political manipulation, and dependence of democracies on communication.

**COMM 445 - Communication, Ethnicity, and Prejudice (3 cr.)**

Examines the political aspects of communication about ethnicity and between ethnic groups. Topics include how people think about race categories, ethnicity, and prejudice; how communication is affected by prejudice, and how communication can be improved by dealing with stereotypes, prejudice, and discrimination.

**COMM 450 - Technologies of Human Communication (3 cr.)**

Development and evolution of human communication technologies from prehistory through the future of computer-mediated communication networks. Examines behavioral, cognitive, social, cultural, and political issues of new communication technologies and their use and management. Prerequisite: junior or senior standing.

**COMM 455 - Fundamentals of Communication and National Security (3 cr.)**

This course addresses communication perspectives informing national security, strategic intelligence, and the intelligence process. Students will examine U.S. national security history, policy, the development of the Intelligence Community, and intelligence as processes of communication. This course serves as an introduction to national security studies.

**COMM 456 - Communication and the Intelligence Cycle (3 cr.)**

The course addresses communication requirements and the technical, cognitive, and cultural complexity of the collaborative research environment. Students participate in novel, team-based problem scenarios that provide the foundation for acquiring advanced cognitive analytic methods and strategies. Students will engage in interdisciplinary information science processes and will develop and present analytic products responding to national security requirements.

**COMM 457 - Strategic Communication and Public Diplomacy (3 cr.)**

This course covers history, theory, and research related to the use of communication to change attitudes in favor of U.S. national security interests. Students will examine the use of strategic communication and influence in diplomacy, intelligence, and military communities in terms of specific strategies, effects, and issues. Students will learn to distinguish public diplomacy, information operations, public affairs, and other forms of political communication that are used by the U.S. government to persuade target populations about American interests and goals. Topics include soft power, intelligence-based negotiation processes, and research methods used to identify influence techniques or groups that threaten U.S. national security.

**COMM 458 - Intercultural Communication and National Security (3 cr.)**

This course provides a concentration on cultural factors in international affairs and conflicts, how culture affects perceptions of national interests, and the relationship of U.S. national security to understand the general and political cultures of other nations. Students will integrate cultural and intercultural communication theory and behavior, with an emphasis on the development of specific communication skills to facilitate developing cultural knowledge in government and political contexts. Students will learn how to study the cultural factors that affect international conflicts and how strategic communication should address such cultural factors.

**COMM 460 - Deception and Communication (3 cr.)**

Deceptive communication including nonverbal indicators of lies, types of lies, and influence of relationships on lying behavior and interpretation.

**COMM 462 - Family Communication (3 cr.)**

A communication perspective on traditional and nontraditional family configurations, roles, interaction patterns, and conflict. Includes an examination of media depictions of families and family interaction, as well as current social and political issues related to the family.

**COMM 463 - Communication and Gender (3 cr.)**

Study of communication, gender and culture, including theoretical approaches to gender development, the implications of gender identity, gendered patterns of verbal and nonverbal communication, and the rhetorical dimensions of gender. Discussion of gendered communication in the workplace, as well as the influence of media on gender.

**COMM 465 - Nonverbal Communication (3 cr.)**

Study of and experimentation with nonverbal aspects of human communication as vital components of the total communication process.

**COMM 470 - Leadership Communication (3 cr.)**

Examination of traditional theories and concepts of leader-follower dynamics; presentation of cognitive, systems, and symbolic interpretative views of leadership with an emphasis on persuasion and motivation in leader-follower interactions.

**COMM 471 - Sports Communication (3 cr.)**

This course provides a senior-level exploration of the role sports and sports communication plays in contemporary culture. Readings will examine the interrelationship between sports and media in society, the identities that fans assume when engaging in fanship and sports viewership, the pervasiveness of sports communication practices in the sports industry, the role of media in story telling, and the way cultural identifiers of class, ethnicity, and gender play out in the media. This is taught with COMM 571.

**COMM 475 - International Communication (3 cr.)**

Exploration of the forms and channels of communication substantially influenced by international cultural and political factors. Covers: global communication technology; news, information and entertainment flows; international diplomacy and negotiation, communication in war and peace.

**COMM 477 - Environmental Communication (3 cr.)**

Examines the link between communication and environment within the context of communication scholarship. Topics include sense of place, cultural approaches to interacting with environment as well as exploring current themes surrounding environment.

**COMM 480 - Health Communication (3 cr.)**

Examination of central issues in communication theory and practice as applied to health care. Includes communication in health care organizations, media dissemination of health information, role of communication in disease prevention and health promotion, and symbolic meaning of illness within cultures.

**COMM 483 - Communication in Friendships and Romantic Relationships (3 cr.)**

Examines communication in adult friendships and romantic relationships that do not have legal commitments. Includes trends in friendships, benefits and problems within cross and same-sex friendships and romances, gender differences in communication within adult friendships and romances and the communication of friendship and romance on the Internet. Prerequisite: COMM majors or consent of instructor.

**COMM 484 - Verbal Communication (3 cr.)**

Examination of rules governing conversational structures such as speech acts, action sequences, topics and topic shifts. Also covers humor in conversation and conversational control.

**COMM 485 - International Teaching Assistant Development (3 cr.)**

International teaching assistants will receive instruction in communicative skills to enable them to meet their responsibilities at NMSU. Course includes lectures, seminars, video-taped presentations, and tutorial sessions emphasizing pedagogic and presentation skills and styles. Prerequisite: consent of instructor.

**COMM 490 - Independent Study (1-3 cr.)**

Individualized, self-paced projects for advanced students. Prerequisites: COMM 265G and junior standing with consent of participating instructor. May be repeated for a maximum of 6 credits.

**COMM 491 - Selected Topics (1-6 cr.)**

Individual and/or group study of selected topics. To be identified by subtitle. Prerequisite: prior arrangement with faculty supervisor(s). May be repeated for a maximum of 12 credits.

**COMM 495 - Communication Internship (3 cr.)**

Internship opportunity to apply what has been learned to a real-world situation. Prerequisite: junior standing and 3.0 GPA in major. May be repeated for a maximum of 6 credits. Restricted to majors.



**CTFM - CLOTHING, TEXTILES, AND FASHION MERCHANDISING****CTFM 178 - Fundamentals of Fashion (3 cr.)**

Survey of the fashion business from fiber to end product.

**CTFM 255 - Applied Principles in Clothing Selection (3 cr.)**

Application of art principles in the study of clothing, emphasizing fashion terminology, for the application of clothing selection to personal and client use. Interrelationships of clothing and behavior from the aspects of culture and business environment are explored.

**CTFM 270 - Fashion Illustration (3 cr. (1+4P))**

Human figure sketches and fashion illustration as a form of communication. Emphasis on color, proportion, cut, and fabric detail. Prerequisites: CTFM 255, ART 110G.

**CTFM 273 - Concepts in Apparel Construction (3 cr. (1+4P))**

Application of generalizations and principles of garment construction to varied fabrics and designs. Analysis and evaluation of apparel merchandise with emphasis on the quality of garment construction. Restricted to: Main campus only. Restricted to CTFM, FCSE majors.

**CTFM 300 - Special Topics (1-4 cr.)**

Specific subjects and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester and a total of 9 credits toward a degree. Prerequisite(s): CTFM 178; CTFM 270. Restricted to Las Cruces campus only.

**CTFM 366 - Historic Fashion (3 cr.)**

The study of clothing styles from 3500 BC through the 20th century. Prerequisite(s): CTFM 255 and CTFM 270. Restricted to: CTFM majors.

**CTFM 371 - Textile Science (3 cr. (1+4P))**

Study of fabrics used for modern clothing, furnishings, and miscellaneous end uses. Textiles testing procedures explored. Prerequisites: CHEM 110G or consent of instructor.

**CTFM 372 - Fashion Merchandising (3 cr.)**

The apparel industry from designing through manufacturing and distribution to retailers. Prerequisites: CTFM 178, and CTFM 255.

**CTFM 373 - Advanced Apparel Techniques (3 cr.)**

This course builds upon concepts introduced in Concepts in Apparel Construction. An in-depth study of fabric selection, advanced garment construction and tailoring. New technologies applied to sewing construction will be explored. The use of computerized sewing machines will be incorporated. Prerequisite(s): CTFM 255 and CTFM 273. Restricted to CTFM majors.

**CTFM 374 - The Production of Textile and Fashion Accessories (3 cr.)**

The production of textiles and fashion accessories for retail. Merchandising techniques for wholesale and retail companies. Consent of Instructor required. Prerequisite(s): CTFM 178 and CTFM 270. Restricted to: CTFM majors.

**CTFM 384 - Clothing for Special Needs (3 cr.)**

Selection, adaptation, and design of clothing that is functional and attractive for special needs populations such as for active sportswear, the handicapped, the elderly, and various specialty populations. Prerequisite: consent of instructor.

**CTFM 402 - Field Experience Marketing Training (3-6 cr.)**

Practical experience in clothing manufacturing or retailing. Supervised by resident faculty and supervisor at the work site. Report required. Prerequisite: junior or senior standing, student must have completed half of the CTFM degree requirements, CTFM 372, an overall GPA of at least 2.5 and consent of instructor. May be repeated for a maximum of 6 credits. Restricted to majors.

**CTFM 460 - Cultural Perspectives in Dress (3 cr.)**

Explores the social, psychological and cultural aspects of dress and appearance which includes the relationship of dress to physical and social environments, aesthetic and personal expression and cultural ideas and values. Prerequisite(s): CTFM 255 and CTFM 366.

**CTFM 470 - Global Fashion Industry Trends (3 cr.)**

Exploration of fashion industry trends in a global setting. Current consumer patterns and future trends will be analyzed. Prerequisite(s): Junior, senior, graduate standing, or consent of instructor.

**CTFM 474 - Fashion Promotion (3 cr.)**

This class focuses on the comprehensive nature of promotion in the merchandising environment of fashion related goods. Consent of Instructor required. Prerequisite(s): CTFM 255 and CTFM 372. Restricted to: CTFM majors.

**CTFM 475 - Fashion Buying (3 cr.)**

Fundamental principles and procedures for successful merchandising of fashion goods, responsibilities of buyers, fashion trends, consumer demands, and merchandising arithmetic. Prerequisites: ACCT 251, CTFM 372, and CTFM 474.

**CTFM 476 - Apparel Design by Draping and Pattern Drafting (3 cr. (1+4P))**

Theory and application of draping and drafting garment patterns (required lab). Consent of Instructor required. Prerequisite(s): CTFM 255, CTFM 270, CTFM 273, and CTFM 373. Restricted to: CTFM majors.

**CTFM 478 - Apparel Design Through Flat Pattern (3 cr.)**

This course builds upon concepts introduced in Apparel Design by Draping. Examines the process of flat-pattern design and includes an expanded section on design analysis. Consent of instructor required. Prerequisite(s): CTFM 273, CTFM 373, CTFM 476. Restricted to CTFM majors.

**CTFM 492 - Special Problems (1-4 cr.)**

Individual research study in a selected subject area of family and consumer sciences. Maximum of 4 credits per semester and a total of 6 credits toward a degree.

**DANC - DANCE****DANC 101G - Dance Appreciation (3 cr.)**

An investigation of movement, dance and choreographic work as a vehicle for understanding culture. Includes concepts in dance appreciation, themes and purposes of dance analysis of dance works, exposure to different styles of dance and understanding the roles and effects of major historical periods. Restricted to: Main campus only.

**DANC 109 - Argentine Tango I (1 cr.)**

Introduction to skills and techniques of Argentine Tango.

**DANC 110 - Classical Spanish Dance I (1 cr.)**

Introduction of castanets and basic classical Spanish dance vocabulary. Prerequisite: DANC 123. May be repeated for a maximum of 2 credits.

**DANC 118 - West Coast Swing I (1 cr.)**

Students will learn to dance the smooth style of Swing. The West Coast Swing may be danced to ANY style of music that has a beat (Country, RB, Hip Hop, Disco, House). Also featured is the Hustle (fast paced and exhilarating). May be repeated up to 4 credits. Restricted to Las Cruces campus only.

**DANC 120 - Ballet Folklorico I (1 cr.)**

Introductory course in folklorico dances of New Mexico and Mexico. May be repeated for a maximum of 2 credits.

**DANC 121 - Beginning Country Western Dance (1 cr.)**

Beginning Country Western dance, including Country Western two-step, nightclub two-step, polka, and Country Western line dance. May be repeated up to 2 credits. Restricted to Las Cruces campus only.

**DANC 122 - Introduction to Latin Social Dance (1 cr.)**

Introduction to Latin social dance for non dance majors. Students will learn basic Latin dance technique and partnering work. May be repeated up to 2 credits. Restricted to Las Cruces campus only.

**DANC 123 - Ballet Technique I (1 cr.)**

Introduction to basic ballet technique, vocabulary, and history. Includes practical application of anatomical placement, posture and control through participation and academic study. May be repeated for a maximum of 2 credits.

**DANC 124 - Jazz Technique I (1 cr.)**

Introduction to basic jazz technique, styles, and history through participation and academic study. May be repeated for a maximum of 2 credits.

**DANC 125 - Introduction to Ballroom Dance (1 cr.)**

Introduction to ballroom dance for non dance majors. Students will learn basic ballroom technique and partnering work. May be repeated up to 2 credits. Restricted to Las Cruces campus only.

**DANC 126 - Modern Dance Technique I (1 cr.)**

Introduction to and development of basic modern dance technique, history, and aesthetics through participation and academic study. May be repeated for a maximum of 2 credits.

**DANC 127 - Tap Dance I (1 cr.)**

Introduction to skills and techniques of tap dance. May be repeated for a maximum of 2 credits.

**DANC 128 - Latin Club Dance (1 cr.)**

Introduction to the most popular Latin Club Dances to include the Salsa, Merengue, and Bachata. May be repeated up to 2 credits. Restricted to Las Cruces campus only.

**DANC 129 - Flamenco I (1 cr.)**

Introduction to skills and techniques of flamenco dance. May be repeated for a maximum of 2 credits.

**DANC 151 - Master Works (1 cr.)**

This course investigates the work of master choreographers in contemporary, Spanish, and social dance styles. Students will engage in exploring concepts in dance appreciation, themes and purposes of dance by analyzing dance works using principles, elements, and process of compositional design. This course will require students to communicate their opinions through verbal discussions, group projects, and written assignments. Restricted to Las Cruces campus only.

**DANC 200 - Dance Pedagogy: Educational Theory (1 cr.)**

This course will examine how people learn cognitively, physically, and emotionally so that students can become better at self-teaching and self-assessment. Students will study several educational theories and how they relate to dance. Restricted to Las Cruces campus only.

**DANC 202 - Dance Ensemble (1 cr.)**

This course will include learning the elements of dance composition. The students in this course will be the dancers for the students in Dance Choreography II. This course is a requirement for freshman dance majors whose emphasis is in contemporary dance. May be repeated up to 2 credits. Consent of Instructor required. Restricted to Las Cruces campus only.

**DANC 203 - Dance Production I (1 cr.)**

Students will learn the production process of dance events which may include performances, festivals, workshops, conferences. May be repeated up to 4 credits. Consent of Instructor required. Restricted to Las Cruces campus only.

**DANC 204 - Dance Sport I (1 cr.)**

Performance-based, team formation dance in a variety of Latin and ballroom dances. May be repeated up to 4 credits. Consent of Instructor required. Prerequisite(s): Consent of instructor and one of DANC 121, DANC 122, DANC 125, or DANC 128. Restricted to Las Cruces campus only.

**DANC 205 - Contemporary Dance Ensemble I (1 cr.)**

Performance-based instruction for students pursuing a career in contemporary dance. Instruction includes contemporary dance repertory and choreography for stage, outdoor arenas, and site-specific areas. May be repeated up to 4 credits. Consent of Instructor required. Restricted to Las Cruces campus only.

**DANC 206 - Spanish Dance Ensembles I (1 cr.)**

Performance-based instruction for students pursuing a career in dance with an emphasis in Spanish Dance. Instruction includes dance repertory and choreography for stage, outdoor arenas, and site-specific areas. May be repeated up to 4 credits. Consent of Instructor required. Restricted to Las Cruces campus only.

**DANC 209 - Argentine Tango II (1 cr.)**

Intermediate study in Argentine tango. Learn advanced patterns, techniques and partnering skills. May be repeated up to 2 credits. Consent of Instructor required. Prerequisite(s): Consent of instructor. Restricted to Las Cruces campus only.

**DANC 210 - Classical Spanish II (2 cr. (1+3P))**

The study of theory, techniques, and practice of Classical Spanish at the intermediate level. Includes historical and cultural contexts of this art form. May be repeated up to 8 credits. Consent of Instructor required. Prerequisite(s): DANC 129. Restricted to Las Cruces campus only.

**DANC 218 - West Coast Swing II (2 cr.)**

Students will take their West Coast Swing Hustle to the next level. Learn Intermediate and Advanced figures and techniques in both dances. Students will also enjoy advanced study on musicality and blending to create new amalgamations as well as practice in advanced leading following techniques. May be repeated up to 8 credits. Consent of Instructor required. Prerequisite(s): DANC 118. Restricted to Las Cruces campus only.

**DANC 220 - Ballet Folklorico II (2 cr. (1+3P))**

The study of theory, techniques, and practice of Ballet Folklorico at the intermediate level. Includes historical and cultural contexts of this art form. Prerequisite: DANC 120.

**DANC 221 - Country Western Dance (2 cr.)**

Intermediate skills in country/western two-step, nightclub two-step, polka, and Western line dances. May be repeated up to 4 credits. Prerequisite(s): DANC 121 or consent of instructor. Restricted to Las Cruces campus only.

**DANC 222 - Bronze American Rhythm (2 cr. (1+2P))**

Bronze level American Rhythm patterns, techniques, and partnering with emphasis on elements of dance. Consent of Instructor required. Restricted to Las Cruces campus only.

**DANC 223 - Ballet Technique II (2 cr.)**

Continued study of classical ballet technique, vocabulary, and history through participation and academic study. May be repeated up to 8 credits. Restricted to Las Cruces campus only.

**DANC 224 - Jazz Technique II (2 cr.)**

Continued study of jazz technique and history through participation and academic study. May be repeated up to 8 credits. Restricted to Las Cruces campus only.

**DANC 225 - Bronze American Smooth (2 cr. (1+2P))**

Bronze level American Smooth patterns, technique, and partnering with an emphasis on the elements of dance. May be repeated up to 4 credits. Consent of Instructor required. Prerequisite(s): DANC 125 or consent of instructor. Restricted to Las Cruces campus only.

**DANC 226 - Modern Dance Technique II (2 cr.)**

Continued study of postmodern dance technique and history through participation and academic study. May be repeated up to 8 credits. Restricted to Las Cruces campus only.

**DANC 227 - Tap Dance II (1 cr.)**

Continued study of skills and techniques of tap dance at the advanced level. Prerequisite: DANC 127 or consent of instructor. May be repeated for a maximum of 2 credits.

**DANC 229 - Flamenco II (2 cr.)**

The study of theory, techniques and practice of Flamenco at the intermediate level. Includes historical and cultural contexts of this art form. May be repeated up to 8 credits. Prerequisite(s): Dance 129. Restricted to Las Cruces campus only.

**DANC 232 - Bronze International Latin (2 cr.)**

This is the style of Latin dance that is danced around the globe and is featured in the World DanceSport Championships. Students will learn the Bronze Level figures and techniques in four (4) International Style dances: Rumba, Cha Cha, Samba Jive and the techniques. May be repeated up to 8 credits. Consent of Instructor required. Prerequisite(s): DANC 222. Restricted to Las Cruces campus only.

**DANC 235 - Bronze International Standard (2 cr.)**

This is the style of Ballroom dance that is performed around the globe and is featured in the World DanceSport Championships. Learn the Bronze Level figures and techniques in five (5) International Style dances: Waltz, Tango, Viennese Waltz, Foxtrot Quickstep. Students will focus on understanding technical Elements of Dance, memorizing and performing routines. May be repeated up to 8 credits. Consent of Instructor required. Prerequisite(s): DANC 225. Restricted to Las Cruces campus only.

**DANC 269 - DanceSport Choreography I (2 cr.)**

An introduction to the process and theory behind creating original choreography for both performance and competition level dance. With focus on the individual couple, gain necessary skills, knowledge and practice in choreographing Ballroom, Latin, Swing /or Nightclub dance routines in various practical settings. Consent of Instructor required. Restricted to Las Cruces campus only.

**DANC 275 - Dance Studio Management (3 cr.)**

The study and practice of studio management. Includes study of financial procedures, marketing, entrepreneurship, leadership, management, fund-raising and other related topics. Restricted to majors and minors.

**DANC 279 - Flamenco Choreography I (2 cr.)**

Students develop and perform solo dance studies with an emphasis placed on the development of personal movement vocabulary, phrase building, and the exploration of choreographic tools for Flamenco on stage. Discussion, critiquing, and descriptive writing about their choreographic processes will supplement direct physical work. May be repeated up to 4 credits. Consent of Instructor required. Restricted to Las Cruces campus only.

**DANC 280 - Improvisation I (1 cr.)**

Introduction and development of basic movement improvisation skills.

**DANC 289 - Principles of Choreography I (2 cr.)**

Solo dance choreography technique. Course must be passed with a grade of C or higher. Consent of instructor required. Restricted to: Main campus only. Restricted to Dance Majors Dance Minors majors.

**DANC 300 - Dance Pedagogy: Creative Movement (3 cr.)**

Teaching methods and class planning for creative movement dance curriculum at preschool and elementary school levels. Restricted to Las Cruces campus only.

**DANC 301 - Flamenco Pedagogy I (3 cr.)**

The methods and theory of teaching Flamenco dance forms particularly in the studio environment. Consent of Instructor required. Prerequisite(s): DANC 229 AND DANC 206.

**DANC 303 - Dance Production II (1 cr.)**

Students will learn the production process of dance events which may include performances, festivals, workshops, conferences. Prerequisite(s): DANC 203.

**DANC 304 - Dance Sport II (1 cr.)**

Advanced performance-based, team formation dance in a variety of Latin and social dances. May be repeated up to 4 credits. Consent of Instructor required. Prerequisite(s): Consent of instructor and one of DANC 121, DANC 122, DANC 125, or DANC 128.

**DANC 305 - Contemporary Dance Ensemble II (1 cr.)**

Advanced performance-based instruction for students pursuing a career in contemporary dance. Instruction includes contemporary dance repertory and choreography for stage, outdoor arenas, and site-specific areas. May be repeated up to 6 credits. Consent of Instructor required.

**DANC 306 - Spanish Dance Ensemble II (1 cr.)**

Performance-based instruction for students pursuing a career in dance with an emphasis in Spanish Dance. Instruction includes dance repertory and choreography for stage, outdoor arenas, and site-specific areas. May be repeated up to 4 credits. Consent of Instructor required.

**DANC 310 - Classical Spanish Dance III (3 cr.)**

Advanced study of Classical Spanish Dance with castanets, cultural history, and pedagogy methods. A expanded focus on integration of different classical

genres with focus on solo work. May be repeated up to 12 credits. Consent of Instructor required. Prerequisite(s): DANC 210.

**DANC 322 - Silver American Rhythm (3 cr. (2+2P))**

Silver level American Rhythm patterns and technique with emphasis on performance. May be repeated up to 12 credits. Consent of Instructor required. Prerequisite(s): DANC 222.

**DANC 323 - Ballet Technique III (3 cr.)**

Intermediate/advanced study of ballet technique, including vocabulary and history. Prerequisite: DANC 223 or consent of instructor. May be repeated for a maximum of 12 credits.

**DANC 324 - Jazz Technique III (3 cr.)**

Advanced study of jazz dance, including vocabulary and history. Prerequisite: DANC 224 or consent of instructor. May be repeated for a maximum of 12 credits.

**DANC 325 - Silver American Smooth (3 cr. (2+2P))**

Silver level American Smooth patterns and technique with emphasis on performance. May be repeated up to 12 credits. Consent of Instructor required. Prerequisite(s): DANC 225.

**DANC 326 - Modern Dance III (3 cr.)**

Intermediately advanced-level modern dance technique and study of current dance aesthetics. Prerequisite: DANC 226 or consent of instructor. May be repeated for a maximum of 12 credits.

**DANC 329 - Flamenco III (3 cr.)**

Advanced study in flamenco dance technique, its cultural history and pedagogy methods. May be repeated up to 12 credits. Consent of Instructor required. Prerequisite(s): Consent of instructor.

**DANC 332 - Silver International Latin (3 cr.)**

Students will learn Silver Level syllabus figures in four (4) International Style dances: Rumba, Cha Cha, Samba Jive and Bronze Level figures in Paso Doble. Continued training and practice in International Style Latin dance technique. May be repeated up to 12 credits. Consent of Instructor required. Prerequisite(s): DANC 232.

**DANC 335 - Silver International Standard (3 cr.)**

Learn Silver Level syllabus figures in the five (5) International Style Standard dances: Waltz, Tango, Viennese Waltz, Foxtrot Quickstep. Students will focus on increased technical understanding to increase their ability in partnering and musicality. May be repeated up to 12 credits. Consent of Instructor required. Prerequisite(s): DANC 235.

**DANC 339 - Flamenco Structure and Improvisation (3 cr.)**

A Study of various elements necessary in an improvisational setting in Flamenco. Using a cross section of Flamenco forms as a format. Students study the compass of each palo, then move to several traditional letras appropriate to these forms. May be repeated up to 9 credits. Consent of Instructor required. Prerequisite(s): DANC 229.

**DANC 342 - DanceSport Pedagogy: Rhythm (3 cr.)**

In this teacher education course, students will begin to develop skills necessary in becoming a successful, professional Ballroom Dance Instructor. Students will gain technical mastery of Bronze level figures in four (4) Rhythm Dances to include the Rumba, Cha Cha, East Coast Swing and Mambo. Students will gain practical teacher education in the area of Private Lesson Instruction with required in class practicums. May be repeated up to 6 credits. Consent of Instructor required. Prerequisite(s): DANC 222.

**DANC 345 - DanceSport Pedagogy: Smooth (3 cr.)**

In this teacher education course, students will begin to develop skills necessary in becoming a successful, professional Ballroom Dance Instructor. Students will gain technical mastery of Bronze level figures in the four (4) American Style Smooth Ballroom Dances to include the Waltz, Foxtrot, Tango and Viennese Waltz. Students will gain practical teacher education in the area of Group Class Instruction with required in class practicums. May be repeated up to 9 credits. Consent of Instructor required. Prerequisite(s): DANC 225.

**DANC 365 - Dance Pedagogy: Dance in Education (2 cr.)**

This course provides the student with methods and theories of dance education. This course will cover methods of teaching core curriculum subjects in an elementary school through body movement. This course will focus on the special needs of a kinesthetic learner.

**DANC 369 - DanceSport Choreography II (2 cr.)**

Take DanceSport choreography to the next level. With focus on group formation dance, gain necessary skills, knowledge and practice in choreographing Ballroom, Latin, Swing /or Nightclub dance routines for groups in artistic and competition settings. Consent of Instructor required.

**DANC 379 - Flamenco Choreography II (2 cr.)**

Students develop and perform group studies with an emphasis placed on the development of ensemble movement vocabulary, phrase building, and the exploration of choreographic tools for Flamenco on stage. Discussion, critiquing, and descriptive writing about their choreographic processes will supplement direct physical work. Level II will advance to small group work as well as mentoring level I students. Consent of Instructor required. Prerequisite(s): DANC 279.

**DANC 380 - Improvisation II (1 cr.)**

Continued practice in movement improvisation with more complex examination of improvisational structures. Prerequisite: DANC 280.

**DANC 389 - Principles of Choreography II (2 cr.)**

Continued investigation of the choreographic process with an emphasis on group choreography. Course must be passed with a grade of C- or higher. Consent of instructor required. Prerequisite(s): DANC 289. Restricted to: Main campus only. Restricted to Dance majors Dance minors majors.

**DANC 400 - Dance Pedagogy II (3 cr.)**

Teaching methods and class planning for dance curriculum at middle school and high school levels. Prerequisite: DANC 300 or consent of instructor.

**DANC 401 - Flamenco Pedagogy II (3 cr.)**

Advanced methods and theory of teaching Flamenco dance forms particularly in the studio environment. Includes a practicum of eight onsite teaching units in a location to be determined by the designated study. Consent of Instructor required. Prerequisite(s): DANC 229 AND DANC 206.

**DANC 411 - Flamenco Practicum (1 cr.)**

Directed learning experiences for careers in dance. Provides the student with actual classroom teaching experience for all ages and all levels of dance students. May be repeated up to 4 credits. Consent of Instructor required. Prerequisite(s): DANC 301.

**DANC 412 - DanceSport Practicum (1 cr.)**

Directed learning experiences for careers in dance. Provides the student with actual classroom teaching experience for all ages and all levels of dance students. May be repeated up to 4 credits. Consent of Instructor required. Prerequisite(s): DANC 342 or DANC 345.

**DANC 413 - Dance Practicum II (1 cr.)**

This course provides the student with actual classroom teaching experience for all ages and all levels of dance students. With the supervision of the instructor, students will design a practicum experience, choose a site, and implement dance lessons. Course must be passed with a grade of C or higher. May be repeated up to 2 credits. Consent of Instructor required. Prerequisite(s): DANC 413.

**DANC 422 - Gold American Rhythm (3 cr. (2+2P))**

Advanced level American Rhythm dance technique and partnering work with choreography and performance emphasized. Includes cultural history and pedagogy methods. May be repeated up to 6 credits. Consent of Instructor required. Prerequisite(s): DANC 322. Restricted to: DANC majors.

**DANC 423 - Ballet Technique IV (3 cr.)**

Advanced study of ballet technique including vocabulary and history. Prerequisite: DANC 323 or consent of instructor. May be repeated for a maximum of 12 credits.

**DANC 424 - Jazz Dance Technique IV (3 cr.)**

Advanced study of jazz dance techniques, including history and aesthetics. Prerequisites: DANC 324 or consent of instructor. May be repeated for a maximum of 6 credits.

**DANC 425 - Gold American Smooth (3 cr. (2+2P))**

Gold level American Smooth technique and choreography with an emphasis on performance and competition dancing. May be repeated up to 6 credits. Consent of Instructor required. Prerequisite(s): DANC 325. Restricted to: DANC majors.

**DANC 426 - Modern Dance Technique IV (3 cr.)**

Advanced study of modern technique, including history and aesthetics. Prerequisite: DANC 326 or consent of instructor. May be repeated for a maximum of 12 credits.

**DANC 432 - Gold International Latin (3 cr.)**

Students will complete all syllabus figures through the Gold level in the Rumba, Cha Cha, Samba, Jive and Paso Doble. Advanced training and practice in International Style Latin dance technique. May be repeated up to 12 credits. Consent of Instructor required. Prerequisite(s): DANC 332.

**DANC 435 - Gold International Standard (3 cr.)**

Students will learn Gold Level syllabus figures in the five (5) International Style Standard dances: Waltz, Tango, Viennese Waltz, Foxtrot Quickstep. Students will focus on physical and cognitive mastery of standard dance technique and elements as well as high-level performance ability, musicality and choreography. May be repeated up to 12 credits. Consent of Instructor required. Prerequisite(s): DANC 335.

**DANC 442 - DanceSport Pedagogy: Latin (3 cr.)**

This teacher education course is designed to prepare future dance professionals in the teaching of the International Style Latin dances: Cha Cha, Samba, Rumba, Paso Doble Jive. Gain a deep understanding of all elements and be well prepared to take the DVIDA or ISTD professional certification exams. May be repeated up to 6 credits. Consent of Instructor required. Prerequisite(s): DANC 232 342.

**DANC 445 - DanceSport Pedagogy: Standard (3 cr.)**

This teacher education course is designed to prepare future dance professionals in the teaching of the International Style Standard dances: Waltz, Tango, Foxtrot Viennese Waltz. Students will gain a deep understanding of all elements and be well prepared to take the DVIDA or ISTD professional certification exam. May be repeated up to 6 credits. Consent of Instructor required. Prerequisite(s): DANC 235 DANC 345.

**DANC 447 - DanceSport Certification Preparation (3 cr.)**

The Professional Certification process offers extraordinary benefits to dance teachers, deeply enriching their dancing and teaching, and greatly expanding their career opportunities. This intensive course is designed to fully prepare students in taking the DVIDA and/or ISTD exams in the Smooth, Rhythm, Standard or Latin dances depending on course offered. See subtitle for specific style being taught in schedule of classes. May be repeated up to 12 credits. Consent of Instructor required.

**DANC 450 - Special Topics (1-3 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated up to 3 credits. Consent of Instructor required. Prerequisite(s): Consent of instructor.

**DANC 451V - World Dance (3 cr.)**

Examination of dance forms from a cross-cultural perspective, focusing on the role of dance in different cultures around the globe. Same as HON 347V.

**DANC 460 - Dance History (3 cr.)**

History and development of dance forms from ancient cultures to today.

**DANC 462 - Flamenco Dance History (3 cr.)**

An in depth study of the cross section of Flamenco and Spanish Dance traditions and genres from Spain with the influence of her colonies and the modern world from the early 1400s to Present.

**DANC 463 - Senior Culminating Experience (1-6 cr.)**

Exit course for graduating seniors. Students will apply comprehensive knowledge of performance and production and/or pedagogy experience, to culminate in a dance production and/or teaching project. Restricted to majors and minors. A minimum of 2 credit hours required for graduation.

**DANC 466 - Dance Pedagogy: Dance Technique (3 cr.)**

Students will learn to develop a curriculum design, apply teaching methods, and structure lesson plans for teaching specific dance styles. Course must be passed with a grade of C or higher. Consent of Instructor required. Prerequisite(s): DANC 300 or consent of instructor.

**DANC 489 - Advanced Choreographic Project (3 cr.)**

Individual directed studies in choreography with a culminating performance. Consent of Instructor required.

**DANC 499 - Problems (1-6 cr.)**

Problems in dance education, dance pedagogy, dance performance and independent work in their solutions. May be repeated up to 6 credits. Consent of Instructor required. Prerequisite(s): Consent of instructor.

**E E - ELECTRICAL ENGINEERING****E E 100 - Introduction to Electrical Engineering (4 cr. (3+3P))**

Introduction to analog (DC) and digital electronics. Including electric component descriptions and equations, Ohm's law, Kirchhoff's voltage and current laws, ideal op-amp circuits, Boolean algebra, design of combinational and sequential logic circuits and VHDL or VERILOG. Prerequisite(s): C- or better in MATH 190.

**E E 109 - The Engineering of How Things Work (4 cr. (3+3P))**

This class provides Integrated Learning Community students with an introduction to various aspects of engineering.

**E E 110 - The Science and Engineering of How Things Work (4 cr.)**

Introduction to the basic science and engineering concepts of everyday devices. For nonmajors only.

**E E 120 - Embedded Systems I (4 cr. (3+3P))**

Introduction to programming through microcontroller-based projects. Extensive practice in writing computer programs to solve engineering problems with microcontrollers, sensors, and other peripheral devices. Prerequisite(s): C- or better in E E 100.

**E E 161 - Computer Aided Problem Solving (4 cr. (3+3P))**

Introduction to scientific programming. Extensive practice in writing programs to solve engineering problems. Items covered will include: loops, input and output, functions, decision statements, and pointers. Pre/Corequisite(s): MATH 190G.

**E E 162 - Digital Circuit Design (4 cr. (3+3P))**

Design of combinational logic circuits based on Boolean algebra. Introduction to state machine design. Implementation of digital projects with hardware description language. Prerequisite(s): C or better in E E 161 and MATH 190G.

**E E 201 - Electric Circuit Analysis (3 cr.)**

Electric component descriptions and equations. Kirchhoff's voltage and current laws, formulation and solution of RLC network equations using time domain concepts. For nonmajors only. Prerequisite(s): C- or better in MATH 192G. Minimum 2.0 GPA.

**E E 210 - Introduction to Linear Algebra, Probability and Statistics (4 cr. (3+3P))**

The theory of linear algebra (vectors/matrices) and probability (random variables/random processes) with application to electrical engineering. Computer programming to solve problems in linear algebra and probability. Prerequisite(s): C- or better in E E 120. Corequisite(s): E E 310. Restricted to Majors: Electrical Engineering.

**E E 220 - Introduction to Computer Architecture and Organization (4 cr. (3+3P))**

Introduction to computer architecture and performance analysis techniques. Design and optimization of systems such as personal mobile devices and cloud

computing systems. Prerequisite(s): C- or better in E E 120. Restricted to Majors: Electrical Engineering.

**E E 230 - AC Circuit Analysis and Power Systems (4 cr. (3+3P))**

Analysis of AC circuits with an introduction to power systems in the steady-state. Prerequisite(s): E E 230. Corequisite(s): PHYS 216G and MATH 392. Restricted to Majors: Electrical Engineering.

**E E 260 - Embedded Systems (4 cr. (3+3P))**

Applications of microcontrollers, FPGAs, interfaces and sensors. Introduction to Assembly language programming. Prerequisite(s): C- or better in E E 162.

**E E 280 - DC and AC Circuits (4 cr. (3+3P))**

Electric component descriptions and equations; Kirchhoff's voltage and current laws; formulation and solution of network equations for dc circuits; ideal op-amp circuits. Complete solutions of RLC circuits; steady-state analysis of ac circuits, ac power; introduction to frequency response techniques. Prerequisite(s): C- or better in MATH 192G and PHYS 216G.

**E E 300 - Cornerstone Design (2 cr. (6P))**

Application and realization of engineering principles to a guided team-based design project. Formulation and implementation of test procedures, evaluation of alternate solutions and oral and written communication of the design and test results. Prerequisite(s): C- or better in E E 220 and E E 230. Restricted to Majors: Electrical Engineering.

**E E 310 - Multivariate and Vector Calculus (3 cr.)**

Vector algebra, cylindrical and spherical coordinates, partial derivatives, multiple integrals. Calculus of vector functions through electrostatic applications. Divergence, gradient, curl, divergence theorem, Stoke's theorem, Coulomb's Law, Gauss's Law, electric field, electric potential. Application of Matlab. Prerequisite(s): C- or better in E E 120 and MATH 192G. Corequisite(s): E E 210. Restricted to Majors: Electrical Engineering.

**E E 312 - Signals and Systems I (3 cr.)**

Continuous- and discrete-time signals and systems. Linear, time-invariant systems. Fourier series, continuous- and discrete-time Fourier transforms. Time- and frequency-characterization of signals and systems. Prerequisite(s): C- or better in E E 210, E E 280, and MATH 392.

**E E 314 - Signals and Systems II (4 cr. (3+3P))**

Introduction to communication systems including amplitude-, frequency-, and pulse-amplitude modulation. Introduction to control systems including linear feedback systems, root-locus analysis, Nyquist criterion. Introduction to digital signal processing including sampling, digital filtering, and spectral analysis. Prerequisite(s): C- or better in E E 312.

**E E 330 - Environmental Management Seminar I (1 cr.)**

Survey of practical and new developments in hazardous and radio-active waste management provided through a series of guest lectures and reports of ongoing research. Restricted to: Main campus only. Crosslisted with: C E 330, G EN 330, I E 330, M E 330, WERC 330, A EN 330 and CH E 330

**E E 351 - Applied Electromagnetics (4 cr. (3+3P))**

Static electromagnetic field. Maxwell's equation and time-varying electromagnetic fields. Generalized plane wave propagation, reflection, transmission, superposition and polarization. Transmission line theory. Extensions to optical wave propagation. Applications including Time Domain Reflectometry (TDR) and fiber optic transmission. Laboratory experience with RF/microwave test equipment and optical apparatus. Prerequisite(s): C- or better in E E 310. Restricted to Majors: Electrical Engineering.

**E E 363 - Computer Systems Architecture (4 cr. (3+3P))**

Concepts of modern computer architecture. Processor micro-architectures, hardwired vs. micro-programmed control, pipelining and pipeline hazards, memory hierarchies, bus-based system architecture and memory mapping, hardware-software interface, and operating system concepts. Comparison of architectures to illustrate concepts of computer organization; relationships between architectural and software features. Prerequisite(s): C- or better in C S 273 or E E 260.

**E E 380 - Semiconductor Devices and Electronics (4 cr. (3+3P))**

Analysis and design of opamp circuits, diode circuits and single-transistor MOS and BJT amplifiers. Introduction to solid-state semiconductor devices. Prerequisite(s): C- or better in E E 230. Restricted to Majors: Electrical Engineering.

**E E 391 - Introduction to Electric Power Engineering (4 cr. (3+3P))**

Introduction to the principles, concepts, and analysis of the major components of an electric power system. Basic electromechanics, energy conversion and source conversion, transformers, transmission lines, rectifiers, regulators, and system analysis. Prerequisite(s): C- or better in E E 280.

**E E 395 - Introduction to Digital Signal Processing (3 cr.)**

Undergraduate treatment of sampling/reconstruction, quantization, discrete-time systems, digital filtering, Z-transforms, transfer functions, digital filter realizations, discrete Fourier transform (DFT) and fast Fourier transform (FFT), finite impulse response (FIR) and infinite impulse response (IIR) filter design, and digital signal processing (DSP) applications. Prerequisite(s): C or better in E E 314.

**E E 400 - Undergraduate Research (1-3 cr.)**

Directed undergraduate research. May be repeated for a maximum of 9 credits. Prerequisite: consent of the department head.

**E E 410 - Capstone (3 cr.(2+3P))**

Application and realization of engineering principles to a significant team-based design project with significant student management and autonomy. Determination of performance requirements, including safety, economics, ethics and manufacturability; extensive communication of design choices and test results to broad audiences; and interfacing of design with other hardware and software. Prerequisite(s): C- or better in E E 300 and E E 310. Restricted to Majors: Electrical Engineering.

**E E 418 - Capstone Design I (3 cr. (1+6P))**

Application of engineering principles to a significant design project. Includes teamwork, written and oral communications, and realistic technical, economic, and public safety requirements. Prerequisite(s)/Corequisite(s): E E 461. Prerequisite(s): C- or better in E E 260, E E 314, E E 351, E E 380, and E E 391.

**E E 419 - Capstone Design II (3 cr. (1+6P))**

Realization of design project from E E 418 within time and budget constraints. Prerequisite(s)/Corequisite(s): E E 461. Prerequisite(s): (C- or better in E E 260, E E 314, E E 351, E E 380, and E E 391) OR (C- or better in E E 418).

**E E 425 - Introduction to Semiconductor Devices (3 cr.)**

Energy bands, carriers in semiconductors, junctions, transistors, and optoelectronic devices, including light-emitting diodes, laser diodes, photodetectors, and solar cells. Taught with E E 525. Prerequisite(s): C- or better in E E 380 and E E 351.

**E E 426 - Introduction to Smart Grid (3 cr.)**

The course will serve as an introduction to the technologies and design strategies associated with the Smart Grid. The emphasis will be on the development of communications, energy delivery, coordination mechanisms, and management tools to monitor transmission and distribution networks. Taught with E E 546. Crosslisted with: C S 494. Prerequisite(s): C- or better in E E 280.

**E E 430 - Environmental Management Seminar II (1 cr.)**

Survey of practical and new developments in hazardous and radioactive waste management provided through a series of guest lectures and reports of ongoing research. Restricted to: Main campus only. Crosslisted with: C E 430, CH E 430, E T 430, I E 430 and WERC 430

**E E 431 - Power Systems II (3 cr.)**

Analysis of a power system in the steady-state. Includes the development of models and analysis procedures for major power system components and for power networks. Prerequisites: C- or better in E E 391.

**E E 432 - Power Electronics (3 cr. (2+3P))**

Basic principles of power electronics and its applications to power supplies, electric machine control, and power systems. Prerequisites: C- or better in E E 380 and E E 391. Corequisites: E E 312 and E E 314.

**E E 437 - Energy Harvesting (3 cr.)**

Operating principles of several harvesting techniques such as solar, tidal, thermal, vibration, linear motion, passive and active human power generation methods will be discussed along with experiments which help confirm these concepts as viable means for energy harvesting. Students to apply their knowledge in fluid dynamics, power electronics, machine design, control systems, structural design, computer control, embedded systems, system dynamics, and many others areas, and combine this knowledge with strong systems engineering practices to design and develop revolutionary energy harvesting systems. Taught with E E 557. Prerequisite(s): C- or better in E E 380 and E E 391.

**E E 438 - Mobile Application Development (3 cr.)**

Introduction to mobile application development. Students will develop applications for iOS devices including iPhone and iPad. Topics include object-oriented programming using the Objective-C language, model-view-controller (MVC) pattern, memory management, view controllers, graphical user interface design, callbacks, and web services. Corequisite(s): E E 161 or C S 172 or C S 271 or C S 450 or C S 451 or C S 452.

**E E 443 - Mobile Application Development (3 cr.)**

Introduction to mobile application development. Students will develop applications for iOS devices including iPhone and iPad. Topics include object-oriented programming using the Objective-C language, model-view-controller (MVC) pattern, memory management, view controllers, graphical user interface design, callbacks, and web services. Prerequisite(s): E E 161 or C S 172 or C S 271 or C S 450 or C S 451 or C S 452.

**E E 446 - Digital Image Processing (3 cr.)**

Two-dimensional transform theory, color images, image enhancement, restoration, segmentation, compression and understanding. Taught with E E 596. Prerequisite(s): E E 395

**E E 447 - Neural Signal Processing (3 cr.)**

Cross-disciplinary course focused on the acquisition and processing of neural signals. Students in this class will learn about basic brain structure, different brain signal acquisition techniques (fMRI, EEG, MEG, etc.), neural modeling, and EEG signal processing. To perform EEG signal processing, students will learn and use Matlab along with an EEG analysis package that sits on top of Matlab. Taught with E E 597. Prerequisite(s): C- or better in E E 314.

**E E 449 - Smart Antennas (3 cr.)**

Smart antenna and adaptive array concepts and fundamentals, uniform and planar arrays, optimum array processing. Adaptive beamforming algorithms and architectures: gradient-based algorithms, sample matrix inversion, least mean square, recursive mean square, sidelobe cancellers, direction of arrival estimations, effects of mutual coupling and its mitigation. Taught with E E 549. Prerequisite(s): C- or better in E E 314 and E E 351.

**E E 452 - Introduction to Radar (3 cr.)**

Basic concepts of radar. Radar equation; detection theory. AM, FM, and CW radars. Analysis of tracking, search, MTI, and imaging radar. Taught with E E 548. Restricted to undergraduate students. Prerequisite(s): C- or better in E E 210 and E E 351. Pre/Corequisite(s): E E 496.

**E E 453 - Microwave Engineering (3 cr.)**

Techniques for microwave measurements and communication system design, including transmission lines, waveguides, and components. Microwave network analysis and active device design. Taught with E E 521. Restricted to undergraduate students. Prerequisite(s): C- or better in E E 351. Restricted to: Main campus only.

**E E 454 - Antennas and Radiation (3 cr.)**

Basic antenna analysis and design. Fundamental antenna concepts and radiation integrals. Study of wire antennas, aperture antennas, arrays, reflectors, and broadband antennas. Taught with E E 541. Restricted to undergraduate students. Prerequisite(s): C- or better in E E 351. Restricted to: Main campus only.

**E E 460 - Space System Mission Design and Analysis (3 cr.)**

Satellite system design, including development, fabrication, launch, and operations. A systems engineering approach to concepts, methodologies, models, and tools for space systems. Prerequisite: junior standing.

**E E 461 - Systems Engineering and Program Management (3 cr.)**

Modern technical management of complex systems using satellites as models. Team projects demonstrate systems engineering disciplines required to configure satellite components. Prerequisite(s): Junior standing.

**E E 469 - Communications Networks (3 cr. (2+3P))**

Introduction to the design and performance analysis of communications networks with major emphasis on the Internet and different types of wireless networks. Covers network architectures, protocols, standards and technologies; design and implementation of networks; networks applications for data, audio and video; performance analysis. Taught with E E 569. Prerequisite(s): C- or better in E E 162 and (E E 210 or STAT 371).

**E E 473 - Introduction to Optics (3 cr.)**

The nature of light, geometrical optics, basic optical instruments, wave optics, aberrations, polarization, and diffraction. Elements of optical radiometry, lasers and fiber optics. Prerequisite(s): PHYS 216G or PHYS 217. Crosslisted with: PHYS 473

**E E 475 - Automatic Control Systems (3 cr.)**

Design and synthesis of control systems using state variable and frequency domain techniques. Compensation, optimization, multi-variable system design techniques. Prerequisite(s): C- or better in E E 314.

**E E 476 - Computer Control Systems (3 cr.)**

Representation, analysis and design of discrete-time systems using time-domain and z-domain techniques. Microprocessor control systems. Prerequisite: C- or better in E E 314.

**E E 477 - Fiber Optic Communication Systems (4 cr. (3+3P))**

Fundamental characteristics of individual elements (transmitters, detectors, and fibers) of fiber optic communication systems. Design and characterization of high-speed, multichannel fiber optic communication links. Introduction to fiber optic distribution. Taught with E E 527. Prerequisite(s): C or better in E E 351 or PHYS 461. Crosslisted with: PHYS 477.

**E E 478 - Fundamentals of Photonics (4 cr. (3+3P))**

Ray, wave and guided optics, lasers and thermal sources, radiometry, photon detection and signal-to-noise ratio. Elements of photonic crystals, polarization, acousto-optics, electro-optics, and optical nanostructures. Taught with E E 528. Recommended foundation: E E/PHYS 473. Crosslisted with: PHYS 478. Prerequisite(s): PHYS 216G or PHYS 217.

**E E 479 - Lasers and Applications (4 cr. (3+3P))**

Laser operating principles, characteristics, construction and applications. Beam propagation in free space and fibers. Laser diode construction and characteristics. Hands-on laboratory. Taught with E E 529. Prerequisite(s): C- or better in E E 351 or PHYS 461. Crosslisted with: PHYS 479

**E E 480 - Introduction to VLSI (4 cr. (3+3P))**

Introduction to analog and digital VLSI circuits implemented in CMOS technology. Design of differential amplifiers, opamps, CMOS logic, flip-flops, and adders. Introduction to VLSI fabrication and CAD tools. Prerequisite(s): C- or better in E E 260 and E E 380.

**E E 482 - Electronics II (3 cr.)**

Feedback analysis, application of operational amplifiers, introduction to data converters, analog filters, oscillator circuits.. Prerequisite: C- or better in E E 380.

**E E 485 - Analog VLSI Design (3 cr. (2+3P))**

Analysis, design, simulation, layout and verification of CMOS analog building blocks, including references, opamps, switches and comparators. Teams implement a complex analog IC. Taught with E E 523. Restricted to undergraduate students. Prerequisite(s): C or better in E E 312 and E E 480. Restricted to: Main campus only.

**E E 486 - Digital VLSI Design (3 cr.)**

An introduction to VLSI layers. Static and dynamic logic design, memory circuits, arithmetic operators, and digital phase-locked loops. Taught with E E 524. Restricted to undergraduate students. Prerequisite(s): C or better in E E 260 and E E 380.

**E E 486 L - Digital VLSI Design Laboratory (1(3P))**

Simulation, schematic capture, layout, and verification using software tools of material presented in E E 486. An introduction to measurement of digital VLSI circuits. Taught with E E 524L. Prerequisite(s): C or better in E E 260 and E E 380. Pre/Corequisite(s): E E 486.

**E E 490 - Selected Topics (1-3 cr.)**

Prerequisite: consent of instructor. May be repeated for a maximum of 9 credits. Graduate students may not use credits of E E 490 toward an M.S. or Ph.D. in electrical engineering.

**E E 493 - Power Systems III (3 cr.)**

Analysis of a power system under abnormal operating conditions. Topics include symmetrical three-phase faults, theory of symmetrical components, unsymmetrical faults, system protection, and power system stability. Taught with E E 543. Restricted to undergraduate students. Prerequisite(s): C- or better in E E 391. Pre/Corequisite(s): E E 431.

**E E 494 - Distribution Systems (3 cr.)**

Concepts and techniques associated with the design and operation of electrical distribution systems. Taught with E E 544. Restricted to undergraduate students. Prerequisite(s): C or better in E E 431. Pre/Corequisite(s): E E 493. Restricted to: Main campus only.

**E E 496 - Introduction to Communication Systems (4 cr. (3+3P))**

Introduction to the analysis of signals in the frequency and time domains. A study of baseband digital transmission systems and digital/analog RF transmission systems. Introduction to telecom systems as well as satellite systems. Prerequisite(s): C or better in E E 314.

**E E 497 - Digital Communication Systems I (3 cr.)**

Techniques for transmitting digital data over commercial networks. Topics include baseband and bandpass data transmission and synchronization techniques. Taught with E E 581. Recommended foundation: E E 496. Prerequisite(s): E E 210 and E E 314.

**E S - ENVIRONMENTAL SCIENCE****E S 110G - Introductory Environmental Science (4 cr. (3+2P))**

Introduction to environmental science as related to the protection, remediation, and sustainability of land, air, water, and food resources. Emphasis on the use of the scientific method and critical thinking skills in understanding environmental issues.

**E S 256 - Environmental Engineering and Science (3 cr.)**

Principles in environmental engineering and science: physical chemical systems and biological processes as applied to pollution control. Prerequisite(s): CHEM 111G and MATH 191G. Restricted to: Main campus, Alamogordo campus, Grants campus, Carlsbad campus. Crosslisted with: C E 256

**E S 256 L - Environmental Science Laboratory (1 cr.)**

Laboratory experiments associated with the material presented in E S 256. Corequisite: E S 256. Same as C E 256L.

**E S 300 - Special Topics (1-4 cr.)**

Special subjects and credits to be announced in the Schedule of Classes. Consent of instructor required. Maximum of 4 credits per semester. Restricted to majors.

**E S 301 - Principles of Ecology (3 cr.)**

A survey of ecology including general theory, the adaptations of organisms, population dynamics, species interactions, and the structure and function of natural communities and ecosystems. Prerequisite(s): BIOL 111G, A ST 311, and grade of C- or better in MATH 191G or Math Placement Exam score adequate to enroll in mathematics courses beyond MATH 191G. Crosslisted with: BIOL 301

**E S 312 - Emergency Response to Hazardous Material Incidents (2 cr.)**

EPA approved Environmental Response Training Program Course 165.15. In compliance with OSHA 29 CFR 1910.120. Normally taken during last year of study. Prerequisite: consent of instructor. Same as E T 312 and WERC 312.

**E S 330 - Environmental Management Seminar I (1 cr.)**

Restricted to: Main campus only. Crosslisted with: A EN 330, C E 330, E E 330, I E 330, M E 330, WERC 330 and CHME 330.

**E S 361 - Basic Toxicology (3 cr.)**

Prerequisite: CHEM 110G, CHEM 112G, or CHEM 114. BIOL 110G or BIOL 190 recommended. Same as TOX 361.

**E S 370 - Environmental Soil Science (3 cr.)**

Continuation of SOIL 252 that emphasizes soil properties and processes that directly relate to environmental pollution problems. Prerequisite: SOIL 252. Same as SOIL 370.

**E S 391 - Internship (3 cr.)**

Professional work experience under the joint supervision of the employer and a faculty member. A written report is required. Maximum of 3 credits toward a degree. Restricted to majors. Graded S/U.

**E S 422 - Environmental Chemistry (3 cr.)**

Chemistry of organic and metal ion pollutants in the environment and principles important to their remediation including bioremediation. Prerequisite(s): CHEM 112G and either CHEM 211 or CHEM 313. Restricted to: Main campus only. Crosslisted with: CHEM 422

**E S 423 - Environmental Toxicology (3 cr.)**

Toxicological tests required by the EPA to determine human and environmental safety of pesticides and industrial pollutants; discussion of environmental fate of major pesticide classes and industrial pollutants. Prerequisite(s): TOX 361 or TOX 461. Crosslisted with: TOX 423

**E S 430 - Environmental Management Seminar II (1 cr.)**

Survey of practical and new developments in environmental management field, hazardous and radioactive, waste management, and related health issues, provided through a series of guest lectures and reports of ongoing research. Restricted to: Main campus only. Crosslisted with: C E 430, CHME 430, E E 430, E T 430, I E 430 and WERC 430

**E S 434 - Aquatic Contaminants and Toxicology (4 cr.)**

Basic principles and methodologies of aquatic toxicity testing. Routes of exposure and modes of action. Environmental legislation and ecological risk assessment. Prerequisite(s): Senior standing or consent of instructor. Crosslisted with: WLSC 434

**E S 449 - Special Problems (1-3 cr.)**

Research problem, experience training, or other special study approved by a faculty adviser. Maximum of 3 credits per semester and 6 credits toward a degree. May be repeated up to 6 credits. Consent of Instructor required. Restricted to: E S majors.

**E S 451 - Special Topics (1-4 cr.)**

Specific subjects and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester and a total of 9 credits toward a degree. May be repeated up to 9 credits. Consent of Instructor required.

**E S 452 - Geohydrology (4 cr. (3+2P))**

Origin, occurrence, and movement of fluids in porous media and assessment of aquifer characteristics. Development and conservation of ground water resources, design of well fields. Crosslisted with: C E 452 and GEOL 452. Prerequisite(s): Junior or Senior.

**E S 459 - Aquatic Ecology (4 cr.)**

Ecological functions of plant and animal communities in aquatic ecosystems with emphasis on chemical and physical properties, productivity, species interactions, population dynamics, and concepts for diagnosing problems and restoring aquatic ecosystems. Prerequisite(s): (E S, WLSC or BIOL 301), CHEM 112G, (MATH 142G or MATH 191G). Crosslisted with: WLSC 459

**E S 460 - Introduction to Air Pollution (3 cr.)**

An introduction to the physics and chemistry of tropospheric air pollution including sources of air pollution, local and long-range transport, instrumentation, regulatory requirements, control technology. Prerequisite(s): PHYS 215G, CHEM 112G, MATH 191G.

**E S 462 - Sampling and Analysis of Environmental Contaminants (3 cr. (1+6P))**

Theory, application, methodology, and instrumentation used in the sampling and analysis of environmental contaminants. Prerequisites: E S 256. Same as ENVE 462.

**E S 470 - Environmental Impacts of Land Use and Contaminant Remediation (3 cr.)**

The course will cover the integrated assessment of soil erosion, contaminant transport in soil and water, and contaminant remediation from site scale to watershed scales. Understanding of the controlling factors for each type land use impact will be gained through the use of risk assessment, case studies, and computer modeling. Case studies will illustrate the processes under various environmental applications. This course will also cover the application of solute transport principles and methods for the remediation of contaminated soil and groundwater. It will also discuss the contaminated site characterization, monitoring, and remediation design. Discussions of innovative methodologies will be supported with case studies. Crosslisted with: WSAM 470. Prerequisite(s): E S 256, E S 462, E S 370.

**E S 485 - Materials from Biorenewable Resources (3 cr.)**

Types, sources, composition and properties of biomass. Production, processing, and applications of biomass materials with energy, water, cost, sustainability, and waste management considerations. Crosslisted with: AGRO 485, HORT 486, SOIL 485 and CHME 485. Prerequisite(s): CHEM 211 or CHEM 313 or permission of instructor.

**E T - ENGINEERING TECHNOLOGY****E T 101 - Introduction to Engineering Technology (1 cr.)**

The development of engineering technology, with an introduction to engineering technology, education, and practice. Graded S/U.

**E T 104 - Soldering Techniques (1 cr. (3P))**

Fundamentals of soldering, desoldering, and quality inspection of printed circuit boards.

**E T 106 - Drafting Concepts/Computer Drafting Fundamentals I (4 cr. (2+4P))**

Basic drafting skills, terminology, and visualization. Introduction to principles and fundamentals of computer-aided drafting. Prerequisite: OECS 125, OECS 207, or consent of instructor. Community Colleges only. Same as DRFT 112.

**E T 109 - Computer Drafting Fundamentals (3 cr. (3+2P))**

Crosslisted with: DRFT 109, C E 109 and SUR 109

**E T 110 - Introduction to Computer-Aided Drafting and Design (3 cr.)**

Introduction to computer-aided drafting and design using 3-D solid modeling software.

**E T 115 - Introduction to Environmental Technology (3 cr.)**

Provides an introduction to the fields of environmental science and environmental engineering. Includes engineering aspects of current environmental issues and the effects of pollution on local, state, national and worldwide scales. Required for all advanced hazardous materials courses. Corequisite: either MATH 120 or high school chemistry, or CHEM 110G. Carlsbad Community College campus only.

**E T 120 - Computation Software (2-3 cr.)**

The use of spreadsheet software in the field of engineering technology.

**E T 125 - Introduction to Renewable Energy (3 cr.)**

Renewable energy systems, including topics in thermal-solar photovoltaic, wind, geothermal systems, and other current topics. Theory, practical applications,



safety considerations and the economics of alternative renewable energy systems compared to conventional systems.

**E T 126 - Fundamentals of Solar Energy (3 cr.)**

Solar energy technologies, including topics in passive, solar thermal and photovoltaic systems. Theory, practical applications, safety considerations and the economics of solar renewable energy systems compared to conventional systems.

**E T 127 - Fundamentals of Wind Energy (3 cr.)**

Wind energy technologies, including wind thermal systems. Theory, practical applications, safety considerations, and the economics of wind renewable energy systems. Students will be introduced to hands-on trainers. Restricted to: Carlsbad campus only.

**E T 128 - Fundamentals of Sustainable Construction (3 cr.)**

Sustainable building materials, methods, and techniques including green architecture and design, codes, standards and specifications.

**E T 142 - Energy Auditor Techniques (4 cr.)**

Hands-on course that will teach you how to conduct a detailed home energy audit. You will learn to identify the common energy wasting areas of a residence. You will also learn more in-depth energy conservation techniques.

**E T 153 - Introduction to Computer Networks (3 cr.)**

Introduction to basic computer network fundamentals including International Open Systems Interconnect (OSI), the seven-layer model, and various networking hardware devices. Community Colleges only.

**E T 154 - Construction Methods and Communications (3 cr.)**

Blueprint reading, specifications, and introduction to materials used in construction.

**E T 155 - Network Operating Systems I (3 cr. (3+1P))**

Introduction to a computer network operating system. May not be used as part of an E T degree program on main campus. Prerequisite(s): E T 120 or E T 122. Restricted to: Community Colleges only.

**E T 160 - Basic Computer Operating Systems (3 cr.)**

Basics of the most commonly used computer operating systems, command line interface, file systems, file virtualization.

**E T 182 - Digital Logic (3 cr.)**

The use of truth tables, Boolean equations, and diagrams to define, simplify, and implement logic-valued functions.

**E T 183 - Applied DC Circuits (3 cr. (2+2P))**

Application of Ohm's law, Kirchhoff's laws, Thevenin's, and Norton's theorems to the analysis of DC passive circuits. Prerequisite(s)/Corequisite(s): MATH 121G.

**E T 183 L - Applied DC Circuits Lab (1 cr. (2P))**

Laboratory to accompany E T 183. Corequisite: E T 183.

**E T 184 - Applied AC Circuits (3 cr. (2+2P))**

Application of circuit laws and theorems to analysis of AC passive circuits. Resonant circuit, polyphase circuit and magnetic circuit topics are introduced. Prerequisite(s)/Corequisite(s): MATH 190G. Prerequisite(s): E T 183.

**E T 184 L - Applied AC Circuits Lab (1 cr. (2P))**

Laboratory to accompany E T 184. Corequisite: E T 184.

**E T 190 - Applied Circuits (4 cr. (3+2P))**

Application of Ohm's law, Kirchhoff's laws, and Thevenin's theorems to the analysis of AC and DC passive circuits. Electronic circuit topics are introduced. Embedded lab. Prerequisite(s)/Corequisite(s): MATH 190G.

**E T 191 - Applied Circuits Laboratory (1 cr. (2P))**

Laboratory to accompany E T 190.

**E T 200 - Special Topics (1-3 cr.)**

Directed study or project. Prerequisite: consent of department head. May be repeated for a maximum of 6 credits.

**E T 210 - Computer-Aided Design (2 cr. (1+3P))**

Computer-aided design using 3-D solid modeling software, with introduction to FEA simulation. Prerequisite: E T 110

**E T 217 - Manufacturing Processes (3 cr.)**

Manufacturing methods and industrial processes which include casting, forming and machining. Introduction to the composition, fabrication, characteristics, and applications of industrial materials. Prerequisite: E T 110 and MATH 185. Corequisite: E T 217L. Same as I E 217.

**E T 217 L - Manufacturing Processes Lab (1 cr. (3P))**

Laboratory to accompany E T 217. Corequisite: E T 217. Same as I E 217L.

**E T 220 - Internship (1-6 cr.)**

Internship requiring an approved number of hours of varied and progressive experience in the field of study. The scope and other requirements of the internship are stated in an individualized syllabus and through a memorandum of understanding between the faculty mentor and the industry partner. Prerequisite: Consent of instructor. May be repeated for a maximum of 6 credits.

**E T 225 - Applied Industrial Hygiene and Safety (3 cr.)**

Chemical, physical, biological, and ergonomic stresses of humans associated with the industrial environment; noise, air quality, person-machine interaction, sampling methods and proper control methods. Safety related laws and regulations.

**E T 230 - Introduction to Servo Systems (1 cr. (2P))**

Introduction to Servo Systems. Topics include uses of servos in the industry, servo types, loop gains and frequency response, software control systems, damping, feedback, encoders, synchros and resolvers. Prerequisite(s): E T 246. Restricted to Community Colleges campuses only.

**E T 240 - Applied Statics (3 cr.)**

Fundamental topics of applied statics, including force system analysis, equilibrium, free body diagrams, methods of joints and sections, distributed loads, friction, centroids, area moments, and shear and moment diagrams. Prerequisite: PHYS 211G. Corequisite: MATH 235.

**E T 241 - Applied Dynamics (3 cr.)**

Applied kinematic and kinetic planer analysis of particles and rigid bodies, including use of kinematic equations, Newton's second law, the work energy method, and the impulse momentum method. With recitation sessions, as required. Prerequisite: E T 240 and MATH 235.

**E T 245 - Computer Hardware Fundamentals (3 cr. (2+2P))**

Computer hardware fundamentals including architecture, interfacing, peripherals, troubleshooting, system upgrades, and maintenance. Prerequisite(s): E T 160 and E T 182. Restricted to Las Cruces campus only.

**E T 246 - Electronic Devices I (4 cr. (3+3P))**

Solid-state devices including diodes, bipolar-transistors, and field effect transistors. Use of these devices in rectifier circuits, small signal and power amplifiers. Prerequisite(s): (E T 190 and E T 191) or E T 184.

**E T 253 - Networking Operating Systems II (3 cr. (3+1P))**

Introduction to a computer network operating system. May not be used as part of an E T degree program on main campus. Prerequisite(s): E T 155. Restricted to Community Colleges campuses only.

**E T 254 - Concrete Technology (3 cr. (2+2P))**

Fundamentals of aggregates, Portland cement, and asphalt used in design and construction.

**E T 255 - Linux System Administration (3 cr.)**

Introduction to Linux system administration. Prerequisite(s)/Corequisite(s): E T 160.

**E T 256 - Networking Operating Systems III (3 cr. (3+1P))**

Introduction to a computer network operating system. May not be used as part of an E T degree program on main campus. Prerequisite(s): E T 253. Restricted to Community Colleges campuses only.

**E T 262 - Software Technology I (3 cr. (2+2P))**

An introduction to computer programming concepts as applied to engineering technology. Includes basic logic design, algorithm development, debugging and documentation. History and use of computers and their impact on society. Prerequisite(s)/Corequisite(s): E T 182.

**E T 272 - Electronic Devices II (4 cr. (3+3P))**

Operational amplifiers, positive and negative feedback, computer aided circuit analysis. In addition circuits include integrator, differentiators and phase shift networks. Prerequisite(s)/Corequisite(s): MATH 235. Prerequisite(s): E T 246.

**E T 273 - Fundamentals of Networking Communications I (4 cr. (2+4P))**

Introduction to networking basics, including computer hardware and software, electricity, networking terminology, protocols, LANs, WANs, OSI model, IP addressing, and design and documentation of basic network and structure cabling. Community Colleges only. Restricted to Community Colleges campuses only.

**E T 276 - Electronic Communications (3 cr. (2+2P))**

Antennas, transmission devices, A-M and F-M transmission and detection, pulse systems, microwave systems. Prerequisite(s): E T 246.

**E T 277 - Computer Networking I for IET (3 cr. (2+2P))**

Computer network design and applications for LAN to WAN, protocols, switches, bridges, routers, NT server, TCP/IP networks, network diagnostics, voice over IP, wireless networks, and the OSI layers from physical to transport. Prerequisite(s): E T 182 and MATH 190G. Restricted to: IET majors. Restricted to Las Cruces campus only.

**E T 280 - Introduction to Multimedia (3 cr.)**

Introduction to video, audio and other digital presentation methods. Prerequisite(s): E T 255.

**E T 282 - Digital Electronics (4 cr. (3+3P))**

Applications of digital integrated circuits, multiplexers, counters, arithmetic circuits, and microprocessors. Prerequisite(s)/Corequisite(s): (E T 190 and E T 191) or (E T 184 and E T 184L) or (E T 184 201440) or (E T 190 201640). Prerequisite(s): E T 182.

**E T 283 - Hardware PC Maintenance (3 cr. (3+1P))**

Installing, configuring, troubleshooting, and maintaining personal computer hardware components. Prerequisite(s): E T 120 or E T 122.

**E T 284 - Software PC Maintenance (3 cr. (3+1P))**

Installing, configuring, troubleshooting, and maintaining personal computer operating systems. Prerequisite(s): E T 120 or E T 122.

**E T 285 - Principles of Security (3 cr.)**

Examines the field of information security within a real-world context of issues faced by today's IT professionals. Prerequisite(s): E T 283 or consent of instructor.

**E T 286 - Fundamentals of Security (3 cr.)**

An overview of general security concepts for information technology systems. Prerequisite(s): E T 283 or consent of instructor.

**E T 287 - PC Disaster and Data Recovery (3 cr.)**

This course provides an overview of the various causes of personal computer data failure and methods to mitigate the loss of your personal computer data. The focus is on restoring your personal computer to full PC functionality and recovering lost and damaged files after one of these unforeseen problems. In addition, the course provides a means to lessen the impact of these inevitable events with the preparation of a disaster recovery plan. Prerequisite(s): E T 120 or E T 122.

**E T 290 - Networking Wireless Communication (3 cr. (3+1P))**

This course provides an introduction to wireless networking and communications. Some of the topics covered are protocols, transmission methods, and IEEE 802.11 standards. Wireless LAN (WLAN) fundamentals, devices, and security, cellular telephony, broadband, and satellite communications. Prerequisite: E T 273.

**E T 291 - PC Forensics and Investigation (3 cr.)**

Introduction to computer forensics and investigative fundamentals. Topics include understanding computer forensic and investigation law and requirements, processing crime and incident scenes, and the extraction, preservation, analysis and presentation of computer-related evidence. Prerequisite(s): E T 120 or E T 122.

**E T 292 - Network Explorer 1 & 2 (4 cr. (2+4P))**

Introduction to routers and routing, including router-user interfaces, components and configuration, IOS versions, naming, software backups, TCP/IP protocol suite, IP addressing and subnetting, RIP and IGRP. Consent of Instructor required. Restricted to Alamogordo campus only.

**E T 293 - Network Explorer 3 (4 cr. (2+4P))**

Introduction to switching and intermediate routing, including VLANs, spanning tree protocol, routing and routing protocols, security, and troubleshooting. Consent of Instructor required. Restricted to Alamogordo campus only.

**E T 294 - Network Explorer 4 (4 cr. (2+4P))**

Introduction to WAN technology basics, including WAN devices; encapsulation formats; PPP components; session establishment; authentication; ISDN uses, services, and configuration; and frame-relay technology and configuration. Consent of Instructor required. Restricted to Alamogordo campus only.

**E T 300 - Special Topics (1-3 cr.)**

Directed study or project. Prerequisite: consent of department head. May be repeated for a maximum of 6 credits.

**E T 302 - Manufacturing Data Analysis (3 cr.)**

Methods for analyzing data collected during manufacturing processes. Emphasis placed on production control utilizing results of statistical methods and design of experiments. Prerequisite(s): MATH 235.

**E T 305 - Design for Manufacturing (3 cr. (2+3P))**

The process of product design and development from concept to manufacturing to insure manufacturability, quality, cost effectiveness, and customer satisfaction. Prerequisite(s): COMM 265G. Restricted to: ET C, ET E, ET M, ET U majors.

**E T 306 - Fundamental and Applied Thermodynamics (3 cr.)**

First and second laws, properties of substances, thermodynamic cycles including power generation and refrigeration. Prerequisite(s): CHEM 110G and E T 240 and MATH 235 and PHYS 212G and PHYS 212GL.

**E T 306 L - Thermodynamics Lab (1 cr.)**

Applications of thermodynamic theory to lab devices. Practice in testing, instrumentation, and data collection. Prerequisite(s): (E T 190 and E T 191) or (E T 184 and E T 184L) or (E T 184 201440) or (E T 190 201640).

**E T 308 - Fluid Technology (3 cr.)**

Application of basic principles of fluid mechanics to practical applied problems. Prerequisites: MATH 235 and E T 240.

**E T 308 L - Fluid Technology Lab (1 cr. (3P))**

Measurements in fluid statics, dynamics, and hydraulic systems. Corequisite: E T 308.

**E T 309V - Manufacturing: History and Technology (3 cr.)**

The history of manufacturing, the technology on which it is based, and its impact on society.

**E T 310 - Applied Strength of Materials (3 cr.)**

Application of principles of strength of materials to practical design and analysis problems. Prerequisites: MATH 235 and E T 240.

**E T 310 L - Applied Strength of Materials Lab (1 cr. (3P))**

Testing physical properties of materials. Corequisite: E T 310.

**E T 312 - Emergency Response to Hazardous Material Incidents (2 cr.)**

Same as E S 312, WERC 312.

**E T 314 - Communications Systems I (3 cr.)**

Circuits and devices used for transmission, reception, and processing of RF signals. Prerequisite(s): E T 246 MATH 190G.

**E T 317 - Manufacturing Technology (3 cr.)**

A technical elective which builds on a student's CAD knowledge by integrating advanced 3D modeling techniques into other engineering topics such as manufacturing processes, machinery design, product development, and strength analysis and fluid flow. Students will use solid modeling, software such as SolidWorks, CAMworks, Photo Realistic Rendering, and Simulation to design, simulate, and prototype products. Consent of Instructor required. Prerequisite(s): E T 210. Restricted to: exclude ET C, ET E, ET M, ET U majors.

**E T 324 - Signal Processing and Filtering (4 cr. (3+3P))**

Application of digital and analog signal conversion models. Discrete time signals and systems. Time and frequency domain concepts. Presentation of Fourier and Z transforms. Application of analog and digital signal filtering with and without feedback. Prerequisite(s)/Corequisite(s): MATH 236. Prerequisite(s): E T 272 and (PHYS 212G and PHYS 212GL).

**E T 328 - Kinematics of Machines (3 cr. (2+3P))**

Kinematic analysis of machine elements with topics of linkages, cams, and gears. Graphical and analytical solutions using computer techniques. Prerequisite(s): E T 241.

**E T 330 - Environmental Management Seminar I (1 cr.)**

Survey of practical and new developments in hazardous and radio-active waste management provided through a series of guest lectures and reports of ongoing research. Prerequisite(s): E T 310 and E T 310L. Corequisite(s): MATH 236. Restricted to ETSE majors. Crosslisted with: C E 330, CH E 330, E E 330, E S 330, M E 330, I E 330 and WERC 330

**E T 332 - Applied Design of Structures I (4 cr. (3+3P))**

An introduction to structural analysis and design. Use of various building codes for development of allowable and factored loads on structures. Allowable stress and strength design concepts for structural components using concrete and steel. Required use of computer software such as spreadsheets, databases, and self-developed programs and design aids. Prerequisite(s): E T 310.

**E T 339 - Introduction to Digital Forensics and Incident Response (3 cr. (2+3P))**

Introduction to the skills required to perform digital forensics and incident response on Windows operating systems. Topics include: live response, evidence acquisition, Windows operating system artifacts, documentation and reporting. Prerequisite(s): MATH 190G and E T 277 and E T 245.

**E T 344 - Microcomputer Systems (3 cr. (2+3P))**

Microcomputer and/or microcontroller systems applications and architectures with a software emphasis using programming languages. Prerequisite(s)/Corequisite(s): E T 362. Prerequisite(s): E T 182 and MATH 190G.

**E T 354 - Soil and Foundation Technology (4 cr. (3+3P))**

Fundamentals of investigation of soil properties and their importance in design, construction, and testing as related to buildings, roads, dams, and other structures. Design of foundations considering slope stability, bearing capacity and settlement. Corequisite(s): E T 310. Prerequisite(s): E T 254.

**E T 355 - Site/Land Development and Layout (3 cr.)**

Techniques, methods, and takeoffs for infrastructure layout, site plan design, grading, earthwork, utilities, road construction. Prerequisite(s)/Corequisite(s): DRFT 143. Restricted to: C E, ET C, ET E, ET M, ET U majors.

**E T 360V - Technology in Business and Society (3 cr. (2+2P))**

Examination of how technology affects business and society with specific attention to understanding the role of technical personnel and their interaction with nontechnical personnel.

**E T 362 - Software Technology II (3 cr.)**

A continuation of topics from E T 262 that are directed toward more advanced software development. Topics include problem analysis, object oriented,

structured logic, and development concepts. Prerequisite(s): E T 262 and MATH 190G.

**E T 365 - Building Utilities (3 cr. (2+3P))**

Basic design and code applications in plumbing and electrical systems for buildings. Prerequisites: junior standing in E T.

**E T 377 - Computer Networking I (3 cr. (2+2P))**

Computer network design and applications for LAN to WAN, protocols, switches, bridges, routers, TCP/IP networks, network diagnostics, voice over IP, wireless networks, and the OSI layers from physical to transport. Prerequisite(s): E T 182 & MATH 190G.

**E T 381 - Renewable Energy Technologies (3 cr.)**

Renewable energy systems, including topics in thermal-solar, photovoltaic, wind, geothermal systems, and other current topics. Theory, practical applications, safety considerations and the economics of alternative renewable energy systems compared to conventional systems. Prerequisite(s): MATH 121G. Crosslisted with: WERC 381

**E T 382 - Solar Energy Technologies (3 cr. (2+3P))**

Solar energy technologies, including topics in passive, solar thermal, and photovoltaic systems. Theory, practical applications, safety considerations and the economics of solar renewable energy systems compared to conventional systems. Prerequisite(s): MATH 121G. Crosslisted with: WERC 382

**E T 384 - Wind and Water Energy Technologies (3 cr.)**

Wind and Water energy technologies, including topics in small and large scale systems. Theory, practical applications, safety considerations and the economics of wind and water renewable energy systems compared to conventional systems. Crosslisted with: WERC 384. Prerequisite(s): MATH 121G.

**E T 386 - Sustainable Construction and Green Building Design (3 cr.)**

Sustainable Building materials, methods, and techniques including green architecture and design, codes, standards and specifications. Prerequisite: MATH 121G.

**E T 396 - Heat Transfer and Applications (3 cr. (2+3P))**

Fundamentals of conduction, convection, and radiation heat transfer. Application of heat transfer, thermodynamics, and fluid mechanics principles to thermal system analysis and design. Prerequisite(s): E T 306 and E T 308.

**E T 398 - Digital Systems (3 cr. (2+3P))**

Advanced analysis and design of digital systems using state machine logic, programming of logic devices, implementation and testing. Prerequisite(s): E T 282 and MATH 190G. Pre/Corequisite(s): E T 362.

**E T 400 - Special Topics (1-3 cr.)**

Directed study or project. Prerequisite: consent of department head. May be repeated for a maximum of 6 credits.

**E T 401 - Heating and Air-Conditioning Systems (3 cr.)**

HVAC system design including heating and cooling load calculations, psychometrics, piping, duct layout, and system control. Prerequisite: E T 306. Corequisite: E T 396. Same as M E 401.

**E T 402 - Instrumentation (3 cr. (2+3P))**

Sensors/transducers, signal conditioning and transmission for measurement and control systems. Student project in an area of instrumentation and/or control is required. Prerequisite(s): E T 396 or E T 398.

**E T 410 - Senior Seminar (1 cr.)**

Transition from academics to business and industry. Graded S/U. Prerequisite: senior standing in E T.

**E T 412 - Highway Technology (3 cr.)**

Road-vehicle performance, geometric alignment, traffic analysis, highway materials, pavement design, and plan and profile development. Prerequisite(s)/Corequisite(s): E T 355.

**E T 415 - Manufacturing Management and Productivity (3 cr.)**

Projects incorporating concurrent engineering, total quality management, design for manufacturability/assembly, and other contemporary topics in manufacturing. Prerequisites: senior standing in E T.

**E T 418 - Applied Hydraulics (3 cr.)**

Introduction to hydrology, hydraulic equations, hydraulic cross-sections, control structures, and collection and distribution of water, wastewater, and storm runoff using closed conduit and open channel flow. Prerequisite(s): E T 308.

**E T 420 - Senior Internship (1-6 cr.)**

Internship requiring an approved number of hours of varied and progressive experience in the field of study. The scope and other requirements of the internship are stated in an individualized syllabus and through a memorandum of understanding between the faculty mentor and the industry partner. Taken in the senior year of program. Prerequisites: Senior standing in E T.

**E T 421 - Senior Project (3 cr.)**

Project in an area of civil engineering technology conducted under the direction of civil engineering technology faculty member. Project must be one that can be completed within a semester and of sufficient complexity for 3 credits. Taken last semester of program.

**E T 422 - Mechanical Measurements (3 cr. (2+3P))**

Techniques in mechanical measurements, including topics in experimental techniques, measurement devices and systems, data acquisition, data transmission, signal conditioning, data analysis, data verification, and report writing. Prerequisite: senior standing in E T.

**E T 426 - Analysis/Design of Machine Elements (3 cr. (2+3P))**

Analysis of machine elements including columns, springs, shafts, coupling mechanisms, gears, belts and chain drives, clutches, brakes, and bearings. Prerequisites: MATH 236 and E T 310.

**E T 432 - Applied Design of Structures II (4 cr. (3+3P))**

Continuation of E T 332. Design of structural systems and study of their responses. Wood and masonry systems included. Prerequisite: E T 332.

**E T 435 - Senior Project (3 cr. (2+3P))**

Capstone course. Practical application of student s cumulative knowledge to assigned design projects that require implementation of standards analysis techniques and design principles, teamwork, and project management skills. Stresses importance of codes, standards, and economics in design practice. Demonstration of written and oral communication skills via project documentation and presentation of results. Prerequisite: graduating senior.

**E T 439 - Advanced Digital Forensics and Incident Repsonse (3 cr.)**

Advanced topics in digital forensics and incident response on Windows, Linux and Mac OS X and mobile devices. Topics include: Memory analysis, registry analysis, timeline analysis, malware analysis, Linux and Mac artifacts, mobile device forensics. Prerequisite(s): E T 339.

**E T 440 - Senior Design (2 cr. (1+2P))**

Team design of a system, mechanism, or model that will be fabricated or simulated during the following semester in E T 441. Pre/Corequisite(s): E T 444 and E T 402. Restricted to: ET C, ET E, ET M, ET U majors.

**E T 441 - Senior Project (2 cr. (1+2P))**

Team fabrication or simulation, testing, and debugging of a system, mechanism or model designed in E T 440. Prerequisite(s): E T 440.

**E T 444 - Hardware and Software Senior Design (3 cr. (2+3P))**

The design, development, implementation, documentation and formal demonstration of a microprocessor-based application to solve an engineering problem. Emphasis on microprocessor architectural concepts and software interfacing. A student project is require Prerequisite(s): E T 344 and E T 398.

**E T 454 - Advanced Construction Technology (3 cr.)**

Contractor design and construction methods concerning formwork, special foundations, shoring, excavations, pilings, steel erection, and various material handling components. Prerequisite: E T 354 and E T 355.

**E T 455 - Cost Estimating and Scheduling (3 cr.)**

Methods and techniques in construction estimating including final bid preparation, construction planning and scheduling using various network methods and other techniques. Prerequisite: junior or senior standing in E T.

**E T 456 - Applied Power Technologies (4 cr. (3+3P))**

Basic elements of modern power systems, energy sources, substation configuration, load cycles, and three-phase circuits. Students will gain experience in power factor correction, transmission line configurations and impedance, voltage regulation of transformers, and the per-unit system. Study of load flow, fault analysis, and economic operations is included Prerequisite(s): (MATH 235 or MATH 191G) and E T 272 and PHYS 212G and PHYS 212GL.

**E T 457 - Information Security (3 cr.)**

Introduction to information security concepts including penetration testing and ethical hacking. Prerequisite(s): E T 362 and E T 339.

**E T 458 - Database Technology for Engineering (3 cr.)**

MySQL and PHP. Data conversion using PHP, mysql and Python. Methods of transferring data from electronic boards and data feeds, into databases. Use of SQL in java programming. Remote programming of computers for running database systems in a mixed OS environment. Generation of web pages directly from Database queries. Prerequisite(s): E T 362 and E T 160.

**E T 462 - Web Technologies and Multimedia (3 cr.)**

Introduction to web technologies and multimedia. Prerequisite(s): E T 362 and E T 255.

**E T 463 - Advanced Linux and Python Scripting (3 cr.)**

Advanced Linux Includes installation and maintenance of Unix/Linux/Windows versions of Python. Use of Python to solve numerous engineering problems including video and audio. Image manipulation. Using PostScript for image and typesetting development. Integration of C programming with Python. Prerequisite(s): E T 255 and E T 362.

**E T 464 - Advanced Windows Server Administration (3 cr.)**

Learn about configuration and maintenance of Microsoft Windows Server and related services such as DHCP, DNS, Failover Clusters, Active Directory, Group Policy, File Sharing, Microsoft SQL server, Microsoft Exchange Server, IIS, Network Load Balancing, Backups, Remote Administration, PowerShell scripting and more. Prerequisite(s): E T 339 and E T 362.

**E T 472 - Intelligent Transportation Systems (ITS) (3 cr.)**

Traffic flow theory, telecommunication and information technology application in transportation, system architecture and standards, transportation management, incident and emergency management, corridor management, dynamic route guidance, in-vehicle systems, and traffic signal timing. Consent of instructor required.

**E T 477 - Computer Networking II (3 cr.)**

Advanced concepts in computer network design and applications including managing the campus network, virtual LANs (VLAN), network security, wireless networks, high-speed optical networks, and voice over IP Prerequisite(s): (E T 377 or E T 277) and MATH 190G.

**E T 480 - Innovation and Product Development (3 cr.)**

Experiential business model design and customer development. Students will develop an understanding of different types of innovation and learn the Lean LaunchPad methodology for developing products. May be repeated up to 6 credits. Consent of Instructor required. Prerequisite(s): ENGL 111G.

**E T 482 - Advance Modeling and Design (3 cr. (2+2P))**

This course teaches students the fundamentals of computer aided manufacturing (CAM), computer numerical control (CNC) machining, and rapid prototyping (RP). Students will learn how to program a CNC machine using both G/M code programming and computer aided manufacturing software. The course will also provide an overview of rapid prototyping (freeform fabrication) technologies, Emphasis will be on the effective design of parts to be made on CNC machines along with a hands on lab to give students experience on CNC machines. Consent of Instructor required. Prerequisite(s): E T 210 and E T 217.

**E T 490 - Selected Topics (1-3 cr.)**

Selected topics in engineering technology and related areas. Prerequisite: consent of instructor.

**ECED - EARLY CHILDHOOD EDUCATION****ECED 115 - Child Growth, Development, and Learning (3 cr.)**

This basic course in the growth, development, and learning of young children, prenatal through age eight, provides students with the theoretical foundation for becoming competent early childhood professionals.

**ECED 125 - Health, Safety, and Nutrition (2 cr.)**

This course provides information related to standards and practices that promote children's physical and mental well being sound nutritional practices, and maintenance of safe learning environments.

**ECED 135 - Family and Community Collaboration (3 cr.)**

This beginning course examines the involvement of families and communities from diverse cultural and linguistic backgrounds in early childhood programs. Ways to establish collaborative relationships with families in early childhood settings is discussed. Prerequisite(s): ECED 115 and ENGL 111G.

**ECED 215 - Curriculum Development Through Play (3 cr.)**

The beginning curriculum course places play at the center of curriculum in developmentally appropriate early childhood programs. It addresses content that is relevant for children birth through age four and developmentally and culturally sensitive ways of integrating content into teaching and learning experiences. Information on adapting content areas to meet the needs of children with diverse abilities and the development of IFSP's and IEP's is included. Consent of instructor required. Prerequisite(s): ECED 115 and ENGL 111G. Corequisite(s): ECED 220.

**ECED 220 - Early Childhood Education Practicum I (2 cr.)**

The beginning practicum course will provide experiences that address curriculum content that is relevant for children birth through age four in developmentally and culturally sensitive ways. Consent of instructor required. Prerequisite(s): ECED 115 and ENGL 111G. Corequisite(s): ECED 215.

**ECED 225 - Curriculum Development and Implementation II (3 cr.)**

The second curriculum course focuses on developmentally appropriate curriculum content in early childhood programs, age 3 through third grade. Development and implementation of curriculum in all content areas, including literacy, numeracy, the arts, health and emotional wellness, science, motor and social skills, is emphasized. Information on adapting content areas to meet the needs of children with diverse abilities and the development of IEP's is included. Consent of instructor required. Prerequisite(s): ECED 115, ENGL 111G. Corequisite(s): ECED 230.

**ECED 230 - Early Childhood Education Practicum II (2 cr.)**

The second field-based curriculum course focuses on practicing developmentally appropriate curriculum content in early childhood programs, age 3 through third grade. Consent of instructor required. Prerequisite(s): ECED 115, ENGL 111G. Corequisite(s): ECED 225.

**ECED 235 - Introduction to Language, Literacy and Reading (3 cr.)**

This course is designed to prepare early childhood professionals for promoting children's emergent literacy and reading development. Through a developmental approach, the course addresses ways in which early childhood professionals can foster young children's oral language development, phonemic awareness, and literacy problem solving skills, fluency, vocabulary, and comprehension. Prerequisite(s): ECED 115 and ENGL 111G.

**ECED 245 - Professionalism (2 cr.)**

This course provides a broad-based orientation to the field of early care and education. Early childhood history, philosophy, ethics and advocacy are introduced. Basic principles of early childhood systems are explored. Multiple perspectives on early care and education are introduced. Professional responsibilities such as cultural responsiveness and reflective practice are examined.

**ECED 255 - Assessment of Children and Evaluation of Programs (3 cr.)**

This basic course familiarizes students with a variety of culturally appropriate assessment methods and instruments, including systematic observation of typically and non-typically developing children. Prerequisite(s): ECED 115 and ENGL 111G. Crosslisted with: SPED 255

**ECED 265 - Guiding Young Children (3 cr.)**

This course explores various theories of child guidance and the practical applications of each. It provides developmentally appropriate methods for guiding children and effective strategies and suggestions for facilitating positive social interactions. Strategies for preventing challenging behaviors through the use of environment, routines and schedule will be presented.

**ECED 270 - Program Management (3 cr.)**

Technical knowledge necessary to develop and maintain a quality early care and education program. The course will focus on sound financial management and vision, laws and legal issues that affect programs and state and national standards including accreditation requirements. Prerequisite: consent of instructor.

**ECED 275 - Curriculum for Diverse Learners and Their Families (3 cr.)**

Implementation of family-centered programming that includes developmentally appropriate and culturally responsive curriculum. The course will also cover the establishment and maintenance of healthy and safe learning environments. Consent of instructor required.

**ECED 276 - Effective Program Development for Diverse Learners and Their Families (2 cr.)**

Practical experience in observing and carrying out the role of the director/administrator in the implementation of family-centered programming that includes individually appropriate and culturally responsive curriculum in a healthy and safe learning environment. Consent of instructor required. Corequisite(s): ECED 275. Restricted to ECED majors.

**ECED 280 - Professional Relationships (3 cr.)**

Development of staff relationships that will foster strong professional relationships with and among families, communities and advisory boards. Issues of staff recruitment, retention, support and supervision will lay a foundation for positive personnel management. Working effectively with board, advisory groups and community members and agencies will be addressed. Consent of instructor required. Corequisite(s): ECED 281.

**ECED 281 - Professional Relationships Practicum (2 cr.)**

Practical experience in the development of staff relationship that will foster professional relationships with families, communities and boards. Issues of staff recruitment, retention, support and supervision will lay a foundation for positive personnel management. Consent of instructor required. Corequisite(s): ECED 280. Restricted to ECED majors.

**ECED 295 - Contemporary Developments (1-4 cr.)**

Offered under different subtitles in the Schedule of Classes. May be repeated for a maximum of 9 credits.

**ECED 315 - Research in Child, Growth, Development and Learning (3 cr.)**

This advanced course in child growth, development, and learning builds upon the foundational material covered in the basic course in child growth, development, and learning. An integration of major theories of child development is provided by focusing on contemporary research in all aspects of development, including bio-ecological, social-affective, cognitive, language, and the methodological aspects of research in early childhood development and education. Prerequisite(s): ECED 115.

**ECED 329 - Early Primary Field Placement (2 cr. (4P))**

The field practicum is a co-requisite course with Teaching and Learning Reading and Writing; Teaching and Learning Math and Science; Teaching and Learning Social Studies, Fine Arts and Movement. The field based component will provide experiences that address curriculum content and practice teaching that is relevant for early primary children in developmentally and culturally sensitive ways. Graded: S/U. Corequisite(s): ECED 440, ECED 445, RDG 350.

**ECED 335 - Family, Language and Cultural (3 cr.)**

This course analyzes the interrelationships between family, language, and culture as connected to children's development and learning. In this course, language is understood as a human activity and higher mental process which build on the children's families, community and cultural background. Prerequisite(s): ECED 135.

**ECED 351 - Emergent Literacy (3 cr. (2+2P))**

This advanced course is designed to prepare early childhood professionals to study literacy development, specifically oral language, writing and reading. This course focuses on children from birth through age 4, including children with special needs. Through a developmental approach, the course addresses: 1) recent theory and research that translates into practical strategies, assessment materials and preparation of rich literacy environments, 2) the socio-cultural contexts in which children develop literacy, 3) culturally, linguistically and developmentally appropriate literacy curricula, 4) processes used to determine the appropriateness of various literacy strategies, 5) assessment, evaluation, and accountability and 5) literacy leadership. Prerequisite(s): ECED 235. Crosslisted with: RDG 351.

**ECED 395 - Special Topics (1-3 cr.)**

Each course will be identified by a qualifying subtitle. A maximum of 3 credits in any one semester and a grand total of 6 credits.

**ECED 420 - Integrated Early Childhood Curriculum (4 cr.)**

This advanced course focuses on developmentally appropriate content, learning environments, and curriculum implementation for children birth through age 4. It emphasizes integration of content areas (the arts, literacy, math, health/emotional wellness, science, social studies, motor, and adaptive living skills) and the development of rich learning environments for infants, toddlers, and preschool children. Prerequisite(s): ECED 125, ECED 215, ECED 220, ECED 225, ECED 230, ECED 245, and ECED 265. Corequisite(s): ECED 425.

**ECED 425 - Integrated Curriculum Practicum (2 cr.)**

The advanced practicum course is a field based course that will provide opportunities for the integration of content areas (the arts, literacy, math, health/emotional wellness, science, social studies, motor, and adaptive living skills) and the development of rich learning environments for infants, toddlers, and preschool children. Prerequisite(s): ECED 125, ECED 215, ECED 220, ECED 225, ECED 230, ECED 245, ECED 265. Corequisite(s): ECED 420.

**ECED 440 - Teaching and Learning Math and Science (4 cr. (2+4P))**

Standards, principles, and practices in teaching mathematics and science to young children in preschool through grade 3. An emphasis is placed on developing a content-rich integrated math and science curriculum that focuses on children's development and interests, includes appropriate content, processes, environment, and materials with an emphasis on problem-solving as the major means of constructing basic concepts. Field experience required.

**ECED 443 - Assessment of Children and Evaluation of Programs (3 cr.)**

Advanced course builds on understanding the connections among learning, teaching, and assessment and strategies for evaluating programs. Assessment, identification, and monitoring of typical and atypical development in the cognitive, motor, affective and social domains. Multiple and diverse assessment approaches, including responsiveness to cultural and linguistic differences will be emphasized. Builds upon indicators of competence established at the lower division (AA) level. For each course objective (core competency) students will demonstrate the indicators established for the bachelor's level.

**ECED 452 - Teaching Language Minority Children in Early Childhood Settings (3 cr.)**

Framework and strategies for the educational development of young language-minority children.

**ECED 455 - Teaching and Learning Social Studies, Fine Arts and Movement (3 cr. (2+2P))**

The course focuses on the aims, scope, and integration of methods of teaching social studies, the fine arts and movement across the curriculum. This course emphasizes an integrated approach to teaching the what and why of social studies; assessing student learning; planning units, lessons, and activities; effective instructional strategies; and knowledge of social studies content.

Concepts of expressive art include the visual arts, music, movement and drama. Corequisite(s): ECED 440, ECED 329, RDG 350.

**ECED 458 - Field Experience (Infants Pre-K) (1 cr.)**

Supervised field experiences in early childhood settings: infants, toddlers, and pre-K programs. Graded S/U.

**ECED 459 - Field Experience (K-3) (1 cr.)**

Supervised field experiences in early childhood settings: public school programs K-3. Graded S/U.

**ECED 465 - Advanced Caregiving for Infants and Toddlers (3 cr.)**

The advanced field-based course is intended to assist students to define and implement advanced elements of quality programming for all infants, toddlers in safe, healthy, responsive caring environments. The experiences in the approved setting will support strong nurturing relationships, cultural competence, diverse learning needs and styles of every child, appropriate guidance techniques and partnership with the families, cultures, and community represented. Students are assisted through the course in advancing their ability to observe, discuss, and implement elements of quality programming for infants and toddlers in home, small-group or whole-group care situations. Crosslisted with: SPED 465

**ECED 470 - Student Teaching/Seminar (6 cr.)**

Provides student teaching experience in a variety of settings with young children ages birth-8.

**479 - Curriculum in Early Childhood Education (3)**

Development and implementation of curriculum and materials for teaching young children.

**ECED 489 - Topics (3 cr.)**

Offered under various subtitles which indicate the subject matter to be covered. May be repeated three times for a maximum of 9 credits.

**ECON - ECONOMICS****ECON 201G - Introduction to Economics (3 cr.)**

Economic institutions and current issues with special emphasis on the American economy.

**ECON 251G - Principles of Macroeconomics (3 cr.)**

Macroeconomic theory and public policy: national income concepts, unemployment, inflation, economic growth, and international payment problems. Prerequisite(s): Satisfaction of NMSU's mathematics basic skill requirement.

**ECON 252G - Principles of Microeconomics (3 cr.)**

Microeconomic theory and public policy: supply and demand, theory of the firm, market allocation of resources, income distribution, competition and monopoly, governmental regulation of businesses and unions. Prerequisite(s): Satisfaction of NMSU's mathematics basic skill requirement.

**ECON 304 - Money and Banking (3 cr.)**

Income measurement and determination, monetary and fiscal policies. Prerequisite: ECON 251G or equivalent, or consent of instructor.

**ECON 324V - Developing Nations (3 cr.)**

Economic analysis of problems related to development of developing nations. Issues such as growth, industrialization, poverty, population, international trade, foreign debt, and international economic relations.

**ECON 325V - Economic Development of Latin America (3 cr.)**

Economic analysis of problems related to development in Latin America, including the agrarian problem, debt and austerity programs, industrialization, inflation and unemployment, the drug trade, U.S.-Latin American relations, development strategies. Also individual countries problems.

**ECON 332 - Public Finance (3 cr.)**

This course will examine the roles of government in modern, market-oriented, mixed economies. It will examine justifications for government participation in resource allocation, income distribution, and economic stabilization focusing

primarily on the fiscal functions of government, taxation and public expenditure. Students will apply basic microeconomic analysis to analyze the impacts of public taxation and expenditures on economic decisions made elsewhere in the economy. In this course the emphasis will be on understanding the workings of public finance in fiscal federalist systems like the United States, but the principles taught will be applicable across other economic systems. Prerequisites: ECON 252

**ECON 335V - Business and Government (3 cr.)**

Relation of government to business through regulation; political, legal, and social implications. Crosslisted with: MGT 335G

**ECON 336 - Labor Problems (3 cr.)**

Evolution of labor problems, development of unions, industrial conflict, and employer-employee relationships, labor legislation. Prerequisite: 3 credits of economics.

**ECON 337V - Natural Resource Economics (3 cr.)**

Prerequisite: ECON 201G or ECON 252G. Same as AG E 337V.

**ECON 340 - American Economic History (3 cr.)**

The rise of big business and organized labor, increasing price rigidities, and growing government intervention. Same as HIST 340.

**ECON 350 - Current Economic Issues (3 cr.)**

Contemporary American socio-economic problems related to technology, environment, employment, economic security, and income distribution. Content changes as issues change. Prerequisites: ECON 251G and ECON 252G or consent of instructor.

**ECON 371 - Intermediate Microeconomic Theory (3 cr.)**

Contemporary economic theory with emphasis upon value and distribution. Prerequisite: ECON 252G or equivalent.

**ECON 372 - Intermediate Macroeconomic Theory (3 cr.)**

Analysis of gross domestic product, the Classical, Keynesian, and Neo-Keynesian theories of income, employment, inflation and growth. Prerequisite: ECON 251G or equivalent.

**ECON 384V - Water Resource Economics (3 cr.)**

Use of economic principles to evaluate current and emerging issues in water resources. Applications focus on use of economic methods of analysis to current policy decisions surrounding agricultural, municipal, industrial, and environmental uses of water. Prerequisite: AG E 100 or ECON 252G. Same as AG E 384V.

**ECON 401 - Managerial Economics (3 cr.)**

Application of economic theory to problems of business management. Prerequisite(s): ECON 252G and MATH 142G or equivalent, or consent of instructor.

**ECON 404 - Collegiate Advisory Board, Federal Reserve (3 cr.)**

Students serve on the Collegiate Advisory Board of the El Paso branch of the Federal Reserve Bank of Dallas. Guest speakers provide an overview of the Federal Reserve System, role of monetary policy, and issues facing specific industries in the local, national, and global economies. Students prepare reports, including a final paper, on an assigned industry in the regional or state economy and the current economic performance of their industry. Students must be of junior rank or higher with a GPA of at least 3.5. Consent of Instructor required.

**ECON 405 - Economic Statistics (3 cr.)**

Multiple regression and correlation applied to economics and business; inference techniques; significance tests; simultaneous equations, estimation, and problems. Prerequisite: STAT 251G or equivalent.

**ECON 406 - The Economics of Sports (3 cr.)**

Applying the tools of economic analysis to a particular industry and gaining an in-depth knowledge of the interaction of professional sports teams and leagues with the economy and society. Prerequisites: one previous course in economics or consent of instructor. Same as AG E 406.

**ECON 432V - Economics of Health Care (3 cr.)**

Analysis of the allocation of resources in the field of health and medical care.

**ECON 449 - Open Economy Macroeconomics (3 cr.)**

This course studies theoretical and empirical macroeconomics in international dimension. It covers from the fundamental concepts of national income and growth, monetary/fiscal and exchange rate policies, foreign exchange markets, international trade and finance, and regionalization/economic integration to the impact analysis of these macroeconomic fundamentals in the open economy. Crosslisted with: I B 449. Prerequisite(s): FIN 341 OR ECON 372.

**ECON 450 - International Economics (3 cr.)**

Trade and capital flows between countries, international payments, government policy in balance-of-payments and tariff matters, international organizations. Prerequisite(s): ECON 251G and ECON 252G. Crosslisted with: I B 450

**ECON 453 - Introduction to Health Services Policy (3 cr.)**

The economics of health care policy in the United States with concern for U.S. Mexico border health issues and international comparisons. Same as MGT 462.

**ECON 455 - Public Utilities Regulation (3 cr.)**

Procedures of utility regulation; regulatory theory applied to specific industries; commission regulation compared to public ownership and deregulation. Prerequisites: ECON 252G, FIN 306, or consent of instructor. Same as MGT 455.

**ECON 457 - Mathematical Economics (3 cr.)**

Application of mathematical tools, especially the calculus, to economic theory. Prerequisite: one upper-division economics course.

**ECON 465 - Economics of Human Resources (3 cr.)**

Measurement, allocation, and utilization of human resources; labor supply, value of education and training, labor market dynamics, unemployment, government manpower programming.

**ECON 489 - Senior Economics Seminar (3 cr.)**

Seminar primarily for economics majors in their final semester. Provides an opportunity to apply economic theory to a broad variety of topics. Prerequisite: ECON 371 or ECON 372.

**ECON 490 - Selected Topics (1-3 cr.)**

Current topics in economics. Subject matter to be designated for each semester.

**ECON 498 - Independent Study (1-3 cr.)**

Individual studies directed by consenting faculty with the prior approval of the department head. May be repeated for a maximum of 3 credits. Prerequisite: junior or above standing and consent of instructor.

**EDLT - EDUCATIONAL LEARNING TECHNOLOGIES**

**EDLT 368 - Integrating Technology with Teaching (3 cr.)**

Considers impact of technology on communication and knowledge development; engages students in the design of technology-integrated lessons with a constructivist approach. Prerequisite: EDUC 168 or previous computer experience.

**EDLT 455 - Discover STEM+C (3 cr.)**

Course provides the opportunity to engage in Science, Technology, Engineering, Math, and Computing (STEM+C) topics within an experiential learning framework. Crosslisted with: EDLT 555.

**EDLT 480 - Design of Educational Games (3 cr.)**

Students will learn the process of game design from initial ideas to the design of all stages of a game.

**EDUC - EDUCATION**

**EDUC 102 - Internship I (3 cr.)**

Supervised experience in elementary education settings.

**EDUC 103 - Internship in Bilingual Education/ESL (1-4 cr.)**

Supervised experience in bilingual education/ESL elementary or secondary classroom settings for prospective bilingual education/ESL teachers.

**EDUC 150 - Math for Paraprofessionals (3 cr.)**

Applied math skills for paraprofessionals working with children. Prerequisite: CCDM 103.

**EDUC 151 - Math for Paraprofessionals II (3 cr.)**

Applied math skills for paraprofessionals working under the direction of a teacher. Prerequisite: EDUC 150.

**EDUC 162 - Project WET (1 cr.)**

Project WET (Water Education for Teachers), an international, interdisciplinary, water science and education program for formal and non-formal educators of K-12 student. Facilitates and promotes awareness, appreciation, knowledge, and stewardship of water resources through the development and dissemination of classroom ready teaching aids based on the Project WET Curriculum and Activity Guide, a collection of over 90 innovative, interdisciplinary activities that are hands-on, easy to use and fun. Community Colleges only.

**EDUC 163 - Project Learning Tree (1 cr.)**

An award winning environmental education program for teachers and other educators of students PK-12. Uses the forest as a window to the world to increase students understanding of our complex environment; stimulate critical and creative thinking; develop the ability to make informed decisions on environmental issues; and instill the confidence and commitment to take responsible action. Includes activities that help teach science, mathematics, English, language arts, social studies history, visual and performing arts. Community Colleges only.

**EDUC 181 - Field Experience I (1 cr.)**

Introduction to public school teaching, school visits, classroom observations and discussion seminar.

**EDUC 195 - Individual Topics in Education (1-3 cr.)**

Supervised study in a specific area of interest. Each course shall be designated by a qualifying subtitle. May be repeated for a maximum of 9 credits.

**EDUC 200 - Educational Foundations (3 cr.)**

The psychological, philosophical, sociological, and legal bases of education. Prerequisite: must be a co-op student.

**EDUC 202 - Internship II (3 cr.)**

Supervised experience in junior high settings. Prerequisite: must be a co-op student.

**EDUC 204 - Foundations of Bilingual/ESL Education (3 cr.)**

Explore and review the historical, legal, philosophical, theoretical and pedagogical paradigms of bilingual/ESL education.

**EDUC 219 - Pre-Teacher Preparation (3 cr.)**

Assists students in developing the necessary competencies needed for acceptance to the Teacher Education Program. Course content includes basic skill development, test taking skills, and completion of teacher preparation packet. May be repeated for a maximum of 6 credits. Graded S/U. Community Colleges only.

**EDUC 300 - Instructional Methodology (3 cr.)**

Classroom planning, curriculum development, teaching techniques and applications. Prerequisite: must be a co-op student.

**EDUC 302 - Internship III (3 cr.)**

Student teaching in public school classroom according to major area of interest.

**EDUC 303 - Secondary Bilingual/ESL Field Experience (3 cr. (2+2P))**

Develop professional skills, dispositions, and understanding of secondary bilingual youth, content, and pedagogy through discussion seminar and interactions with public education mentor teachers. Focused observations, study of classroom language and culture, introduction to lesson planning and student assessment. Requires 32 hours of practicum field experience. Same as EDUC 381. Crosslisted with: EDUC381.

**EDUC 315 - Multicultural Education (3 cr. (2+2P))**

The conceptual manifestations of culture, race and ethnicity, class, gender, sexual orientation, exceptionalities, language, bilingualism, and global citizenship within the schooling process. Crosslisted with: HON 421.

**EDUC 317V - Multicultural Issues in Society (3 cr.)**

Conceptual manifestations of culture, race, ethnicity, class, gender, exceptionalities, language, and bilingualism within and across society.

**EDUC 342 - Sheltered English Instruction for the ESL Classroom (3 cr.)**

Addresses the acquisition of English proficiency by speakers of other languages.

**EDUC 343 - Language, Literacy, and Culture in the ESL Classrooms (3 cr.)**

Framework and strategies for developing the written abilities of second language learners.

**EDUC 344 - Issues in Schooling for Bilingual Learners (3 cr.)**

Current thought and direction regarding bilingual education in the United States and New Mexico.

**EDUC 381 - Secondary Field Experience (3 cr. (2+2P))**

Develop professional skills, dispositions, and understanding of secondary bilingual youth, content, and pedagogy through discussion seminar and interactions with public education mentor teachers. Focused observations, study of classroom language and culture, introduction to lesson planning and student assessment. Requires 32 hours of practicum field experience. Same as EDUC 303. Crosslisted with: EDUC303.

**EDUC 395 - Special Topics in Education (1-3 cr.)**

Offered under various subtitles in the Schedule of Classes. May be taken for a maximum of 3 cr. per semester and a total of 6 credits overall.

**EDUC 402 - Internship IV (6 cr.)**

Supervised co-teaching in educational setting according to major area of interest. Prerequisite: must be a co-op student.

**EDUC 450 - Methods of Teaching Early Childhood Education (3 cr.)**

Characteristics of the young child, play, guidance, communication, methods, materials, models, issues.

**EDUC 451 - Methods of Teaching Elementary School Science (3 cr. (2+2P))**

Methods and materials for teaching elementary school science. Includes components of lessons and the use of multimedia. Prerequisites: 9 hours of science from biology, chemistry, physics, and earth sciences, with no more than 3 hours from any one department. Corequisites: ECED 450, EDUC 452, and RDG 360 (Block A courses). Same as EDUC 551 with differentiated assignments for graduate students.

**EDUC 452 - Methods of Teaching Elementary School Mathematics (3 cr. (2+2P))**

Content, theories of cognition, and instructional approaches for the teaching of mathematics in the elementary grades. Prerequisite: MATH 111. Corequisites: ECED 450, EDUC 451, and RDG 360 (Block A courses). Same as EDUC 552 with differentiated assignments for graduate students.

**EDUC 453 - Methods of Teaching Elementary School Language Arts (3 cr. (2+2P))**

Implications of language acquisition and development for instructional practices. Focus on student-centered response to literature, writing process, whole language learning, based on socio-psycholinguistic theory and research. Corequisites: RDG 361, EDUC 454, and EDUC 455 (Block B courses). Same as EDUC 553 with differentiated assignments for graduate students.

**EDUC 454 - Methods of Teaching Elementary School Social Studies (3 cr. (2+2P))**

Focus on social studies curriculum and instruction including student-centered approaches, active learning, educational technology, nontextual curriculum, integration, multicultural education, authentic assessment, and practical applications. Corequisites: RDG 361, EDUC 453, and EDUC 455 (Block B courses). Same as EDUC 554 with differentiated assignments for graduate students.



**EDUC 460 - Teaching Language Arts at the Middle and High School Level (3 cr. (2+2P))**

Implications of cognition and language development for appropriate secondary instructional practices. Focus on construction of meaning, student-centered response to literature, writing process, print and oral language development, based on socio-psycholinguistic research and theory. Practicum required. Same as EDUC 560.

**EDUC 461 - Teaching Social Studies at the Middle and High School Level (3 cr. (2+2P))**

Integrating content knowledge and pedagogy for the middle and high school teacher in social studies. The focus will be on a variety of instructional strategies and pedagogical skills that will enhance the learning of social studies. Practicum required. Same as EDUC 561.

**EDUC 462 - Teaching Mathematics at the Middle and High School Level (3 cr. (2+2P))**

Integrating content knowledge and pedagogy for the middle and high school teacher in mathematics. The focus will be on a variety of instructional strategies and pedagogical skills that will enhance the learning of mathematics. Practicum required. Same as EDUC 562.

**EDUC 463 - Teaching Science at the Middle and High School Level (3 cr. (2+2P))**

Integrating content knowledge and pedagogy for the middle and high school teacher in science. The focus will be on a variety of instructional strategies and pedagogical skills that will enhance the learning of science for students in grades 6-12. Practicum required. Same as EDUC 563.

**EDUC 464 - Teaching Foreign Language at the Middle and High School Level (3 cr. (2+2P))**

Integrating content knowledge and pedagogy for the middle and high school teacher in foreign language. The focus will be on a variety of instructional strategies and pedagogical skills that will enhance the learning of foreign language for students in grades 6-12. Practicum required. Same as EDUC 564.

**EDUC 467 - Teaching Business Education at the Middle and High School Level (3 cr. (2+2P))**

Integrating content knowledge and pedagogy for the middle and high school teacher in business education. The focus will be on a variety of instructional strategies and pedagogical skills that will enhance the learning of business education for students in grades 6-12. Practicum required. Same as EDUC 567.

**EDUC 470 - Elementary Student Teaching (9 cr.)**

Synthesis of knowledge and skills appropriate to teaching in elementary schools. Graded S/U.

**EDUC 471 - Secondary Student Teaching (9 cr.)**

Synthesis of knowledge and skills appropriate to teaching in secondary schools. Graded S/U.

**EDUC 475 - Contemporary Issues in Education (3 cr. (2+2P))**

Discussion of contemporary issues including: classroom management, motivation, conferences, professional organizations, professional ethics, community influences, cultural pluralism, reform movements, instructional influences, and educational technology. Requires field experience component in a school or community setting. Same as EDUC 575.

**EDUC 480 - International Student Teaching Seminar (1 cr.)**

Preparation for students planning to teach in an international setting. Prerequisite: Must be scheduled one semester before graduation.

**EDUC 481 - Elementary Student Teaching Seminar (3 cr.)**

Discussion of elementary school issues related to student teaching. Taken concurrently with EDUC 470. Graded S/U.

**EDUC 482 - Middle and High School Student Teaching Seminar (3 cr.)**

Discussion of secondary school issues related to student teaching. Taken concurrently with EDUC 471.

**EDUC 483 - Second Language Acquisition (3 cr.)**

Exploring affective, cultural, linguistic, cognitive factors that influence the second-language-acquisition process with application to classroom practice. Same as EDUC 583.

**EDUC 487 - Methods of TESOL (3 cr.)**

Effective second language teaching approaches that provide for interactive learning situations, meaningful input language models, varied language use materials, adaptive teacher response strategies, and assessments of student processing needs.

**EDUC 489 - Topics (1-3 cr.)**

Offered under various subtitles which indicate the subject matter to be covered. A maximum of 3 credits in any one semester and a grand total of 3 credits.

**EDUC 495 - Directed Study Courses in Education (1-3 cr.)**

Each course shall be identified by a qualifying subtitle. Maximum of 3 credits in any one semester and a grand total of 6 credits.

**ELA - EDUCATIONAL LEADERSHIP AND ADMINISTRATION****ELA 101 - Freshman Orientation (1 cr.)**

Introduction to the university and to the College of Education. Discussion of planning for individualized education program and field experience. Graded S/U.

**ELA 215 - Multicultural Leadership in Education (3 cr.)**

Introduction to the social and cultural constructions of gender, class, and race. Students will critically apply theoretical constructs to everyday life and discuss the intersection of gender and race with class inequality in national and global contexts. Using a social justice framework, readings, and assignments integrate a variety of racial/ethnic groups while considering the effects of historically uneven resource distribution, unearned privilege, forms of domination and subordination, immigration status, and cultural representation and ideologies. Participants will learn how to apply the change theories and concepts introduced in the course to practice through course readings, online discussions with the instructor and colleagues, group work, active examination of daily practice in schools, and personal reflection.

**ELA 250 - Introduction to Education (2 cr.)**

An overview of the American education system with emphasis on organization, governance, law, demographics, and professional practice.

**ELA 255 - Leadership and Change in Education (3 cr.)**

This course will introduce students to the challenges and key strategies in initiating, implementing, and sustaining educational change and reform. In the first part of the course, participants will learn about the challenges of educational change in the United States and the role that they as school leaders play in facilitating change and reform. The course continues with an examination of how culture, micro-politics, and power structures support or impede national and global change initiatives. The last part of the course offers suggestions for change agents including community organizing, culture building, and embracing sustainable leadership practices. Participants will learn how to apply the change theories and concepts introduced in the course to practice through course readings, online discussions with the instructor and colleagues, group work, active examination of daily practice in schools, and personal reflection.

**ELA 298 - Special Topics in Education (1-3cr.)**

Special topics course in education for undergraduate students. Course will be identified by a subtitle. May be repeated up to 12 credits. Restricted to Las Cruces campus only.

**ELA 342 - Current Issues In Educational Leadership (3 cr.)**

This course addresses issues such as the rise in international education, education's costs, social media's role and influence, changes in state and national funding trends, student and faculty/staff diversity, among others. The focus of this course is centered on the actions and responses of administrators to the current issues they are facing.

**ELA 350V - Introduction to Educational Leadership in a Global Society (3 cr.)**

Multinational educational systems covered through knowledge of the U.S. system of education promoting critical leadership roles every citizen plays in the success of educational systems.

**ELA 398 - Special Topics in Education (1-3 cr.)**

Special topics course in education for undergraduate students. Course will be identified by a subtitle. May be repeated for a maximum of 12 credits.

**ELA 411 - Foundation for School Library Specialists (3 cr.)**

Elements of librarianship. Introduction to the history, purpose, and role of the school library. Overview of current issues and legislation affecting school libraries. Same as EMD 511.

**ELA 412 - Administration of the School Library (3 cr.)**

Principles and practices related to the function, structure, and management of school libraries. Same as EMD 512.

**ELA 413 - Curriculum Role of the School Library Specialist (3 cr.)**

Introduction to the integration of curriculum in school library programs. Current trends in collaborative planning and teaching between the school librarians and teachers. Taught with EMD 513.

**ELA 414 - Collection Management and Development in School Libraries (3 cr.)**

Principles of identifying, selecting, acquiring, managing, and evaluating information for school libraries. Same as EMD 514.

**ELA 440 - Management of Student Services (3 cr.)**

History and overview of student services (e.g., admissions, counseling, registration, financial aid, housing, food services, student organizations) for early entry level positions. This course will provide students with an examination of foundations and principals of student services. Important theories and essential competencies needed in order to be successful will be explored through a social justice perspective of leadership.

**ELA 450 - Principles of Education Law and Policy (3 cr.)**

Overview of the use of law and policy in schools and higher education. Restricted to: EMD majors.

**ELA 455 - Principles of Education Budgeting and Finance (3 cr.)**

Analysis of budget and finance practices in education. Restricted to: EMD majors.

**ELA 472 - History and Philosophy in Education (3 cr.)**

Course will concentrate on developing historical and philosophical understandings of issues related to education in contemporary American society. The course will explore arguments made throughout history regarding the function of education, the efficacy of education, and the ethical role of education in promoting a just and democratic society. The class has been developed to aid in the understanding and the relationship between significant historical makers in education and the philosophical underpinnings of education.

**ELA 485 - Elements of Research (3 cr.)**

This course provides students with a foundation for understanding educational research. The course will also provide grounding in proper writing format for use in the education profession. Students will be introduced to various research paradigms and the symbiosis of theory and practice. Besides introducing students to the symbiosis of theory and practice, students will complete assignments and activities that demonstrate the use of that symbiosis. Ultimately, students will be able to use the knowledge they gain through the course to be able to critique educational research.

**ELA 499 - Internship (3 cr.)**

The undergraduate Educational Leadership major requires that students complete two internships. Internships provide students with either experience working in an area of administration that is different from the student's regular job or experience conducting research for a program or project. Each internship placement site and scope of work is determined through consultation with the course instructor. Students must complete 120 hours of work with the selected

internship site. May be repeated up to 6 credits. Prerequisite(s): Student must be an EL major and be within (at least) one year of graduation. Restricted to: EL majors.

**ENGL - ENGLISH**

Credit for ENGL 111G is a prerequisite for every English course numbered 200 or above.

**ENGL 111G - Rhetoric and Composition (4 cr.)**

Skills and methods used in writing university-level essays. Prerequisite(s): ACT standard score in English of 16 or higher or a Compass score 76 or higher; for those scoring 13-15 in English on the ACT or 35-75 on the Compass, successful completion of a developmental writing course; for those scoring 12 or below on the ACT standard score in English or 34 or below on the Compass, successful completion of two developmental writing courses.

**ENGL 111GH - Rhetoric and Composition Honors (4 cr.)**

Individualized assignments and independent study. Prerequisite: ACT standard English score of 25 or higher and departmental approval. Satisfies 4 credits of General Education English Composition requirement.

**ENGL 111M - Rhetoric and Composition for International and Multilingual Students (4 cr.)**

For international and multilingual students. Students will build on your prior knowledge of writing in English as a second or additional language by engaging in several genres of writing and reading, including reading responses, discussion posts, formal academic papers (Rhetorical Analysis and Documented Argument), and peer review. Your instructor and classmates will serve as your readers and will give you helpful and constructive criticism, which will in turn assist you in becoming a more fluent and engaging communicator in English. Fulfills ENGL 111 Gen-ed requirement. Prerequisite(s): CBT/PB score of 500, or IBT score of 61, or SPCD 110, or consent of instructor. Restricted to Las Cruces campus only.

**ENGL 112 - Rhetoric and Composition II (2 cr.)**

A continuation of ENGL 111G for those desiring more work in composition. Weekly themes based on outside reading. Prerequisite: successful completion of ENGL 111G or the equivalent.

**ENGL 115G - Perspectives on Literature (3 cr.)**

Examines literature by writers from culturally diverse backgrounds and from different cultural and historical contexts. Explores various strategies of critical reading.

**ENGL 116G - Perspectives on Film (3 cr. (3+3P))**

Explores narrative and documentary film and examines significant developments in the history of cinema. Criticism of film as an art form, technical enterprise, business venture, and cultural phenomenon.

**ENGL 203G - Business and Professional Communication (3 cr.)**

Effective writing for courses and careers in business, law, government, and other professions. Strategies for researching and writing correspondence and reports, with an emphasis on understanding and responding to a variety of communication tasks with a strong purpose, clear organization, and vigorous professional style.

**ENGL 211G - Writing in the Humanities and Social Sciences (3 cr.)**

Theory and practice in interpreting texts from various disciplines in the humanities and social sciences. Strategies for researching, evaluating, constructing, and writing researched arguments. Course subtitled in the Schedule of Classes.

**ENGL 218G - Technical and Scientific Communication (3 cr.)**

Effective writing for courses and careers in sciences, engineering, and agriculture. Strategies for understanding and presenting technical information for various purposes to various audiences. Prerequisite(s): ENGL 111G

**ENGL 220G - Introduction to Creative Writing (3 cr.)**

Examines classic and contemporary literature in three genres. Various forms, terminologies, methods and technical aspects of each genre, and the art and processes of creative writing. Prerequisite: ENGL 111G.

**ENGL 232 - Script Development and Storyboarding (3 cr.)**

Examines effective writing principles for creating storyboards that communicate the overall picture of a project, timing, scene complexity, emotion and resource requirements. Crosslisted with: CMI 232.

**ENGL 235 - Narrative: Principles of Story Across the Media (3 cr.)**

Examines the various strategies of written and visual storytelling, narrative structure and its principal components (plot, theme, character, imagery, symbolism, point of view) with an attempt to connect them to elements of contemporary forms of media expression, including screenwriting, playwriting, writing for documentaries and animation, etc. Crosslisted with: CMI 235

**ENGL 243 - The Bible as Literature (3 cr.)**

Develops informed readings of Hebrew and Christian scriptures. Emphasizes understanding Biblical literary forms, techniques, themes; historical, cultural contexts for interpretation; authorship, composition, audience for individual books; development of Biblical canon.

**ENGL 244G - Literature and Culture (3 cr.)**

Intensive reading of and discussion and writing about selected masterpieces of world literature. Emphasizes cultural and historical contexts of readings to help students appreciate literary traditions. Core texts include works by Homer, Dante, and Shakespeare, a classic novel, an important non-Western work, and modern literature.

**ENGL 251 - Survey of American Literature I (3 cr.)**

From the colonial period to the transcendentalists.

**ENGL 252 - Survey of American Literature II (3 cr.)**

From Whitman to the present.

**ENGL 262 - Masterpieces of Western European Literature, Post-Renaissance to Modern Times (3 cr.)**

Modern Western European literary classics, from the seventeenth through the twentieth centuries, with attention to the rise of the novel and other modern forms.

**ENGL 263 - History of Argument (3 cr.)**

Investigates the major figures and movements in rhetoric from the classical period to modern rhetorical theory, examining relations between rhetorical teaching and practice, culture, epistemology, and ideology. Main campus only.

**ENGL 271 - Survey of English Literature I (3 cr.)**

From Beowulf through the eighteenth century.

**ENGL 272 - Survey of English Literature II (3 cr.)**

From the pre-Romantics to the present.

**ENGL 299 - Special Topics (1-3 cr.)**

Emphasis on a literary and/or writing subject chosen for the semester. Repeatable for a unlimited credit under different subtitles.

**ENGL 301 - Theory and Criticism: Rhetoric and Culture (3 cr.)**

Introduction to rhetorical criticism with an emphasis on understanding the theoretical and cultural underpinnings for the rhetorical analyses of texts.

**ENGL 302 - Theory and Criticism: Literature and Culture (3 cr.)**

Introduction to literary criticism, from its classical beginnings through contemporary critical approaches.

**ENGL 303 - Theory and Criticism: Film, Media and Culture (3 cr.)**

Surveys classical and contemporary film theory. Explores the relationship of theory to textual analysis and filmmaking practices. Includes auteurism semiotics, psychoanalysis, and other theories, as well as theories of other media.

**ENGL 304 - Creative Writing: Prose (3 cr.)**

Imaginative writing, chiefly prose narrative. Repeatable for a maximum of 9 credits.

**ENGL 305 - Creative Writing: Reading Series (1 cr.)**

A one credit class based on the English Department's literary reading series. The class meets online and at the literary readings.

**ENGL 306 - Creative Writing: Poetry (3 cr.)**

Introduction to the writing of poetry. Repeatable for a total of 9 credits.

**ENGL 307 - Creative Writing: Creative Nonfiction (3 cr.)**

Introduction to creative nonfiction. Skills emphasized will include the personal voice, powers of observation and reflection, advocacy, argument, and a creative, powerful use of language. Repeatable for a maximum of 9 credits.

**ENGL 308 - Creative Writing: Playwriting (3 cr.)**

Technique of one-act playwriting, and analysis of dramatic structure. Crosslisted with: THTR 308

**ENGL 309 - Screenwriting I (3 cr.)**

Writing intensive. Students learn the craft of screenwriting, honing skills in writing dialogue and visual narrative, crafting dynamic characters and dramatic action. Original student scripts will be performed and discussed in class. Consent of instructor required. Prerequisite(s): ENGL 235 or CMI 235. Crosslisted with: CMI 309 and THTR 306

**ENGL 310 - Critical Writing (3 cr.)**

A course in critical reading, writing, and research designed to prepare English majors for upper-division courses.

**ENGL 311G - Advanced Composition (3 cr.)**

Writing of nonfiction prose. Reviews principles of expository and descriptive writing. Emphasizes the argument/persuasion essay with detailed discussion of semantic and rhetorical techniques. Prerequisite: junior or senior standing, or consent of instructor.

**ENGL 315 - Writing for the Web (3 cr.)**

Introduction to writing for the World Wide Web through practical application and analysis on both theory and research. Allows hands-on learning in a computer classroom.

**ENGL 318G - Advanced Technical and Professional Communication (3 cr.)**

Theory and practice of writing in technical and professional fields, individualized to each student's field. Emphasizes efficient writing processes and effective written products. Prerequisite: junior or above standing, or consent of instructor.

**ENGL 319 - Introduction to Scientific Research and Writing (3 cr.)**

Introduces students to research methods and writing in the sciences. Course offered as part of the federally-funded Ronald E. McNair Post Baccalaureate program. Prerequisite: McNair Scholar. Main campus only.

**ENGL 321V - Modern European Drama (3 cr.)**

Masterworks of European drama from the late 18th century to present. Crosslisted with: THTR 321V

**ENGL 323 - American Drama (3 cr.)**

Masterworks of American drama by noted American playwrights. Crosslisted with: THTR 323

**ENGL 325V - Contemporary International Literature (3 cr.)**

Introduction to contemporary literature through intensive study of works from a range of cultures around the world.

**ENGL 326 - Cultural Identity and Representation Across the Media (3 cr.)**

Considers complex relationships between representation and culture including how images and language shape racial, ethnic, gender, sexual, and class identities. Examines theories from several disciplines. Includes lecture, discussion and production exercises.

**ENGL 327V - Shakespeare around the Globe (3 cr.)**

Introduction to multicultural issues in Shakespeare's plays and to adaptations of Shakespeare's plays in other cultures.

**ENGL 328V - Literature of Science Fiction and Fantasy (3 cr.)**

Survey and critical examination of the development of science fiction and fantasy as literature genres through selected authors and texts.

**ENGL 329 - Studies in Drama (3 cr.)**

Emphasis on a group of related works of European or American drama; topics will vary. Crosslisted with: THTR 329 and CMI 329

**ENGL 330V - Studies in Poetry (3 cr.)**

Emphasis on a related group of poems or on the work of one or more poets; topics will vary.

**ENGL 335V - Studies in the Novel (3 cr.)**

Intensive reading of, discussion of, and writing about selected major novels from around the world. Emphasizes the history of the novel and its role in culture.

**ENGL 336 - Studies in Film (3 cr. (3+3P))**

Explores the conventions of cinematic representation; the strategies involved in writing about and reading film; and/or the adaptation of literary texts to film. Repeatable under different subtitles.

**ENGL 339V - Chicana/o Literature (3 cr.)**

Introduction to Chicano novels, short stories and selected creative nonfiction.

**ENGL 341V - American Indian Literature (3 cr.)**

Forms and themes of Native American oral literary traditions; Native American writing in English, especially novels, short fiction, and poetry.

**ENGL 349 - The Short Story (3 cr.)**

Development of the short story as a distinct form. Readings and critical analysis of representative nineteenth and twentieth century pieces.

**ENGL 354 - Form and Technique in Fiction (3 cr.)**

Literature course designed for fiction writers, especially those English majors in the Creative Writing emphasis. The course combines the study of published fiction with the study of craft. Some of the assignments will require the student to write original fiction based on exercises provided by the instructor. Repeatable for up to 9 credits.

**ENGL 356 - Form and Technique in Poetry (3 cr.)**

Literature course designed for poets, especially those English majors in the Creative Writing emphasis. The course combines the study of published poetry with the study of craft. Some of the assignments will require the student to write original poems based on exercises provided by the instructor. Repeatable for up to 9 credits.

**ENGL 358 - Form and Technique in Playwriting (3 cr.)**

Literature course designed for playwrights, especially those English majors in the Creative Writing emphasis. The course combines the study of published plays and performances with the study of craft. Some of the assignments will require the student to write original plays based on exercises provided by the instructor. Repeatable up to 9 credits.

**ENGL 363 - Literature for Children and Young Adults (3 cr.)**

A comparative, historical survey of literature for young (K to 12th grade) readers. Emphasis on critical evaluation. Prerequisite: junior or above standing.

**ENGL 380V - Women Writers (3 cr.)**

Introduction to multicultural women's traditions through intensive study of works by women writers. Crosslisted with: W S 380V.

**ENGL 392V - Mythology (3 cr.)**

Greek and Roman mythology and its impact on European and English literature. Readings in myths, classical plays, and other literature with mythological interest, including nonclassical myths.

**ENGL 394V - Southwestern Literature (3 cr.)**

Introduction to multicultural literature of the Southwest: oral folk literature, literary fiction (classic and contemporary), nonfiction and poetry.

**ENGL 399 - Special Topics (3 cr.)**

Emphasis on a theme, genre, figure, or technique chosen for study during the semester. Repeatable under different subtitles.

**ENGL 400 - Independent Study: Upper Division (1-3 cr.)**

For students with demonstrated aptitude for independent work. Approval of instructor required before registration. Repeatable under different subtitles.

**ENGL 405 - Chaucer (3 cr.)**

Principal works, with emphasis on The Canterbury Tales.

**ENGL 407 - Milton (3 cr.)**

Studies in Milton's works.

**ENGL 408 - Shakespeare I (3 cr.)**

Principal plays of Shakespeare's first two periods. Crosslisted with: THTR 408.

**ENGL 409 - Shakespeare II (3 cr.)**

Principal plays of Shakespeare's last two periods. Crosslisted with: THTR 409.

**ENGL 411 - Advanced Scientific Research and Writing (3 cr.)**

Introduces students to advanced study in research methods and writing in the sciences. Course offered as part of the federally-funded Ronald E. McNair Post Baccalaureate program. Prerequisite: Students must be a McNair Scholar.

**ENGL 412 - Writing in the Workplace (3 cr.)**

Study of workplace writing practices, including a focus on research-based, theoretical, and pedagogical approaches to professional communication.

**ENGL 413 - Advanced Creative Writing: Prose Workshop (3 cr.)**

Imaginative writing, chiefly the narrative. May be repeated up to 12 credits. Prerequisite(s): ENGL 304 or consent of instructor.

**ENGL 414 - Advanced Creative Writing: Poetry Workshop (3 cr.)**

For advanced writers of poetry. Repeatable for a total of 12 credits. Prerequisite(s): ENGL 306 or consent of instructor.

**ENGL 415 - Advanced Creative Writing: playwriting Workshop (3 cr.)**

Technique of full-length playwriting, and analysis of dramatic structure. May be repeated up to 12 credits. Consent of Instructor required. Crosslisted with: THTR 309 and CMI 309. Prerequisite(s): ENGL 308 or consent of instructor.

**ENGL 416 - Approaches to Literature (3 cr.)**

Understanding, appreciation, techniques of instruction in the high school. Prerequisite: at least 6 credits in upper-division English courses.

**ENGL 417 - Advanced Study in Critical Theory (3 cr.)**

Advanced study of one or more major trends in theoretical inquiry within English studies. Some prior study of theory, such as ENGL 301-303, strongly recommended. Repeatable under different subtitles.

**ENGL 418 - History of Rhetoric (3 cr.)**

Investigation of crucial writings that have shaped Western attitudes towards and practice of rhetoric. Will examine key concepts from the Greeks through the Enlightenment, especially as they have influenced contemporary rhetorical theory.

**ENGL 419 - Modern Rhetorical Theory (3 cr.)**

Major figures in rhetorical theory, with particular emphasis on developments in rhetorical theory in the twentieth century.

**ENGL 421 - Advanced Study in a Literary Period or Movement (3 cr.)**

Close study of a historical or theoretical topic in a particular literary period or movement. Repeatable under different subtitles.

**ENGL 422 - Advanced Study in a Literary Form or Genre (3 cr.)**

Close study of a topic in a particular literary form or genre. May be repeated under different subtitles.

**ENGL 423 - Advanced Study in a Major Author (3 cr.)**

Close study of selected works by a major author. May be repeated under different subtitles.

**ENGL 424 - Advanced Study in a Major Text (3 cr.)**

Close study of a major text. Course subtitled in the Schedule of Classes. Repeatable under different subtitles.

**ENGL 425 - Advanced Study in Comparative Literature (3 cr.)**

Close study of a selection of non-English literary works read in translation. English-language works from a similar literary period or genre may also be read. Repeatable under different subtitles.

**ENGL 429 - British Romanticism (3 cr.)**

Intensive study of major writers and critical topics from the Romantic period. Repeatable under different subtitles.

**ENGL 430 - Online Publishing (3 cr.)**

This three-credit course provides a theoretical background for online publishing and design as well as hands on experience publishing an online arts magazine.

**ENGL 431 - Technical Editing (3 cr.)**

Uses workshops, readings, hands-on projects, and discussion to improve skills in gathering, writing, designing, and editing technical information. For students interested in technical communication as well as students interested in developing strengths in communicating in scientific and technical fields.

**ENGL 432 - Gothic Literature (3 cr.)**

Intensive study of gothic literature in particular historical, aesthetic, cultural, or intellectual contexts, such as American Gothic, Female Gothic, Dark Romanticism, or Vampire Literature. Repeatable under different subtitles.

**ENGL 433 - Victorian Literature (3 cr.)**

Intensive study of major writers and critical topics from the Victorian period. Repeatable under different subtitles.

**ENGL 438 - Literature of the American Renaissance (3 cr.)**

Intensive study of topics critical to the development of nineteenth century American literature before and during the Civil War, and the work of authors such as Emerson, Thoreau, Poe, Hawthorne, Melville, Whitman and Dickinson. Repeatable once under a different subtitle.

**ENGL 442 - Modern and Contemporary American Poetry (3 cr.)**

Studies the development of American poetry from World War I to the present. Repeatable once under a different subtitle.

**ENGL 444 - Modern British Fiction (3 cr.)**

Study of the fiction produced in the British Isles in the 20th and 21st centuries. Repeatable once under a different subtitle.

**ENGL 445 - Postmodern Fiction (3 cr.)**

Study of the various forms of formally innovative experimental fiction produced since 1945, with a focus on the relationship between literary history and its sociohistorical contexts. Some texts will be read in translation. Repeatable once under a different subtitle.

**ENGL 446 - Advanced Creative Writing: Nonfiction Prose (3 cr.)**

This workshop-format class for advanced writers will examine the many varieties of Creative Nonfiction. Students should be prepared for a rigorous reading load of published nonfiction and student submissions. Because of the workshop format, every student is expected to contribute extensively to every class, both in printed form and oral comments. Taught with ENGL 546. May be repeated up to 12 credits. Prerequisite(s): ENGL 307 or consent of instructor.

**ENGL 448 - Advanced Study in Empirical Research (3 cr.)**

Introduction to empirical research methods in composition, professional communication, and rhetoric.

**ENGL 449 - Advanced Study in Writing (3 cr.)**

Close study of a topic in composition, rhetoric and/or technical and professional communication. Repeatable for a maximum of 6 credits with permission of department.

**ENGL 451 - Practicum in the Grammar of American English (3 cr.)**

Studies of formal grammar of the English language in preparation for the teaching of the English language and/or advanced linguistic analysis.

**ENGL 452 - History of the English Language (3 cr.)**

This course examines the history of the English language from its Indo-European origins through its development into an international language. The aim is to

describe the English language formally and to trace linguistic change over time. Samples of written English will illustrate various stages in the development of English. Also considered are contemporary social and political issues related to language, including the problem of 'standard English' and the uses of language in advertising, the media, and politics.

**ENGL 453 - World Literatures (3 cr.)**

Study of one or more literary traditions exclusive of those originating in Europe and the United States. Readings will include texts in translation. Repeatable once under a different subtitle.

**ENGL 456 - Ethnic Studies in US Literature and Culture (3 cr.)**

Concentrates on comparative study of literary and cultural production by two or more U.S. ethnic populations. Incorporates both literary and sociocultural readings of texts. Repeatable under different subtitles.

**ENGL 458 - Latino/a Literature and Culture (3 cr.)**

Focuses on established and emergent Latino/a literary and cultural production. Incorporates both literary and sociocultural readings of texts. Repeatable once under a different subtitle.

**ENGL 460 - Proposal Writing (3 cr.)**

Developing proposals and grants in a workshop setting.

**ENGL 462 - Interdisciplinary, Client-Based Project Practicum (3 cr.)**

Hands-on experience in designing projects within interdisciplinary teams for organizational clients. Taught with ENGL 562.

**ENGL 463 - Advanced Study in English Literature (3 cr.)**

Covers selected works for a particular period of English literary history. Repeatable under different subtitles.

**ENGL 469 - Advanced Study in American Literature (3 cr.)**

Covers selected works for a particular period of American literary history. Repeatable under different subtitles.

**ENGL 470 - Approaches to Composition (3 cr.)**

Theory and practice of teaching writing. Discussion and application of classroom practices, definition of standards, and evaluation of student writing.

**ENGL 478 - Document Design (3 cr.)**

Advanced study in writing, with an emphasis on the computer as a tool for designing visually informative text. Includes theory and research in document design and the use of page composition and graphics software.

**ENGL 480 - Screenwriting II (3 cr.)**

Students will write two short scripts, 10-15 pages each. Focus will be on learning how to take notes and rewrite. Script analysis will be in a workshop format. Scripts will be read and discussed, scenes performed and reactions analyzed to consider effect of dialog, character development, etc. Prerequisite(s): ENGL 309 or CMI 309 or THTR 306 or consent of instructor. Crosslisted with: CMI 480

**ENGL 481 - Women's Literature (3 cr.)**

Intensive study of literature by women, in particular historical, aesthetic, cultural, or intellectual contexts. Repeatable under different subtitles. Crosslisted with: W S 484

**ENGL 486 - Hollywood Film (3 cr. (3+3P))**

Intensive study of Hollywood film in its artistic, cultural, or historical contexts. Repeatable under different subtitles.

**ENGL 489 - Cultural Studies: Literature and Theory (3 cr.)**

Examines the theory and practice of cultural studies in relation to the variety of discourse describable as literary, including autobiography, avant-garde writing, nonfiction prose, the essay, online writing, folklore, and popular genre fiction (such as mystery, romance, thriller, or horror). Repeatable once under a different subtitle.

**ENGL 493 - Middle English Textual Cultures (3 cr.)**

Intensive study of cultures of reading, writing, and literary production in late-medieval England, situating Middle English literature in its manuscript contexts. No prior experience with Middle English required.

**ENGL 497 - Internship (3-6 cr.)**

Supervised technical and professional communication internship in business, industry, government, or the university. Repeatable for a total of 6 credits. Consent of instructor required.

**ENGR - ENGINEERING****ENGR 100 - Introduction to Engineering (3 cr. (2+3P))**

An introduction to the various engineering disciplines, the engineering approach to problem solving, and the design process. Projects emphasize the importance of teamwork, written oral communication skills, as well as ethical responsibilities. Prerequisite(s)/Corequisite(s): MATH 121G.

**ENGR 100H - Introduction to Engineering (3 cr. (2+3P))**

An introduction to the various engineering disciplines, the engineering approach to problem solving, and the design process. Projects emphasize the importance of teamwork, written oral communication skills, as well as ethical responsibilities. Pre/Corequisite(s): MATH 190G.

**ENGR 111 - Mathematics for Engineering Applications (3 cr.)**

An introduction to engineering mathematics and basic programming skills needed to perform elementary data manipulation and analysis. Consent of Instructor required. Prerequisite(s)/Corequisite(s): MATH 190G. Prerequisite(s): MATH 121G.

**ENGR 198 - Special Topics in Engineering (1-3 cr.)**

Directed individual study of topics in engineering. Written reports covering work required. Prerequisite: consent of academic dean. May be repeated for a maximum of 6 credits. Restricted to engineering majors. Graded S/U.

**ENGR 398 - Engineering Leadership Seminar (0-3 cr.)**

This course introduces students to concepts and skills related to leadership positions held at the University in the College of Engineering. The course will provide theory and practice in leadership; provide skills in effective oral communications and presentation, team building skills, and general knowledge of NMSU and the College of Engineering. May be repeated up to 18 credits. Consent of Instructor required.

**ENVE - ENVIRONMENTAL ENGINEERING****ENVE 455 - Solid and Hazardous Waste Systems Design (3 cr.)**

Design of processes and facilities used in the transport, storage, treatment, and disposal of solid and hazardous wastes. Prerequisite: C E 356 or consent of instructor.

**ENVE 456 - Environmental Engineering Design (3 cr. (2+3P))**

Design of chemical, physical and biological operations and processes involved in water and wastewater treatment. Prerequisite: C E 356.

**ENVE 462 - Sampling and Analysis of Environmental Contaminants (3 cr. (1+6P))**

Theory, application, methodology, and instrumentation used in the sampling and analysis of environmental contaminants. Prerequisites: C E 256 and E S 256. Same as E S 462.

**EPWS - ENTOMOLOGY, PLANT PATHOLOGY AND WEED SCIENCE**

Entomology, Plant Pathology and Weed Science Program (p. 40)

**EPWS 100 - Introduction to Pest Management (3 cr.)**

Introduction to applied biology including recognition and control of major pest problems of crops, livestock, native vegetation, and homes. One-hour lab is optional.

**EPWS 100 L - Pest Management Lab (1 cr.)**

Laboratory to study and observe insect, disease, and weed problems in various agricultural and horticultural environments. Corequisite: EPWS 100.

**EPWS 200 - Special Topics (1-4 cr.)**

Specific subjects and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester and a grand total of 9 credits.

**EPWS 300 - Special Topics (1-4 cr.)**

Specific topics and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester and a grand total of 9 credits.

**EPWS 301 - Agricultural Biotechnology (3 cr. (2+2P))**

The principles of molecular biology will be introduced and used to explore the past, present, and future applications of biotechnology in agriculture. Specific topics include methodologies for making transgenic plants with increased pest resistance, the use of biotechnology in pest detection, and improving nutritional value. The laboratory will provide students with hands-on experience with equipment used for biotechnology research. Prerequisites: CHEM 112G, BIOL 111G, or BIOL 211G.

**EPWS 302 - General Entomology (4 cr.)**

An introduction to the biology and classification of insects. Lecture covers life histories, classification, ecology and behavior of insect orders and families. Laboratory focuses on identification of insect orders and families. Prerequisite(s): BIOL 111G or 211G.

**EPWS 303 - Economic Entomology (4 cr. (3+2P))**

Identification and life cycles of insects of economic significance, their relationship to humans and agriculture including biological interactions and controls. Prerequisite(s): Either BIOL 111G or BIOL 211G.

**EPWS 310 - Plant Pathology (4 cr. (3+2P))**

Causes and methods of prevention and treatment of diseases in plants. Prerequisite(s): Either BIOL 111G or BIOL 211G.

**EPWS 311 - Introduction to Weed Science (4 cr. (3+2P))**

Principles of weed science, with emphasis on characteristics of invasive plants, methods of integrated weed management, and current issues impacting weed management. Identification of local weeds. Crosslisted with: AGRO 311. Prerequisite(s): CHEM 111G, and BIOL 211G.

**EPWS 314 - Plant Physiology (3 cr.)**

Overview of photosynthesis, respiration, water relations of plants, minerals and organic nutrition, growth and development. Prerequisites: BIOL 211G, CHEM 112G. Same as BIOL 314.

**EPWS 325V - Insects, Humans, and the Environment (3 cr.)**

Overview of the interactions of the world's largest group of organisms with humans. Emphasizing the role of insects in the development of human cultures, including health, food and fiber production, art, music, and environmental issues; with discussions of historic, present day, and future impacts in underdeveloped, developing, and developed civilizations.

**EPWS 373 - Fungal Biology (3 cr. (2+2P))**

Introduction to the taxonomy, morphology, physiology, and ecology of fungi. Prerequisites: EPWS 310 or BIOL 311, or consent of instructor. Same as BIOL 373.

**EPWS 380V - Ecosystem Earth: The Impact of Human Activities (3 cr.)**

Analysis and evaluation of how human activities affect the earth's environment or ecosystems. Several examples, from global issues to local issues in the tropics and temperate latitudes, will be studied in detail. World population, agricultural productivity, loss of biodiversity, deforestation, and future prospects for the environment.

**EPWS 390 - Internship (1-3 cr.)**

Professional work experience under the joint supervision of the employer and a faculty member. A written report is required. Maximum of 3 credits. Prerequisite: consent of instructor. Graded S/U.

**EPWS 420 - Environmental Behavior of Pesticides (3 cr.)**

Behavior of pesticide compounds in the environment, their function toward target and non target pest organisms including humans, effect of environmental conditions on pesticide function, ecology of organisms involved in pesticides degradation, overview of environmental regulation Prerequisite(s): CHEM 211.

**EPWS 447 - Seminar (1 cr.)**

Organization and techniques for the oral presentation of research information. Restricted to: Main campus only.

**EPWS 449 - Special Problems (1-3 cr.)**

Individual investigation in specific areas of entomology, plant pathology or plant physiology. Maximum of 3 credits per semester and a grand total of 6 credits.

**EPWS 451 - Special Topics (1-4 cr.)**

Specific subjects and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester and a grand total of 9 credits. Prerequisite: consent of instructor.

**EPWS 455 - Advanced Integrated Pest Management (3 cr.)**

Examination of factors affecting the biology and ecology, population evaluations, and control of insect, disease, and weed pests with an emphasis on integrating management practices. Credit cannot be given for both EPWS 455 and EPWS 505. Crosslisted with: EPWS 505. Prerequisite(s): Either EPWS 303 or EPWS 310 or EPWS 311, or consent of instructor.

**EPWS 456 - Biological Control (3 cr.)**

Principles of plant and animal suppression using living organisms. Interaction of biological control organisms with biotic and abiotic factors will be stressed. Credit cannot be given for both EPWS 456 and EPWS 506. Prerequisite: introductory course in entomology.

**EPWS 462 - Parasitology (3 cr.)**

Introduction to classification, biology, ecology and management of the major parasites of human, domestic animals and wildlife.

**EPWS 462 L - Parasitology Lab (1)**

Methods of collecting and identifying the major parasites of humans, domestic animals and wildlife. Concurrent enrollment in EPWS 462 is desirable.

**EPWS 471 - Plant Mineral Nutrition (3 cr.)**

Same as HORT 471 and AGRO 471.

**EPWS 475 - Urban Entomology (3 cr.)**

Identification and life cycles of insects in urban environments, their relationship to humans, agriculture, biological interactions and controls Prerequisite(s): Either BIOL 111G or BIOL 211G.

**EPWS 481 - Plant Nematology (3 cr. (2+2P))**

Biology, ecology and basic identification of soil-inhabiting nematodes, with emphasis on host-parasite relationships and management principles for plant-parasitic genera.

**EPWS 486 - Plant Virology (3 cr.)**

An overview of viral pathogens associated with infectious plant disease. Includes pathogens, replication, genetics, transmission, and movement of plant viruses.

**EPWS 491 - Insect Physiology (3 cr.)**

Metabolism of carbohydrates, amino acids, lipids, and vitamins. Physiology of development, reproduction, pheromone and sensory reception. Prerequisites: EPWS 303 or BIOL 433, CHEM 211, or consent of instructor.

**EPWS 492 - Diagnosing Plant Disorders (3 cr. (2+3P))**

Systematic diagnosis of the physiological, pathological, and entomological causes of plant disorders. Prerequisites: EPWS 303, EPWS 310. Same as AGRO 492 and HORT 492.

**FCS - FAMILY AND CHILD SCIENCE****FCS 121 - Financial Fitness for College Students (1 cr.)**

An introduction to personal financial practices in post high school and or college lives. Emphasis is placed on budgeting, savings, investment, college debt, student loans, credit cards, scams and consumer protection.

**FCS 181 - Interpersonal Skills in Intimate Relationships (3 cr.)**

Developing social skills within friendships, dating relationships, marriage, parenting, and families.

**FCS 210 - Infancy and Early Childhood in the Family (3 cr.)**

Research and theory relevant to prenatal development and the physical, mental, and socio-emotional development of the child from birth to age five. Attitudes,

knowledge, and skills needed for working with young children and their families. Restricted to Las Cruces campus only.

**FCS 211 - Middle Childhood Development in the Family (3 cr.)**

Research and theory relevant to the physical, mental, social, and emotional development of the child from age five to age twelve. Attitudes, knowledge, and skills related to working with school-age children in the family system. Observation in a variety of settings may be required. Restricted to Las Cruces campus only.

**FCS 212 - Adolescent Development and the Family (3 cr.)**

Research and theory relevant to the physical, mental, social, and emotional development of the children ages 12 to 18. Attitudes, knowledge, and skills related to working with adolescents in the family system. Observation in a variety of settings may be required. Restricted to Las Cruces campus only.

**FCS 213 - Adult Development and Aging (3 cr.)**

Research and theory related to the physical, mental, social, and emotional development of older adults. Attitudes, knowledge, and skills related to working with older adults in the family system, including normative, and nonnormative transitions. Restricted to Las Cruces campus only.

**FCS 300 - Special Topics (1-4)**

Specific subjects and credits announced in the Schedule of Classes. Maximum of 4 credits per semester and a grand total of 9 credits.

**FCS 301 - Personal and Family Finance (3 cr.)**

Principles, processes and procedures involved in effective utilization and management of financial resources to meet the needs of individuals and/or families. Open to nonmajors.

**FCS 302 - Consumer Practices and Problems for Families (3 cr.)**

Consumer issues related to social, political, and economic components of the larger social system. Focuses on consumer rights and responsibilities within the marketplace.

**FCS 380 - Family Dynamics (3 cr.)**

The dynamics of family relationships and changes influencing contemporary families. Interaction between the family and other social systems will be examined. Open to nonmajors.

**FCS 383 - Parenting and Child Guidance (3 cr.)**

Theories, principles, and skills essential for parents and professionals in guiding children within the family system. Problem prevention techniques are stressed.

**FCS 424 - Field Experience: Issues and Ethics (4 cr.)**

Supervised work experience in community agencies providing services to family systems. Discussion of professional issues and ethical dilemmas. A total of 8 credits must be taken. Consent of instructor required. Prerequisite(s): FCS 380 or equivalent, junior standing, and an overall GPA of at least 2.5 and consent of instructor. Restricted to: Main campus only. Restricted to FCS majors.

**FCS 449V - Family Ethnicities and Subcultures (3 cr.)**

Comparative study of American family subsystems with respect to selected social, economic, and cultural backgrounds. Interaction of these subsystems in American society. Differentiated assignments for graduate students.

**FCS 450 - Equine Assisted Learning (3 cr.)**

Covers the complex relationship between horses and humans. Students are introduced to human psychological theories and methods of how people and horses can work together and the application of such structured learning settings using horses to achieve learning outcomes. Students will also be introduced to horsemanship including proper use and maintenance of equipment, safety, handling, basic care, behavior of horses and benefits of the horse. Consent of instructor required. Crosslisted with: ANSC 450

**FCS 492 - Special Problems (1-4 cr.)**

Individual research in a selected subject area of family and consumer sciences. Maximum of 4 credits per semester and a total of 6 credits.

**FCSC-FAMILY AND CONSUMER SCIENCE****FCSC 400 - Research Methods in Family and Consumer Sciences (3 cr.)**

Introduction to research design and methodology in Family and Consumer Sciences. Overview of common research designs and data collection strategies. Prepares students to critique published research and perform basic skills including hypotheses development and conducting a literature search.

**FCSE-FAMILY AND CONSUMER SCIENCE EDUCATION****FCSE 235 - Housing and Interior Design (3 cr.)**

Investigation of types of housing and factors impacting housing decisions for families. Selection, planning, and arrangement of interior components of homes to meet the needs of the family. Prerequisite(s): No prerequisites. Restricted to Las Cruces campus only.

**FCSE 245 - Overview of Family and Consumer Sciences Teaching (3 cr.)**

Overview of planning and teaching skills. Supervised experiences in observing and directing the learning of secondary family and consumer sciences students. Philosophy and history of the profession.

**FCSE 331 - Management of Family Life and Resources (3 cr.)**

Concepts, principles, and processes of management applied to family living and the optimal utilization of family resources. Open to nonmajors.

**FCSE 345 - Management Concepts in Family and Consumer Sciences Teaching (3 cr.)**

Incorporation and application of management concepts in family and consumer sciences subject matter. Practical experience teaching management and ways to use management skills to plan, implement, and evaluate the teaching-learning transaction.

**FCSE 348 - Teaching in Informal Family and Consumer Sciences Settings (3 cr.)**

Learning principles and theories with application in informal family and consumer sciences education situations. Includes supervised experience in use of teaching strategies. Prerequisite: overall GPA of at least 2.5 or consent of instructor.

**FCSE 445 - Career and Technical Education Programs (3 cr.)**

History and development of vocational education programs. Ancillary functions of family and consumer sciences teachers. Experiences in extension programs and teaching.

**FCSE 446 - Teaching Methods I for Family and Consumer Sciences (3 cr.)**

Objectives, content, and organization of family and consumer sciences curriculum in high schools; materials and methods of teaching. Prerequisites: FCSE 245 and FCSE 345 and an overall GPA of at least 2.5, or consent of instructor. Restricted to majors.

**FCSE 447 - Teaching Methods II for Family and Consumer Sciences (3 cr.)**

Planning, preparation, and strategies for teaching family and consumer sciences in the secondary schools. Preparation for employment. Prerequisites: FCSE 245, FCSE 345, FCSE 445, FCSE 446 and an overall GPA of at least 2.5, or consent of instructor. Restricted to majors.

**FCSE 448 - Supervised Teaching in Family and Consumer Sciences (9-12 cr.)**

Seventy (70) days of full-time supervised teaching in selected high schools. Consent of Instructor required. Prerequisite(s): FCSE 446, an overall GPA of at least 2.5, and consent of instructor. Restricted to: FCSE majors.

**FCSE 492 - Special Problems (1-4 cr.)**

Individual research study in a selected subject area of family and consumer sciences. Maximum of 4 credits per semester and 6 credits toward degree.

**FIN - FINANCE****FIN 206 - Introduction to Finance (3 cr.)**

Theory and techniques of financial management for business firms. Includes application of financial analysis tools and techniques needed for business financial administration and decision making. Prerequisites: either ACCT 202 and

ECON 251, or ECON 252 and MATH 120G, or consent of instructor. Community Colleges only.

**FIN 210 - Financial Planning and Investments (3 cr.)**

Individual financial planning and related financial markets and institutions. Community Colleges only.

**FIN 303V - Personal Financial Planning and Investing in a Global Economy (3 cr.)**

Provides a framework for successful personal financial planning within an individual's career and income. Covers personal money management, federal and state taxation, the mathematics of finance and credit, housing, inflation, insurance, savings, and investments. Majors and minors may not use this course to satisfy their finance requirements.

**FIN 311 - Financial Futures Markets (3 cr.)**

Same as AG E 311.

**FIN 322 - Principles of Insurance (3 cr.)**

Theory and practice of insurance and its economics and social significance; review of the major lines of insurance including life, health, and property liability insurance.

**FIN 323 - Life/Health/Employee Benefits (3 cr.)**

Approaches to problems of employee security from the perspective of businesses. Topics including pensions, profit-sharing plans, 401(k) plans, group life and health plans, and flexible benefit programs. The course also addresses individual life, health, and annuity contracts within a financial planning context. Prerequisite: FIN 322.

**FIN 324 - Property and Liability Insurance (3 cr.)**

Analysis of property and liability insurance with emphasis on handling of commercial exposures. Review of property and liability company operations including rate making and insurance accounting. Prerequisite: FIN 322

**FIN 325 - Real Estate Principles and Law I (3 cr.)**

Real estate law and the fundamental aspects of the real estate purchase transaction and the real estate lease agreement. Topics include real estate brokerage, marketing of real estate, fundamental legal aspects of real estate, present and future interests, air and water rights, methods of transfer, basics of financing and liens, and real estate leases. Same as BLAW 325.

**FIN 326 - Business Risk Management (3 cr.)**

The operational risks faced by firms and the study of various methods of handling these risks, including loss prevention, risk retention, self-insurance, corporate insurance programs, and capital markets. Prerequisites: FIN 322

**FIN 341 - Financial Analysis and Markets (3 cr.)**

Financial analysis for business financing and investing decisions. Prerequisites ACCT 221, ECON 251G, ECON 252G, MATH 121G or MATH 230, A ST 251G or A ST 311 or STAT 251G.

**FIN 355 - Investments (3 cr.)**

Analysis of investment risks and rewards and of the problems of portfolio selection and management. Operation of the securities market. Prerequisite(s): FIN 341 with a grade of C- or better.

**FIN 360 - Financial Information Technology (3 cr.)**

Integrated use of electronic financial information resources with spreadsheet and word processing applications in investigating financial issues and solving financial problems. Prerequisites: FIN 341 or consent of instructor.

**FIN 385 - Analysis of Financial Markets and Institutions (3 cr.)**

Analysis of the financial system, emphasizing its institutions and instruments. Prerequisite(s): FIN 341 with a grade of C- or better.

**FIN 391 - Finance Internship and Cooperative Education I (1-3 cr.)**

Introduction and application of finance principles in a work environment. Open only to students in the finance major or minor who will be working with an approved employer in a finance related position, over a period of 12 weeks or at least 300 work hours. Consent of instructor required.



**FIN 392 - Insurance Internship and Cooperative Education I (1-3 cr.)**

Introduction and application of insurance principles in a work environment. Open only to students in the finance major or insurance minor who will be working with an approved employer in an insurance related position, over a period of 12 weeks or at least 300 work hours. Consent of instructor required. Restricted to Finance majors.

**FIN 393 - Banking Internship and Cooperative Education (1-3 cr.)**

Professional banking experience with opportunities to engage in business analysis and to observe application of business principles in the management of a banking entity or a regulatory agency with banking oversight. Open only to students in the finance major or banking minor who will be working with an approved employer in a banking related position, over a period of 12 weeks or at least 300 work hours. May be repeated up to 3 credits. Consent of Instructor required.

**FIN 406 - Theory of Financial Decisions (3 cr.)**

Contemporary financial theory. Firm valuation, investments and financing decisions, risk analysis. Prerequisite(s): FIN 341 with a grade of C- or better.

**FIN 421 - Personal Financial Planning for Professionals (3 cr.)**

Introduction to personal financial planning, including goal setting and fact finding, cash management, credit, housing, retirement planning, taxation and estate planning. This course is intended for those planning careers in personal financial advising in one of the various financial services environments. Prerequisite(s): FIN 341, or consent of Instructor.

**FIN 435 - Investment Analysis (3 cr.)**

Efficiency of capital markets, modern portfolio management, special topics of current interest to investment analysts. Prerequisite: FIN 355.

**FIN 436 - Applied Security Analysis and Portfolio Management (1-3 cr.)**

Application of analytical tools to security selection and portfolio management Pre/Corequisite(s): FIN 435.

**FIN 445 - Fixed Income Markets, Instruments and Derivatives (3 cr.)**

Course provides a broad introduction to treasury, corporate, municipal, mortgage backed and asset backed bond markets. The analytical techniques for valuing bonds, quantifying their exposure to changes in interest rate and credit risk exposures and investment decision-making are explored. Prerequisite(s): FIN 341.

**FIN 456 - Real Estate Investments and Financing (3 cr.)**

Basic considerations for real estate investment and financing in local, state, and national markets. Prerequisite: FIN 325 or BLAW 325 or consent of instructor.

**FIN 466 - Financial Policy Decisions (3 cr.)**

Application and integration of financial theory, concepts, and practice using the case method. Prerequisite: FIN 406 or consent of instructor.

**FIN 470 - Real Estate Appraisal (3 cr. (2+2P))**

This course addresses issues influencing the value of real estate with some emphasis upon rural properties. Topics include courthouse records, property taxes, appraisal methodology, expert courtroom testimony, condemnation, and legal issues. Students will take field trips and write appraisals. Course material is relevant to student in Finance, Accounting, and Pre-Law, as well as Agriculture. Accredited for hours to apply to both pre-licensing and continuing education requirements of the New Mexico Real Estate Commission for both Appraisers and Real Estate Brokers. Prerequisite(s): Junior or above standing. Crosslisted with: AG E 470.

**FIN 475 - International Managerial Finance (3 cr.)**

International aspects of financial transactions, decision-making, banking and financial markets. Prerequisite: FIN 341. Same as I B 475.

**FIN 480 - Management of Financial Institutions (3 cr.)**

Asset and liability management of financial institutions; emphasis on commercial bank management. Prerequisite: FIN 385 or consent of instructor.

**FIN 490 - Selected Topics (1-3 cr.)**

Current topics in finance. Prerequisites: vary according to the seminar being offered.

**FIN 491 - Finance Internship and Cooperative Education II (1-3 cr.)**

Advanced application of finance techniques to the work environment. Prerequisite: consent of instructor. Restricted to finance majors.

**FIN 498 - Independent Study (1-3 cr.)**

Individual studies directed by consenting faculty with the prior approval of the department head. Prerequisites: junior or above standing and consent of instructor. A maximum of 3 credits may be earned.

**FREN - FRENCH****FREN 111 - Elementary French I (4 cr.)**

French language for beginners.

**FREN 112 - Elementary French II (4 cr.)**

French language for beginners. Prerequisite: C or better in FREN 111.

**FREN 211 - Intermediate French I (3 cr.)**

Speaking, reading and writing. Prerequisite: C or better in FREN 112.

**FREN 212 - Intermediate French II (3 cr.)**

Speaking, reading and writing. Prerequisite: C or better in FREN 211.

**FREN 306 - Topics in French Culture and Civilization (3 cr.)**

Selected topics focusing on French culture and civilization. Topics identified in the Schedule of Classes. May be repeated for a maximum of 6 credits. Prerequisite: FREN 212 or consent of instructor.

**FREN 315 - French Grammar (3 cr.)**

A thorough review of French grammar through the study of grammatical elements and the use of grammatical exercises. Prerequisite(s): FREN 212 or consent of instructor.

**FREN 325 - Intermediate Conversation (3 cr.)**

French conversation through intensive oral practice with emphasis on vocabulary acquisition and pronunciation. Prerequisite: FREN 212 or consent of instructor.

**FREN 341 - Introduction to French Linguistics (3 cr.)**

This course aims to introduce the basic concepts of contemporary linguistics and to show how the French language functions in regard to form and meaning. Prerequisite(s): FREN 212.

**FREN 352 - French Phonetics (3 cr.)**

Systematic description of modern French pronunciation. Corrective exercises for foreign learners. Formal study of spelling/pronunciation relationships. Prerequisite(s): FREN 212 or consent of instructor.

**FREN 360 - French Cinema (3 cr.)**

The evolution of contemporary French cinema. A critical understanding of film as an art form and as cultural expression. Prerequisite: FREN 212 or consent of instructor.

**FREN 362 - Contemporary French Culture (3 cr.)**

Institutions, lifestyles and popular attitudes in modern France. Prerequisite(s): FREN 212 or consent of instructor.

**FREN 365V - Perspectives in French Culture (3 cr.)**

Examines components of French culture through literature, films and other sources. Taught in English. Does not satisfy Arts and Sciences second language requirement. Does not satisfy French major or minor requirements.

**FREN 378 - Studies in Francophone Cultures (3 cr.)**

Studies of representative Francophone cultures through their history, literature, music and films. Prerequisite(s): FREN 212 or consent of instructor.

**FREN 381 - Survey of French Literature I (3 cr.)**

Literary movements, authors and selected texts of the Middle Ages through the eighteenth century. Prerequisite(s): FREN 212 or consent of instructor.

**FREN 382 - Survey of French Literature II (3 cr.)**

Literary movements, authors and selected texts of the nineteenth and twentieth centuries. Prerequisite(s): FREN 212 or consent of instructor.

**FREN 385 - French Civilization (3 cr.)**

A detailed study of important events in French civilization from its origins to the twentieth century through the study and discussion of history, literature, fine arts and politics. Prerequisite(s): FREN 212 or consent of instructor.

**FREN 386 - Contemporary Women Writers in French (3 cr.)**

Exploration of literary texts by contemporary women writers in France and the Francophone world; emphasizes the cultural contexts that have defined women's relationship to writing. Selections will vary from year to year. Prerequisite(s): FREN 212 or consent of instructor.

**FREN 425 - Advanced French Conversation (3 cr.)**

Mastery of spoken French language through discussion of personal readings and group work to develop vocabulary, syntactical and conversational skills. The class is conducted entirely in French. Prerequisite(s): FREN 325 or consent of instructor.

**FREN 449 - Special Problems (1-3 cr.)**

Directed reading for graduate students in specific field to satisfy language requirement for master's or doctoral programs.

**FREN 451 - Special Topics in French (1-3 cr.)**

Selected topics relating to the cultures or literatures of the countries where French is spoken will be announced in the Schedule of Classes. Prerequisite: consent of instructor. May be repeated for a maximum of 12 credits.

**FREN 453 - Independent Studies in French (1-3 cr.)**

Individualized, self-paced projects for advanced students. Prerequisite: consent of instructor. May be repeated for a maximum of 6 credits.

**FREN 462 - Advanced Contemporary French Culture (3 cr.)**

Advanced study of institutions, lifestyles and popular attitudes in modern France. Emphasis on everyday life rather than prestigious monuments in civilizations. Prerequisite: FREN 212 or consent of instructor.

**FREN 466 - Introduction to French Linguistics (3 cr.)**

This course aims to introduce the basic concepts of contemporary linguistics and to show the French language functions with regard to form and meaning. Consent of instructor required. Prerequisite(s): Advanced level in French.

**FREN 471 - The French Novel (3 cr.)**

Development of the novel and analysis of selected texts with emphasis on the nineteenth and twentieth centuries. Prerequisite(s): FREN 212 or consent of instructor.

**FREN 472 - The French Short Story (3 cr.)**

Study and discussion of French short stories through the ages. Prerequisite(s): FREN 212 or consent of instructor.

**FREN 478 - Studies in Francophone Cultures Around the World (3 cr.)**

Advanced studies of representative Francophone cultures through their history, literature, music and films. Prerequisite(s): FREN 212 or consent of instructor.

**FREN 486 - Advanced Contemporary Women Writers in French (3 cr.)**

Advanced study of literary texts by contemporary women writers in France and the Francophone world; emphasizes the cultural contexts that have defined women's relationship to writing. Selections will vary from year to year. Prerequisite(s): FREN 212 or consent of instructor.

**FRMG - FAMILY RESOURCE MANAGEMENT****FRMG 450 - Special Topics (1-4 cr.)**

Special subjects and credits to be announced in the Schedule of Classes. May be taken for a maximum of 4 credits per semester and a total of 9 credits toward a degree.

**FRMG 492 - Special Problems (1-4 cr.)**

Individual research study in a selected subject of Family and Consumer Sciences. Maximum of 4 credits per semester and a grand total of 8 credits towards a degree. Consent of Instructor required.

**FSTE-FOOD SCIENCE AND TECHNOLOGY****FSTE 164G - Introduction to Food Science and Technology (4 cr. (3+2P))**

An introductory course in the scientific study of the nature and composition of foods and their behavior during all aspects of their conversion from raw materials to consumer food products.

**FSTE 175 - ACES in the Hole Foods I (4 cr. (2+8P))**

Food production activities related to operation of ACES in the Hole Foods, a student-run food company that will give FSTE majors hands-on experience in all aspects of developing, producing and marketing food products. Prerequisite(s): FSTE 164G. Restricted to: exclude FSTE majors. Restricted to Las Cruces campus only.

**FSTE 200 - Special Topics (1-4 cr.)**

Specific topics and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester and a grand total of 9 credits.

**FSTE 210G - Survey of Food and Agricultural Issues (3 cr.)**

Same as AG E 210G.

**FSTE 263G - Food Science I (4 cr. (4+3P))**

The scientific study of the principles involved in the preparation and evaluation of foods.

**FSTE 275 - ACES in the Hole Foods II (4 cr. (2-8P))**

Food production activities related to operation of ACES in the Hole Foods, a student-run food company that will give FSTE majors hands-on experience in all aspects of developing, producing and marketing food products. May be repeated up to 8 credits. Prerequisite(s): FSTE 175.

**FSTE 320 - Food Microbiology (3 cr. (2+3P))**

Detrimental and beneficial microbiological aspects of food products. Methods of quantification and identification of microorganisms associated with food spoilage and preservation. Prerequisite: BIOL 111G and BIOL 111GL, or BIOL 211G and BIOL 211GL or consent of instructor.

**FSTE 325 - Food Analysis (3 cr.)**

Basic chemical and physical techniques used in establishing nutritional properties and overall acceptance of food products. Prerequisite: CHEM 111G or consent of instructor.

**FSTE 328 - Introduction to Food Engineering (4 cr. (3+2P))**

Basic engineering principles including mass and energy balances, fluid flow, heat transfer and chemical kinetics and their application to food processing unit operations. Video and laboratory participation are used to enhance course content and relevance. Prerequisite(s): MATH 142G or consent of instructor.

**FSTE 331 - Food Preservation (3 cr. (2+3P))**

Processes used in home and commercial food preservation, including canning, freezing, drying, and irradiation. Prerequisite: FSTE 263G.

**FSTE 375 - ACES in the Hole Foods III (4 cr. (2-8P))**

Food production activities related to operation of ACES in the Hole Foods, a student-run food company that will give FSTE majors hands-on experience in all aspects of developing, producing and marketing food products. May be repeated up to 8 credits. Prerequisite(s): FSTE 275. Restricted to: FSTE majors.

**FSTE 415 - Food Safety and Sanitation (3 cr.)**

Biological, chemical and physical factors that affect the safety of food products. Basic aspects of food sanitation. Hazard analysis critical control points (HACCP). Laws and regulations influencing food safety. Prerequisites: BIOL 110G or BIOL 190 or BIOL 211G, and CHEM 110G or CHEM 111G, or consent of instructor.

**FSTE 421 - Food Chemistry (3 cr.)**

Comprehensive study of the chemical and physicochemical properties of food constituents. Chemical changes involved in the production, processing, and storage of food products and basic techniques used to evaluate chemical and physicochemical properties of foods. Prerequisites: CHEM 111G, CHEM 112G, and CHEM 211, or consent of instructor.

**FSTE 423 - Food Processing Technologies (4 cr. (3+2P))**

Common food processing unit operations such as raw material preparation, separation, concentration, fermentation, pasteurization, sterilization, extrusion, dehydration, baking, frying, chilling, freezing, controlled atmosphere storage, water, waste and energy management, packaging, materials handling and storage and process control. Application of principles to processing food in a laboratory setting. Prerequisite(s): FSTE 328.

**FSTE 425 - Sensory Evaluation of Foods (3 cr. (2+2P))**

Principles and procedures involved in the sensory evaluation of foods. Physiological, psychological and environmental factors affecting the evaluation of sensory properties. Analysis and interpretation of sensory data. Prerequisite(s): FSTE 263G and A ST 311 or STAT 251G.

**FSTE 426 - Dairy Products Manufacturing (3 cr.)**

Physical, chemical, microbiological and sensory properties of milk and dairy products. Capstone course which includes a variety of techniques used in previous classes to evaluate milk and dairy products. Prerequisites: HNFS 320, HNFS 325, and HNFS 421, or consent of instructor.

**FSTE 427 - Food Industry Research Problems I (3 cr.)**

In coordination with the instructor, students choose a food-industry problem and design a research project aimed at solving that problem. Prerequisites: HNFS 263, HNFS 320, HNFS 325, and HNFS 447, or consent of instructor. Restricted to majors.

**FSTE 428 - Food Industry Research Problems II (3 cr.)**

Students conduct the research project designed in HNFS 427 and complete a journal article on the project following a specified format. Prerequisite: HNFS 427. Restricted to majors.

**FSTE 429 - Product Development (0-3 cr. (2+2P))**

Application of chemical, physical, nutritional and psychological principles and experimental methods to the development and evaluation of a food product for a specified food product development competition. Prerequisite(s): FSTE 320 and FSTE 425.

**FSTE 430 - Designing and Brewing Great Beers of the World (3 cr. (2+2P))**

The science and technology of brewing unit operations and the ingredients used in beer brewing. That knowledge is then applied to designing and brewing classic world beer styles. Styles investigated change every semester but typically include India Pale Ale, Pale Ale, Stout, Porter, Hefeweizen, Scottish Ale, and Black IPA. Comprehensive evaluation of the product relative to style guidelines completes the design-brew-evaluate cycle. Students must be at least 21 years of age on the first day of class.

**FSTE 431 - Brewing Science and Technology- Wort Preparation (3 cr. (2+2P))**

This course looks at the production of brewer's wort beginning with malting and includes mashing, the hop boil and cooling. Special emphasis is placed on the necessary scientific background to provide the student with the skills and understanding to optimize each of the unit operations involved. Students must be at least 21 years of age to enroll in this course.

**FSTE 432 - Brewing Science and Technology- Fermentation (3 cr. (2+2P))**

A practical look at the role of yeast in brewing. Includes yeast life cycle, yeast propagation, yeast cropping, yeast pitching and yeast contamination. Studies also include the fermentation process with special emphasis placed on the necessary scientific background to provide the student with the skills and understanding to optimize it. Students must be at least 21 years of age to enroll in this course.

**FSTE 433 - Brewing Science and Technology- Radical Brewing (3 cr. (2+2P))**

A practical look at how the standard beer styles can be adapted to increase variety and to enhance their appeal to selected consumer groups. Students must be at least 21 years of age to enroll in this course. Prerequisite(s): FSTE 431 and FSTE 432.

**FSTE 434 - International Brewing Traditions (3 cr.)**

International travel to gain first-hand experience in the brewing methods and beer styles throughout the world and the culture associated with beer. Students must be at least 18 years of age to enroll in this course. May be repeated up to 6 credits.

**FSTE 447 - Experimental Foods (3 cr.)**

Application of chemical, physical, nutritional and psychological principles and experimental methods to the development and evaluation of foods. Prerequisite: FSTE 263G.

**FSTE 450 - Special Topics (1-4 cr.)**

Specific subjects and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester and a grand total of 9 credits towards a degree. Consent of instructor required.

**FSTE 475 - ACES in the Hole Foods IV (1-4 cr. (2P))**

Food production activities related to operation of ACES in the Hole Foods, a student-run food company that will give FSTE majors hands-on experience in all aspects of developing, producing and marketing food products. Prerequisite(s): FSTE 375. Restricted to FSTE majors.

**FSTE 492 - Special Problems (1-4 cr.)**

Individual research study in a selected subject of Family and Consumer Sciences. Maximum of 4 credits per semester and a grand total of 8 credits towards a degree. Consent of instructor required.

**FWCE-FISH, WILDLIFE AND CONSERVATION ECOLOGY****FWCE 110 - Introduction to Natural Resources Management (3 cr.)**

Introduction to managing natural resources with an emphasis on historical and current issues affecting the management of renewable natural resources.

**FWCE 111 - Freshman Orientation (1 cr.)**

Orientation to university life, including the understanding and utilization of resources that promote University success. Designated to promote success in achieving a career objective and perseverance for degree completion. Promotes a recognition of changes required in moving from high school to the University. Eight weeks in length, required for all freshmen in the College of Agriculture and Home Economics.

**FWCE 255 - Principles of Fish and Wildlife Management (3 cr.)**

Basic principles of fish and wildlife management including history, ecology, economics, and policy. Emphasis on wildlife and fisheries. Uses an ecosystem approach integrating living and nonliving resources.

**FWCE 301 - Wildlife Ecology (3 cr.)**

General ecological theory with emphasis on concepts including biogeography, species interactions, population dynamics and disease ecology as they relate to the management and conservation of vertebrates. Prerequisite(s): BIOL 111G or BIOL 190.

**FWCE 330 - Natural History of the Vertebrates (4 cr. (3+3P))**

Evolution, ecology, and diversity of vertebrates. Topics include comparative anatomy and physiology, biogeography, community ecology, behavior, and conservation. Laboratory emphasizes identification of local taxa. Field trips required. Prerequisite(s)/Corequisite(s): BIOL 322. Prerequisite(s): BIOL 111G and BIOL 111GL.

**FWCE 355 - Wildlife Techniques and Analysis (4(3+2P))**

FWCE 355 will provide a broad overview of basic skills and techniques that are commonly used by biologists in performing management, research, and reporting functions in natural resource fields with an emphasis on wildlife techniques, data processing and analysis. May be repeated up to 6 credits. Prerequisite(s): FWCE 301, A ST 311.

**FWCE 357 - Fisheries Management and Analysis (4 cr. (3+2P))**

Provide a broad overview of basic skills and techniques that are commonly used by wildlife biologists in performing management, research, and reporting functions with an emphasis on wildlife techniques, data processing and analysis. Prerequisite(s): FWCE 301 and A ST 311.

**FWCE 391 - Internship (1 cr.)**

Professional work experience under the joint supervision of the employer and a faculty member. A written report is required. No more than 3 credits toward a degree. Prerequisite: consent of instructor. Graded S/U.

**FWCE 393 - Professional Experience and Communication (3 cr.)**

Professional work experience under the supervision of employer and/or a faculty member. Written report and presentation is required. Prerequisite(s)/Corequisite(s): FWCE 255.

**FWCE 402 - Seminar in Natural Resource Management (1 cr.)**

Review of current topics in natural resource management. Oral and written report required. Prerequisite: senior standing or above.

**FWCE 409 - Introduction to Population Ecology (3 cr.)**

Quantitative analysis of vital statistics and mechanisms affecting dynamics of wild populations. Patterns of growth, age structure, survival, and natality. Population theories and life tables. Prerequisites: MATH 142G and FWCE 255.

**FWCE 430 - Avian Field Ecology (4 cr. (3+3P))**

Principles of avian ecology and management with an emphasis on taxonomy, physiology, behavior and field studies. Includes weekly field trips focusing on identification and behavior of Southwest birds. Pre/Corequisite(s): FWCE 330.

**FWCE 431 - Mammalogy (4 cr. (3+2P))**

Classification, identification, anatomy, physiology, life history, and ecology of mammals. Field trips required. Prerequisite(s): FWCE 255 and FWCE 330.

**FWCE 432 - Environmental Biology of Fishes (4 cr. (3+3P))**

What makes a fish, a fish. Mechanisms of circulation, gas exchange, osmotic and ionic regulation, swimming, migration, reproduction, and chemoreception. Taught with FWCE 532. Prerequisite(s): CHEM 111G and senior standing.

**FWCE 433 - Fisheries Management (4(3+2P))**

This course is designed to introduce students to the basic principles of fisheries management. Students will learn the techniques and tools used to collect, analyze, and interpret fisheries data needed to undertake fisheries management decisions. Taught with FWCE 533. May be repeated up to 6 credits. Consent of Instructor required. Prerequisite(s): FWCE 482 and A ST 311.

**FWCE 434 - Aquatic Contaminants and Toxicology (4 cr. (3+3P))**

Basic principles and methodologies of aquatic toxicity testing. Routes of exposure and modes of action. Environmental legislation and ecological risk assessment. Taught with FWCE 534. Crosslisted with: E S 434. Prerequisite(s): CHEM 111G and senior standing.

**FWCE 436 - Large Mammal Ecology, Conservation and Management (3 cr.)**

This course will cover aspects of large mammal ecology, management and conservation. Will include aspects of foraging ecology, resource and habitat selection, competition and resource partitioning, predation and population dynamics. Taught with FWCE 530. Consent of Instructor required.

**FWCE 437 - Wildlife Damage Management (3 cr.)**

Introduction to basic need and appropriate methods for resolving human-wildlife conflicts and management of animal damage. Socioeconomic, ecological, and political factors. Field trips required. Taught with FWCE 537. Prerequisite(s): BIOL 111G FWCE 255 FWCE 301.

**FWCE 438 - Vertebrate Physiological Ecology (3 cr.)**

Physiological ecology is a mechanistic study of the adaptations through which vertebrates successfully interact with their environment. In this class, we first look at the idea of a niche and then use this concept as a foundation to explore the physiological mechanisms vertebrates use to inhabit, reproduce, and persist in their respective environments. Topics include, but are not limited to thermal tolerances, digestive strategies, osmoregulation, energy acquisition and utilization, and other topics as defined by each student's study organism or focal ecosystem. Taught with FWCE 538. Consent of Instructor required. Prerequisite(s): FWCE 301, FWCE 409, A ST 311 or equivalent. Restricted to: FWCE majors.

**FWCE 439 - Game Bird Ecology and Management (3 cr.)**

Conserving and managing game birds poses a unique challenge. Game bird species not only face challenges posed by reproduction, predation, and competition for resources, they are also faced with recreational harvest by humans. Overharvest and unregulated hunting drove many bird species to the brink of extinction before conservation and management actions were imposed that set the standard for game management in North America. In this class we will look at the overall history of game bird management and conservation, how management and conservation of game birds was and still is the foundation for wildlife conservation in North America, define the challenges both past and present to managing and conserving game bird populations, and explore the conceptual and quantitative models used to manage migratory and non-migratory game birds in North America. Taught with FWCE 539. Consent of Instructor required. Prerequisite(s): FWCE 301, FWCE 409, A ST 311 or equivalent. Restricted to: FWCE majors.

**FWCE 440 - Wildlife Habitat Relationships (3 cr.)**

The study of wildlife-habitat relationships primarily seeks to describe how the distribution and abundance of resources used for food, cover and security, and constraints on the use of these resources influence the distribution of animals. This course will cover aspects of animal behavior related to how animals select habitat, theoretical models of habitat selection, the influence of inter- and intra-specific interactions on habitat selection, habitat quality, study designs for wildlife-habitat studies, modeling habitat selection and data analyses. Taught with FWCE 540. Consent of Instructor required. Restricted to: FWCE majors.

**FWCE 447 - Wildlife Law and Policy (3 cr.)**

This course will provide students with an overview of wildlife law in the United States. Wildlife Law will be examined from several foci, including why it exists, what it is intended to accomplish, where it comes from, what forms it takes, and how it changes. The evolution and future of wildlife law is examined in the context of enduring and emerging problems that laws are designed to resolve. As such, wildlife law is presented as an important and often dependent component under the broad rubric of environmental law that address issues of environmental quality (pollution and environmental assessment law), public lands management, natural resource extraction (mining, timber, and water), and issues that pertain to recreation and species preservation. Students will examine the types and forms of law that collectively serve to referee, organize, and establish the norms of human interaction with the natural world, with emphasis on specific State and Federal statutes. Taught with FWCE 547.

**FWCE 448 - Problems (1-3 cr.)**

Individual investigations in fishery or wildlife science. Maximum 3 credits per semester and a grand total of 6 credits. Consent of instructor required. Prerequisite(s): 18 credits in FWCE.

**FWCE 450 - Special Topics (1-4 cr.)**

Specific subjects and credits as announced in the Schedule of Classes. Maximum of 4 credits per semester and a grand total of 9 credits. Consent of instructor required.

**FWCE 457 - Ecological Biometry (3 cr.)**

Use of ecological data to test scientific hypotheses. Stochastic and statistical models for environmental data, data visualization, likelihood-based and information-based model selection. Emphasis on open-source software tools. Prerequisite(s): MATH 142G or 191G, A ST 311, FWCE 301.

**FWCE 459 - Aquatic Ecology (4 cr.)**

Plant and animal communities in aquatic ecosystems with emphasis on chemical and physical properties, productivity, species interactions, population dynamics, and concepts for diagnosing problems and restoring aquatic ecosystems. Prerequisite(s): FWCE 301 or BIOL 301, CHEM 112G, MATH 142G.

**FWCE 464 - Management of Aquatic and Terrestrial Ecosystems (4 cr. (3+2P))**

Principles and methods for managing aquatic and terrestrial ecosystems and their fish and wildlife resources. Emphasis on quantitative techniques, data collection and analysis for management of systems at a landscape spatial scale. Prerequisite(s): BIOL 301 or FWCE 301, FWCE 330, A ST 311.

**FWCE 467 - Herpetology (4 cr.)**

Systematics, taxonomy, ecology, behavior, and conservation of amphibians and reptiles. Field trips required. Prerequisite(s): FWCE 330.

**FWCE 470 - The Natural History Museum in Modern Society (3 cr.)**

Introduction to the role of natural history museums in modern society, including basic research, public education, service, and applied research in biodiversity conservation. Emphasis on experiential learning. Includes paper discussions, laboratory activities, required full-day Friday field trips, and a term project. Prerequisite(s): BIOL 111G and BIOL 111GL.

**FWCE 471 - GIS for Natural Resource Scientists (4 cr.)**

Practical GIS class for students with little or no GIS experience. Class focuses on learning to use industry-standard software and applications in natural resource management. 3.5 GPA required. Consent of Instructor required.

**FWCE 472 - Wildlife Museum Internship (1-4 cr.)**

Substantial directed work experience in various functions of the wildlife natural history museum developed by the student in consultation with the faculty curator. Internships may involve aspects of collection development and management, public education programs, or other related museum activities. Internship must be approved by the faculty curator. May be repeated up to 9 credits. Consent of Instructor required. Prerequisite(s): BIOL 111G and BIOL 111GL.

**FWCE 480 - Advanced Management of Aquatic Systems (3)**

Management of aquatic systems (lakes, reservoirs, rivers, marine) with emphasis on landscape level management. Human impacts on aquatic systems, ecosystem functioning, harvest strategies, and restoration are discussed. Taught with FWCE 580. Prerequisite(s): FWCE 301 or BIOL 301 or consent of instructor.

**FWCE 482 - Ichthyology (4 cr. (3+2P))**

Classification, morphology, identification, life history, and ecology of fishes. Prerequisite(s): FWCE 330 or consent of instructor.

**GENE - GENETICS****GENE 110 - Experimental Systems in Genetics (1 cr.)**

Survey of molecular, biochemical, organismal, and computer science based approaches to investigate how genes determine important traits. Historical development and topics of current interest will be discussed.

**GENE 303V - Genetics and Society (3 cr.)**

Relates the science of genetics with social ramifications. Ways in which genetics and evolution interact with social, political, and economic issues. Includes genetic engineering, gene therapy, DNA finger-printing, ancient DNA, plant and animal improvement, and future prospects. Students required to formulate value judgments on contemporary biological issues that will impact society. Crosslisted with: AGRO 303V.

**GENE 305 - Principles of Genetics (3 cr.)**

Covers fundamental principles of reproduction, variation, and heredity in plants and animals. Prerequisite(s): BIOL 111G, BIOL 211G and either CHEM 111G or CHEM 115. Crosslisted with: AGRO 305, ANSC 305, BIOL 305 and HORT 305

**GENE 305 L - Genetic Techniques (1 cr. (3P))**

Experimental procedures used in genetic research including: sexual transmission genetics, eukaryotic DNA isolation, DNA marker development and genotyping, polymerase chain reaction, and cytogenetics. Pre/Corequisite(s): GENE 315, or AGRO/ANSC/BIOL/HORT 305.

**GENE 315 - Molecular Genetics (3 cr.)**

Covers fundamental principles of DNA structure and replication, transcription, translation, gene regulation, recombinant DNA technology, and a survey of genomics and bioinformatics. Prerequisite(s)/Corequisite(s): Prerequisite(s): CHEM 112G and BIOL 211G. Recommend CHEM 313.

**GENE 320 - Hereditary and Population Genetics (3 cr.)**

Covers fundamental principles of reproduction, variation, and heredity in plants and animals including: Mendelian inheritance, mitosis, meiosis, genetic linkage, random mating, genetic drift, natural selection, inbreeding, migration, mutation,

interrelationships between individuals, populations and communities and the environment. Prerequisite(s): CHEM 111G BIOL 211G.

**GENE 440 - Genetics Seminar (1 cr.)**

Organization, preparation, and presentation of genetic studies in model microorganism, plant, or animal systems that have been used to solve problems in molecular, cellular, and developmental biology. Consent of instructor required. Prerequisite(s): Seniors only; GENE 315 GENE 320.

**GENE 449 - Special Problems (1-3 cr.)**

Research problem, experience training, or other special study approved by a faculty adviser. Maximum of 3 credits per semester and a grand total of 3 credits toward a degree. Consent of instructor required.

**GENE 450 - Special Topics (1-3 cr.)**

Specific subjects to be announced in the schedule of classes. Maximum of 3 credits per semester and a total of 3 credits toward a degree. Consent of instructor required.

**GENE 452 - Applied Bioinformatics (3 cr.)**

Survey and application of publicly available bioinformatic tools that treat genomic DNA, cDNA, and protein sequences, RNA abundance, as well as tools that allow inference based on phylogenetic relationships. Prerequisites: AGRO/ANSC/BIOL/HORT 305 or GENE 315 and GENE 320, and BCHE 341, or BCHE 395.

**GENE 486 - Genes and Genomes (3 cr.)**

Extensive coverage of nuclear and organelle genome structure in plants and animals, genome restructuring including duplication, aneuploidy, chromosome translocations and inversions, comparative genomics, and molecular systematics. Prerequisites: AGRO/ANSC/BIOL/HORT 305 or GENE 315, and GENE 320.

**GENE 488 - Gene Regulation (3 cr.)**

Extensive coverage of signal transduction processes and approaches used to monitor large scale changes in gene regulation and protein synthesis that occur during development and in response to environmental changes. Prerequisites: AGRO/ANSC/BIOL/HORT 305 or GENE 315.

**GEOG - GEOGRAPHY****GEOG 111G - Geography of the Natural Environment (4 cr. (3+3P))**

Introduction to the physical processes that shape the human environment: climate and weather, vegetation dynamics and distribution, soil development and classification, and geomorphic processes and landform development.

**GEOG 112G - World Regional Geography (3 cr.)**

Overview of the physical geography, natural resources, cultural landscapes, and current problems of the world's major regions. Students will also examine current events at a variety of geographic scales.

**GEOG 120G - Culture and Environment (3 cr.)**

Study of human-environmental relationships: how the earth works and how cultures impact or conserve nature. Introduction to relationships between people and natural resources, ecosystems, global climate change, pollution, and conservation.

**GEOG 257 - Introduction to Weather Science (4 cr. (3+3P))**

Introduction to Earth's atmosphere and the dynamic world of weather as it happens. Working with current meteorological data delivered via the Internet and coordinated with learning investigations keyed to the current weather; and via study of select archives. Prerequisite(s): None. Crosslisted with: SOIL 257 and AGRO 257

**GEOG 259 - Introduction to Oceanography (4 cr. (3+3P))**

Introduces the origin and development of the ocean and marine ecological concepts. Examines physical processes such as waves, tides, and currents and their impact on shorelines, the ocean floor, and basins. Investigates physical processes as they relate to oceanographic concepts. Includes media via the Internet and laboratory examination of current oceanic data as an alternative to the actual oceanic experience. Students will gain a basic knowledge and appreciation of the ocean's impact on the world's ecology.

**GEOG 281 - Map Use: Reading, Analysis and Interpretation (3 cr. (2+3P))**

Exploration of the cartographic medium. Development of critical map analysis and interpretation skills, and map literacy. Comprised of traditional lecture, labs, and map use projects.

**GEOG 291 - Special Topics (1-3 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits.

**GEOG 295 - Introduction to Climate Science (4 cr. (3+3P))**

Examines fundamentals and related issues of Earth's climate system, climate variability, and climate change. Develops solid understandings of Earth's climate system framed in the dynamic, Earth system based approach to the science.

**GEOG 315V - World Agriculture and Food Problems (3 cr.)**

Same as AG E 315V.

**GEOG 325V - New Mexico and the American West (3 cr.)**

Examination of the cultural and historical patterns, economic activities and physical characteristics of New Mexico with comparisons made with other western states.

**GEOG 326 - U.S. National Parks (3 cr.)**

Exploration of origins, landscapes, ecosystems, management issues, and conflicts in U.S. National Parks. The regional geography of the United States as seen through the creation and protection of biologically and culturally significant lands.

**GEOG 328V - Geography of Latin America (3 cr.)**

Explores Latin America from a geographical perspective, integrating environmental, cultural and socioeconomic factors in an in-depth study of the development of the region and contemporary issues and challenges facing the region.

**GEOG 331V - Europe (3 cr.)**

Focus on the cultural continent of Europe, from Iceland to the Ural Mountains and from Archangel, Russia., to Malta. An overview of climate, geology, topography, soils, and vegetation, as well as a brief historical geography of the continent. Current environmental, social, and political issues of Europe will be discussed. A series of regional studies is also offered.

**GEOG 351 - Fundamentals of Biogeography (3 cr.)**

Floristic and physiognomic characteristics of the Earth's major ecosystems and their distributions; ecosystem dynamics, evolution, and physical environment; field and laboratory techniques including remote sensing. Taught with GEOG 557.

**GEOG 353 - Geomorphology (3 cr. (2+3P))**

Examination of the principle theories and concepts of landform creation; exploration of the roles of structure, processes, climate, and time in the formation of various types of landforms. Taught with GEOG 553. Prerequisite(s): GEOL 111G and GEOG 111G. Crosslisted with: GEOL 353

**GEOG 357 - Climatology (3 cr.)**

Elements and controls of climate. Energy and hydrologic cycles, general circulation, climate classification, distribution of climate types, microscale effects, applications. Prerequisites: MATH 120. Same as AGRO 357, SOIL 357.

**GEOG 361V - Economic Geography (3 cr.)**

The geographic relationships of supply and demand resources, population, and transportation. Site analysis and decision-making in different economic systems and cultures and how these decisions affect the environment and the location of economic activities.

**GEOG 363V - Cultural Geography (3 cr.)**

The world's diverse cultural landscapes. Emphasis on the connections between social, political, religious, and agricultural patterns and the impact of societies on the natural environment.

**GEOG 365V - Urban Geography (3 cr.)**

The global historical development of urban areas, as well as the changing functions of today's cities. A comparison between the North American city system and cities in Europe, Asia, and South America, including the development

of the city form, the internal spatial organization of commercial, residential, and industrial areas, and socio-economic and political factors.

**GEOG 373 - Introduction to Remote Sensing (4 cr. (3+3P))**

Introduction to the theory, techniques, and applications of remote sensing. Topics include electromagnetic radiation; remote sensing systems; remote sensing of the biosphere, hydrosphere, atmosphere, lithosphere, and cultural landscapes. Course includes lectures and also labs focused on the basic analysis and interpretation of remote sensing products. Taught with GEOG 573. Prerequisite(s): GEOG 381.

**GEOG 381 - Cartography and Geographic Information Systems (4 cr. (3+3P))**

Design and construction of thematic maps. Introduction to cartographic principles in lecture. Emphasis on map-making using GIS software in the labs. Taught with GEOG 571. Prerequisite(s): GEOG 281.

**GEOG 382 - Aerial Photo Interpretation (3 cr. (2+3P))**

Introduction to use and analysis of aerial photographs. Emphasis on physical features and cultural patterns.

**GEOG 401 - Internship/Co-op (1-3 cr.)**

Provides an opportunity whereby students work with a local, regional, or federal agency, or private sector firm on applied geographic work, under the supervision of an agency or firm professional and a geography faculty member. Consent of instructor required.

**GEOG 435 - Environmental Planning (3 cr.)**

Exploration of planning tools that advance the management of land and water resources, meeting current societal needs, while also minimizing damage to nature and society. Class activities include applied exercises that explore contemporary planning issues, including land conservation, natural hazards, biophysical analysis, water resource management, Federal land issues, and remediation of Superfund sites. Crosslisted with: GEOG 535.

**GEOG 441 - System Design for Geographic Information Science and Technology (GIS&T) (3 cr.)**

A critical aspect of GIS is its ability to provide the necessary products within the organization within which it is implemented. This is an in-depth analysis of currently accepted planning methodologies designed to create a successful implementation of GIS inside organizations. Taught with GEOG 581. Prerequisite(s): GEOG 481 or consent of instructor.

**GEOG 452 - Landscape Ecology (4 cr. (3+2P))**

Analysis of the structure, function and change of natural and anthropogenic landscapes. Patches, corridors, matrix and network, spatial organization, landscape dynamics, and role of disturbance in overall functioning of landscapes. Role of landscape heter. Taught with GEOG 552. Prerequisite(s): Either GEOG 351, BIOL 301, or other basic ecology course or consent of instructor.

**GEOG 455 - Southwest Environments (3 cr.)**

The U.S. Southwest: physical and human geography, coupled human-environment interactions, causes and consequences of environmental issues, and implications for sustainable development. Taught with GEOG 555. Consent of Instructor required. Prerequisite(s): GEOG 281, physical geography class, human geography class, or equivalents.

**GEOG 467 - Transportation Geography (3 cr.)**

Nature and distribution of land, air and water transport facilities and their importance in regional development. Prerequisite: GEOG 120G or consent of instructor.

**GEOG 472 - Soil Morphology and Classification (4 cr. (2+2P))**

Same as SOIL 472.

**GEOG 473 - Advanced Remote Sensing (4 cr. (3+3P))**

Introduction to advanced topics in digital image processing, analysis, interpretation, and visualization. Topics include geometric and radiometric correction, image enhancement, image classification, change detection, and accuracy assessment. Lectures focus on the discussion of advanced remote sensing concepts, techniques, and applications; labs are applications-oriented.

Taught with GEOG 573. Prerequisite(s): GEOG 373, Intro to Remote Sensing or consent of instructor.

**GEOG 481 - Fundamentals of Geographic Information Science and Technology (GIS & T) (4 cr. (3+3P))**

Fundamentals of computer-based systems which organize, analyze, and present spatially referenced data. Taught with GEOG 578. Prerequisite(s): GEOG 281 or GEOG 381.

**GEOG 482 - Geodatabase Design (3 cr. (2+3P))**

A practical introduction to designing geodatabases. The course takes you through the eleven steps of geodatabase design divided into four stages: thematic characterization; developing the database elements, relationships and properties; capture and collection; and finally, implementation and documentation. Taught with GEOG 572. Prerequisite(s): GEOG 481 or consent of instructor.

**GEOG 483 - Field Explorations in Geography (3 cr. (6P))**

A field-based class where students complete exercises in physical, human, and environmental geography in the Southwest. May be offered as a two-week intensive class where students are away from Las Cruces and camping; or may be offered with weekend field trips depending on the instructor. A lab fee for transportation and other expenses is required. Taught with GEOG 583. Prerequisite(s): GEOG 281, physical geography class, human geography class, or equivalents, or consent of instructor.

**GEOG 487 - Geographic Information Science and Technology (3 cr. (2+3P))**

A capstone course in geospatial analysis. Demonstration of competence in the use of geospatial tools, techniques, and concepts for the solution of applied geographic problems. Software may change from semester to semester. Taught with GEOG 577. Prerequisite(s): GEOG 373 and GEOG 481.

**GEOG 491 - Special Topics (1-3 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits. Consent of instructor required.

**GEOG 492 - GIS&T Applications and Modeling (3 cr.)**

Group oriented class in which students conduct an applied research project in GIS application or modeling area of choice and conduct focused library research. Taught with GEOG 521 Prerequisite(s): GEOG 481 or Consent of Instructor.

**GEOG 493 - Special Problem Research (1-3 cr.)**

For advanced and exceptional students. Research, and preparation of a paper in some phase of geography. A maximum of 6 credits may be earned. Consent of instructor required.

**GEOG 495 - Directed Readings (1-3 cr.)**

Individual study through selected readings. A maximum of 6 credits may be earned. Consent of instructor required.

**GEOL - GEOLOGY**

**GEOL 111G - Survey of Geology (4 cr. (3+3P))**

Covers the fundamental principles of physical geology, including the origin of minerals and rocks, geologic time, rock deformation, and plate tectonics.

**GEOL 212G - The Dynamic Earth (4 cr. (3+3P))**

Introduction to earth systems. Geology and the solid earth, geologic time and earth history, water and the world oceans, atmosphere and weather, the solar system. Community Colleges only.

**GEOL 220 - Special Topics (1-3 cr.)**

Specific subjects to be announced in the Schedule of Classes. Community Colleges only. May be repeated for a maximum of 12 credits. May be repeated up to 12 credits.

**GEOL 295 - Environmental Geology (3 cr.)**

Earth processes that affect humans and their works, properties of rocks and soils, use and application of environmental geologic data.

**GEOL 305V - Fossils and the Evolution of Life (3 cr.)**

Examination of the fossil record within the context of geologic time. Special emphasis on critical evaluation of possible terrestrial and extra-terrestrial causes for the evolution of plants and animals and for periods of mass extinction.

**GEOL 310 - Mineralogy (3 cr. (2+3P))**

Crystallography and the physical and chemical aspects of minerals. Prerequisite(s): GEOL 111G and CHEM 111G.

**GEOL 312 - Optical Mineralogy (3 cr. (2+3P))**

Principles of optical mineralogy as applied to the identification and characterization of rock-forming minerals. Prerequisite or Corequisite: GEOL 310.

**GEOL 315V - The Geology of National Parks (3 cr.)**

The geologic features in national parks of the United States and the processes responsible for their formation.

**GEOL 320 - Special Topics (1-3 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits.

**GEOL 335V - Earthquakes, Volcanoes, Hurricanes, and Floods: The Role of Natural Hazards in Civ Past and Present (3 cr.)**

This class will provide an introduction to geologic hazards and natural disasters, their effects on society and the attempts at preparation and mitigation for these events. Hazards to be covered include earthquakes, volcanic eruptions, floods, landslides, hurricanes, tsunamis and others.

**GEOL 353 - Geomorphology (3 cr.)**

Same as GEOG 353.

**GEOL 360 - General Geochemistry (3 cr.)**

The chemistry of the earth and its parts, with emphasis on geochemical systems and cycles, distribution of the elements, and mineral equilibria. Prerequisite(s): CHEM 111G or CHEM 110G. Crosslisted with: CHEM 360

**GEOL 399 - Igneous and Metamorphic Petrology (3 cr. (2+3P))**

Mineralogical composition, classification, and genesis of igneous and metamorphic rocks. Prerequisite(s): GEOL 312 for geology majors, GEOL 310 for majors other than geology.

**GEOL 401 - Geology Colloquium (1 cr.)**

Presentations by visiting speakers and students. May be repeated up to 6 credits.

**GEOL 420 - Stratigraphy and Sedimentology (3 cr. (2+3P))**

Identification and interpretation of sedimentary rocks with emphasis on classification, deposition, and stratal geometry. Prerequisite: GEOL 310.

**GEOL 424 - Soil Chemistry (3 cr.)**

Same as SOIL 424, CHEM 424.

**GEOL 434 - Tectonics of Sedimentary Basins (3 cr.)**

Origin of sedimentary basins with emphasis on subsidence mechanisms, geometry of basin fill, depositional systems and tectonic setting. Course includes two off-campus field trips. Crosslisted with: GEOL 534. Prerequisite(s): GEOL 420.

**GEOL 441 - Tutorial Geology (2 cr. (1+3P))**

Participation in teaching lower-division laboratories and conducting tutorial sessions. Prerequisite: junior or above standing and nomination by faculty. May be repeated for a total of 4 credits.

**GEOL 444 - GIS for Geology (3 cr.)**

Tools-based introduction to using GIS software for solving problems in geology. Emphasis on effectively portraying and analyzing geologic maps. One required field trip. Crosslisted with: GEOG 544. Prerequisite(s): GEOL 470.

**GEOL 449 - The Geological Profession (1 cr.)**

Investigation of graduate school and employment opportunities, writing the resume, conduct at interviews, and ethics of the profession. Also outcomes assessment exit exams. For graduating seniors only.

**GEOL 452 - Geohydrology (4 cr. (3+2P))**

Origin, occurrence, and movement of fluids in porous media assessment of aquifer characteristics. Development and conservation of ground water resources, design of well fields. Crosslisted with: C E 452 and E S 452. Prerequisite(s): Junior or senior.

**GEOL 455 - Undergraduate Research (1-3 cr.)**

Geological research and field projects for the advanced student. May be repeated for a total of 6 credits. May be repeated up to 6 credits. Consent of Instructor required. Prerequisite(s): Consent of instructor.

**GEOL 465 - Isotope Geochemistry (3 cr.)**

Geochemistry of stable and radiogenic isotopes and its application to a wide range of problems in the earth and planetary sciences. Prerequisite(s): CHEM 112G, GEOL 360, GEOL 399.

**GEOL 470 - Structural Geology (3 cr. (2+3P))**

Deformation of rocks of the earth. Prerequisite: GEOL 310

**GEOL 471 - Volcanology (3 cr.)**

Identification and interpretation of volcanic deposits (including air fall, ash flow tuffs, surges, lava flows), with focus on how the characteristics of these deposits can reveal eruption styles and eruption dynamics. Other topics covered include: magma migration and storage, volcanic hazards, volcano monitoring and volcanoes and climate. Crosslisted with: GEOL 571. Prerequisite(s): GEOL 399.

**GEOL 475 - Geology of Mineral Resources (3 cr. (2+3P))**

Introduction to ore deposits and industrial rocks and minerals; genesis, mining methods, estimation of reserves, exploration, and economic aspects of selected commodities. Prerequisite: GEOL 399.

**GEOL 477 - Special Problems (1-3 cr.)**

Selected advanced topics of current interest or importance. May be repeated for a total of 6 credits. Prerequisite: consent of instructor.

**GEOL 478 - Petroleum Geology (3 cr. (2+3P))**

Sedimentation, stratigraphy, depositional environments, and tectonics in relation to the occurrences and exploration of hydrocarbons. Course includes two off-campus field trips. Prerequisite(s): GEOL 420.

**GEOL 479 - Environmental Soil Chemistry (3 cr.)**

Same as SOIL 479.

**GEOL 480 - Seminar (1-3 cr.)**

Supervised study of a subject not covered by regular courses. For organized group meetings treating selected advanced topics. Prerequisite: consent of instructor. May be repeated for a maximum of 6 credits.

**GEOL 490 - Field Geology (3 cr. (9P))**

Mapping, instrumentation, and interpretation of geology in the field. Prerequisites: either GEOL 420 and GEOL 470.

**GEOL 491 - Tectonic Evolution of North America (3 cr.)**

Current ideas regarding the plate-tectonic evolution of North America from Archean through Holocene time, emphasizing the use of regional stratigraphy and structural geology to interpret mountain building, magmatism, and basin development. Prerequisites: GEOL 111G, GEOL 399, GEOL 420 and GEOL 470.

**GEOL 495 - Geology Field Camp (4 cr. (12P))**

Three week intensive summer course. Geologic mapping in a site-based setting, emphasizing spatial relations, cross-section construction, and preparation of geologic reports. Prerequisite: GEOL 490

**GEOL 499 - Senior Thesis (1-3 cr.)**

Writing a formal paper describing original geologic research conducted under supervision of a faculty advisor. Prerequisite: consent of instructor. Restricted to majors.

**GER - GERMAN****GER 111 - Elementary German I (4 cr.)**

German for beginners. Stress on speaking skills.

**GER 112 - Elementary German II (4 cr.)**

German for beginners and students with one year of high school German. Stress on speaking skills. Prerequisite: C or better in GER 111.

**GER 211 - Intermediate German I (3 cr.)**

Speaking, reading and writing. Prerequisite: C or better in GER 112.

**GER 212 - Intermediate German II (3 cr.)**

Speaking, reading and writing. Prerequisite: C or better in GER 211.

**GER 305 - Topics in German Culture (3 cr.)**

Group study of selected topics focusing on German-language culture (including Austria and Switzerland). Topics identified in the Schedule of Classes. Prerequisite: GER 212 or high school German III. May be repeated for a maximum of 6 credits.

**GER 313 - Intermediate Composition and Grammar (3 cr.)**

Exercises in written German with emphasis on advanced grammatical features. Preparation for Zertifikat Deutsch. Prerequisite: GER 212, or high school German 3, or consent of instructor.

**GER 325 - German Conversation I (3 cr.)**

Spoken German with emphasis on everyday situations. Prerequisite: GER 212, or high school German 3, or consent of instructor.

**GER 333V - German Culture through Cinema (3 cr.)**

Events, values and issues in German culture as reflected in motion pictures made in Germany between 1913 and 1990. Familiarization with cinema as art form. Taught in English. Does not satisfy Arts and Sciences second language requirement.

**GER 341 - German Folklore and Culture (3 cr.)**

Customs, traditions, mythology, folk literature and art; everyday culture of German-speaking Europe. Prerequisite: GER 212 or equivalent or consent of instructor.

**GER 343 - Building Reading Skills (3 cr.)**

Practice in improving reading skills with a wide variety of texts. Discussion in German also enhances oral skills. Prerequisite: GER 212 or high school German 3, or consent of instructor.

**GER 350 - Introduction to German Literature (3 cr.)**

Basic literary genres and major figures in German literature from the 18th century to the present. Prerequisite(s): GER 212 or consent of instructor.

**GER 381 - Masterpieces of German Literature (3 cr.)**

Selected readings by representative authors from the periods of the early 20th century, Weimar Republic, and Postwar Germany. Prerequisite(s): GER 212 or consent of instructor.

**GER 399 - Intermediate Independent Study in German (1-3 cr.)**

Supervised independent study projects in GER for majors and minors with good time-management skills. Consent of instructor required. Prerequisite(s): GER 212 plus consent of instructor.

**GER 410 - Practicum in Conversational German (1-3 cr.)**

Intensive oral practice as language monitor. Prerequisite: two upper division German courses or consent of instructor. May be repeated for a maximum of 6 credits.

**GER 413 - Advanced Composition and Grammar (3 cr.)**

Exercises in written German with emphasis on stylistic features. Prerequisite: GER 313 or consent of instructor.

**GER 425 - Advanced German Conversation (3 cr.)**

Advanced conversation through intensive oral practice. Prerequisite(s): GER 325 or consent of instructor.

**GER 449 - Special Problems (1-3 cr.)**

Directed reading for graduate students in their specific fields to satisfy language requirements for master's or doctoral programs. May be repeated for a maximum of 6 credits.



**GER 451 - Special Topics in German (1-3 cr.)**

Selected topics in German language, literature or area studies announced in Schedule of Classes. May be repeated for credit when topic changes.  
Prerequisite: consent of instructor. May be repeated for a maximum of 12 credits.

**GER 453 - Independent Studies in German (1-3 cr.)**

Individualized, self-paced projects for advanced students. Prerequisite: consent of instructor. May be repeated for a maximum of 6 credits.

**GERO - GERONTOLOGY****GERO 415 - Introduction to Gerontology (3 cr.)**

Social, psychological, and physiological aspects of aging, with an interdisciplinary emphasis on health promotion. Demographic characteristics of the aging population. Taught with MPH 515.

**GERO 450 - Health Promotion for the Older Adult (3 cr.)**

Common health concerns and lifestyle issues relevant to older adults. Facts about the content area, health behaviors, and practices to promote health and prevent disease; program development strategies applicable to a variety of settings. Same as MPH 557.

**GERO 451 - Aging and Public Policy (3 cr.)**

Exploration of public policies relating to elders, historical development, current status and trends in public policy for this age group. Impact of political behavior of elders on policy making and implementing processes.

**GERO 456 - Biological Aspects of Aging (3 cr.)**

Aging, the developmental process of the body determined by cellular changes influenced by lifestyle, genetics, and environment. Investigates these changes, how health promotion influences them, and when they are considered a disease. Same as MPH 556.

**GERO 493 - Adulthood and Aging (3 cr.)**

Normal transitions in later life; those occurring from 40 years of age to the end of life are discussed. Changes in interpersonal relationships and adaptations commonly made by individuals and meeting those alterations are presented through research findings, case studies, and autobiographies. Same as MPH 593.

**GERO 494 - Aging in a Multicultural Society (3 cr.)**

Study and comparison of aging in the southwestern multicultural society with emphasis on health care. Same as MPH 594.

**GERO 495 - International Aging and Intellectual Disabilities (3 cr.)**

Graduate course for policy planners and staff trainers working in the field of Intellectual Disabilities. The course content will be relevant to service provision in developed and developing countries with emphasis on diverse cultures. The consequences of increased longevity for both social and health provision and family careers are covered.

**GERO 498 - Independent Study (1-3 cr.)**

Individual studies with prior approval of health science department head. Prerequisite: senior standing and consent of instructor. May be repeated for maximum of 6 credits.

**GOVT - GOVERNMENT****GOVT 100G - American National Government (3 cr.)**

Class critically explores political institutions and processes including: the U.S. constitutional system; legislative, executive and judicial processes; political parties, elections, media, policy making, civic participation, popular and group influence

**GOVT 101 - Introductory Government Seminar (1 cr.)**

Introduction to the government major. Designed to assist students in planning college experience and preparing for professional or advanced educational opportunities upon graduation. Graded: S/U. Restricted to: Main campus only.

**GOVT 110G - Introduction to Political Science (3 cr.)**

This class covers fundamental concepts such as justice, sovereignty and power; political theories and ideologies; and government systems that range from democratic to authoritarian.

**GOVT 150G - American Political Issues (3 cr.)**

Major contemporary problems of American society and their political implications.

**GOVT 160G - International Political Issues (3 cr.)**

Current developments and issues in world politics.

**GOVT 201 - Special Topics (3 cr.)**

Specific topics to be announced in Schedule of Classes. Community Colleges only. May be repeated for a maximum of 12 credits.

**GOVT 300 - Political Research Skills (3 cr.)**

Introduction to methods of political analysis and fundamentals of research design, including basic methods for the collection and analysis of political data.

**GOVT 308 - Prepping for Law School Admissions Test (1 cr.)**

This workshop helps students prepare to take the Law School Admissions Test and apply for law school. Graded: S/U.

**GOVT 313 - Model United Nations (3 cr.)**

Issues related to the United Nations and international law/organizations through simulations, discussions and research projects. Prerequisites: GPA of 2.5 or better and consent of instructor.

**GOVT 314 - Advanced Model UN (3 cr.)**

Advanced topics, research and preparation for Model United Nations activities. Consent of instructor required. Prerequisite(s): GOVT 313, minimum GPA 2.5. Restricted to: Main campus only.

**GOVT 315 - Politics and Film (3 cr.)**

Exploration of political themes, images, and representation in film and other media. May be repeated for a maximum of 6 credits under different subtitles.

**GOVT 320 - Domestic Policy (3 cr.)**

The course examines how U.S. public policy is made, including the players, politics, issues and power critical to the policy process. An interactive class that bridges theory and political action. Restricted to: Main campus only.

**GOVT 321 - Topics in Public Policy (3 cr.)**

Course examines issues in public policy. May be repeated under different subtitles.

**GOVT 324 - Environmental Policy (3 cr.)**

This introductory course explores environmental policy issues. Students study perspectives of policy-makers, political activists and policy analysts, and apply policy models to solve pressing environmental problems. Focus may be on U.S. or global concerns.

**GOVT 325 - Education Policy and Politics (3 cr.)**

Overview of current pressing policy issues and political debates on education in the U.S., including school choice, vouchers, accountability, and affirmative action. Multiple topics and perspectives covered, with political economy as the main approach.

**GOVT 330 - Introduction to Public Administration (3 cr.)**

What is public administration? Course examines public service, focusing on federal and state government. Issues include management and leadership, personnel, bureaucratic politics, organizational theory, personnel, budgeting and administrative law. Restricted to: Main campus only.

**GOVT 331 - Special Topics in Public Administration (3 cr.)**

Special topics in public administration. May be repeated for a maximum of 6 credits under different subtitles.

**GOVT 335 - Management of Nonprofit Organizations (3 cr.)**

This course provides an overview of a range of nonprofit management concerns and practices. Students will be challenged to assess their own theories of

nonprofit accountability and excellence, while confronting critical issues facing the sector. Activities are designed to expand the management skills of students by offering analytical tools and knowledge, and providing opportunities to test the application of these skills.

**GOVT 340 - American State and Local Government (3 cr.)**

Development, structure, functions, and contemporary problems.

**GOVT 341 - Special Topics: American Politics (3 cr.)**

Course examines contemporary issues and trends in American government and politics. May be repeated under different subtitles.

**GOVT 343 - Congress and the Legislative Process (3 cr.)**

This class reviews the history, structure, membership, operation, power and culture of the American Congress. Restricted to: Main campus only.

**GOVT 344 - The American Presidency (3 cr.)**

A comprehensive overview of the U.S. presidency, including powers, electoral politics, decision-making styles, domestic and foreign policy, and relations with Congress, courts, media and interest groups.

**GOVT 345 - The Supreme Court (3 cr.)**

This class studies the history and operation of the Supreme Court, as well as landmark cases that have shaped American government and the Court.

**GOVT 346 - New Mexico Government and Politics (3 cr.)**

Political and governmental institutions in the state of New Mexico.

**GOVT 348 - Political Parties and Interest Groups (3 cr.)**

Organization, principles, and functions of political parties and interest groups in the U.S.

**GOVT 350 - Special Topics in American Government (3 cr.)**

Special topics in American government. May be repeated for a maximum of 6 credits under different subtitles.

**GOVT 351 - Campaigns and Elections (3 cr.)**

Dynamics of campaigns and electoral politics, and their relationship to the formulation of public policy.

**GOVT 352 - Campaign Strategies and Techniques (3 cr.)**

Emphasis on the practice of political campaigns, including targeting, media, polling, and other campaign techniques and strategies.

**GOVT 353 - Women, Politics and Administration (3 cr.)**

An examination of women's participation in U.S. electoral politics as voters, candidates, and officeholders; political activism in issue-based movements and strategies for affecting public policy; leadership as administrators and managers in public service agencies. Also explores the influence of feminism in changing women's roles socially, legally, and politically. Crosslisted with: W S 453

**GOVT 354 - American Indian Politics (3 cr.)**

Introduction to American Indian tribal governments, politics, policy, and administration; historical and contemporary leadership of Indian Nations; and the history and current status of American Indian-U.S. relations. Students learn about Native peoples' cultural responses, forms of resistance, and adaptations to colonization. Restricted to: Main campus only.

**GOVT 360 - International Relations (3 cr.)**

Introduction to world politics; fundamental international issues and problems.

**GOVT 361 - Special Topics in International Relations (3 cr.)**

Course examines contemporary issues in international relations. May be repeated under different subtitles.

**GOVT 362 - International Political Economy (3 cr.)**

Political factors in international economic relations; theories of political economy.

**GOVT 363 - Inter-American Relations (3 cr.)**

Relations between nations of the Western Hemisphere; the inter-American system; emerging major powers; the role of the U.S.

**GOVT 364 - National Security Policy (3 cr.)**

Evolution of U.S. national security policy; problems in defining national interests and related allocation of resources.

**GOVT 366 - American Foreign Policy (3 cr.)**

Formulation, content and rationale of current foreign policies of the U.S.

**GOVT 367 - Terrorism (3 cr.)**

An introductory course using an interdisciplinary framework to explore definitions, historical roots, contemporary manifestations and future trends in political terrorism.

**GOVT 368 - Fundamentals of Intelligence Studies (3 cr.)**

Introductory survey of the major theoretical approaches and substantive issues in intelligence studies.

**GOVT 369 - Nationalism, Ethnic Cleansing, and Genocide in 20th Century (3 cr.)**

Same as HIST 377.

**GOVT 370 - Comparative Politics (3 cr.)**

Introduction to functional approaches to comparing similarities and differences among political systems.

**GOVT 371 - Latin American Politics (3 cr.)**

Basic structure of politics in major Latin American countries; role of groups, including church, labor, and parties.

**GOVT 372 - Special Topics in Comparative Politics (3 cr.)**

Course examines contemporary issues in comparative politics. May be repeated under different subtitles. Restricted to: Main campus only.

**GOVT 373 - Resistance Movements in World Politics (3 cr.)**

Research on violent and non-violent resistance movements around the world. Focus on their origins, demands, ideologies, strategies and impacts in the post-Cold War context of economic globalization, US military power and new geopolitical dynamics.

**GOVT 374V - The European City: History and Culture (3 cr.)**

Course presents the rich, complex history and cultures of European cities from ancient to modern times, linking these cities to crucial issues in European history.

**GOVT 375 - Self Determination and Minority Rights (3 cr.)**

Comparative study of ethnic relations, minority rights, identity, citizenship and political representation.

**GOVT 378 - U.S.-Mexico Border Politics (3 cr.)**

Comparative perspectives applied to the problems of the U.S.-Mexican border.

**GOVT 379 - Mexican Politics (3 cr.)**

Introduction to the politics and government of contemporary Mexico.

**GOVT 380V - Contemporary World Political Ideologies (3 cr.)**

Introduction to the prevailing political ideologies in the modern world and the ways in which modern nations operating under one or more of these ideologies attempt to answer fundamental questions about the allocation and distribution of rights, liberties, and other things of value. In addition, the course work and discussions attempt to address recent political, social, and economic events in various areas of the world.

**GOVT 381 - Special Topics in Political Theory (3 cr.)**

Course explores special topics or theorists in political theory. May be repeated under different subtitles.

**GOVT 382 - Classical Political Thought (3 cr.)**

Analysis of main currents in political thought from ancient Greece and Rome to the high Middle Ages.

**GOVT 383 - Modern Political Thought (3 cr.)**

Historical and theoretical examination of political ideas and ideologies from Machiavelli to Nietzsche. Topics include liberalism, conservatism, romanticism, communism, and nihilism.

**GOVT 384 - Contemporary Political Thought (3 cr.)**

Examination of major currents in political theory from early twentieth century to the present. Includes positivism, fascism, neo-liberalism, and varieties of postmodernism.

**GOVT 385 - American Political Thought (3 cr.)**

Introduction to major American thinkers and historical currents from colonial time to the present.

**GOVT 386 - Political Economy (3 cr.)**

Analysis of political ideas concerning the role of the state in management of national economies, in both European and American contexts.

**GOVT 387 - Religion and Politics (3 cr.)**

Survey of major points of interaction between politics and religion in the U.S., using theoretical, historical, and institutional analysis.

**GOVT 390 - Special Topics in Public Law (3 cr.)**

Course examines various issues in public law. May be repeated under different subtitles.

**GOVT 391 - Constitutional Law (3 cr.)**

The class explores the reasoning and political context of the Supreme Court cases that define the distribution and limits of governmental powers and duties under the U.S. Constitution, including separation of powers and federalism. Restricted to: Main campus only.

**GOVT 392 - Civil Liberties (3 cr.)**

The course examines the reasoning and political context of major Supreme Court cases defining constitutional rights of free speech, religious liberty, free press and criminal procedural rights.

**GOVT 394 - Judicial Process (3 cr.)**

Class examines the structure, function and purpose of the American judicial system. Restricted to: Main campus only.

**GOVT 395 - Law and Society (3 cr.)**

Class critically explores the development, role and impact of law on our society, covering different theories of law, conceptions of justice and the values they reflect. These models are then applied to current legal issues. Not a class in legal reasoning, but one where students evaluate their beliefs about the legal system. Restricted to: Main campus only.

**GOVT 396 - International Law (3 cr.)**

Nature, growth, and scope of law of nations, rights and obligations of states in peace and war, current issues.

**GOVT 397 - Law and Sex (3 cr.)**

Sex-based discrimination and the impact of constitutional and statutory provisions and their judicial interpretations and executive orders and implementations. Same as W S 397.

**GOVT 399 - New Mexico Law (3 cr.)**

New Mexico legal system, court structure and procedures; legal terms and concepts; constitutional, criminal, mass media, historical and social issues relating to New Mexico. Same as C J 399, HIST 399, JOUR 399, and SOC 399.

**GOVT 405 - Directed Readings (1-3 cr.)**

Individualized readings. Course subtitled. May be repeated for a maximum of 6 credits. Graded S/U. Consent of instructor required.

**GOVT 406 - Independent Study (1-3 cr.)**

Individualized research. Course subtitled. May be repeated for a maximum of 6 credits. Consent of instructor required.

**GOVT 407 - Workshop (1-6 cr.)**

Focus on skills related to careers in government and political science. Specific topics announced in the Schedule of Classes; may be repeated for a total of 6 credits. Only 3 credits apply toward government major or minor requirements. Graded S/U.

**GOVT 410 - Internship (1-12 cr.)**

Hands-on experience working with public agencies, political campaigns, elected officials & non-profits. May be repeated for a maximum of 12 credits; only 3 credits apply toward government major or minor requirements. Consent of instructor required. Graded: S/U. Prerequisite(s): Completion of 12 government credits, 2.5 GPA, junior and above standing.

**GOVT 411 - Service Learning Experience (3 cr.)**

Experiential learning through a community service project. May be subtitled to reflect service activity. Prerequisites: completion of 12 government credits, junior or above standing, and consent of instructor. May be repeated for a total of 6 credits; only 3 credits apply toward government major or minor requirements.

**GOVT 412 - Practicum in Student Government (3 cr.)**

Research of issues in student government. Consent of instructor required. Graded: S/U. Prerequisite(s): Student government participation, completion of 12 GOVT credits, junior or senior standing.

**GOVT 415 - Senior Seminar (2 cr.)**

Review and integration of political skills acquired in the Government Department. Students will prepare a professional portfolio for entry into the workforce, advanced study, and civic participation. S/U Grading (S/U, Audit).

**GOVT 465 - Peru: From Incas to Inca Kola (3 cr.)**

Explores issues of cultural and national identity in Peru from the Incas to the present, focusing on the modern period. Themes include indigenous resistance and adaptation to colonial rule, nationalism, militarism, terrorism, globalization, and the drug trade. Same as ANTH 459 and HIST 459.

**GOVT 468 - Rebels, Guerrillas, and Terrorists in Modern Latin America (3 cr.)**

Explores history of rebels in Latin America. Examines guerilla struggles attaining national dimension. Focus on modern events, including Peru's Shining Path, Columbia's FARC, and Mexico's Zapatistas. Same as HIST 331.

**GOVT 469 - Globalization (3 cr.)**

Analysis of the globalization process. Covers theories of globalization, the global economy, political globalization, global culture, transnational social movements, transnational migration and world labor market, global cities, and local-global linkages. Same as SOC 489.

**GOVT 473 - Germany (3 cr.)**

Political, social, and cultural developments from the eighteenth century to the present, with emphasis on the Nazi era. Same as HIST 383.

**GOVT 474 - European Politics (3 cr.)**

Politics in European countries, European integration, post-communist states, regionalism and border politics.

**GOVT 493 - Mass Communications Law (3 cr.)**

Same as JOUR 493 and COMM 493.

**GPHY - GEOPHYSICS****GPHY 340V - Planet Earth (3 cr.)**

Formation and evolution of the Earth. Plate tectonics, volcanoes and earthquakes. Role of geological processes in the origin and evolution of life. Uniqueness of the Earth in the solar system.

**GPHY 450 - Selected Topics (1-3 cr.)**

Readings, discussions, lectures or laboratory studies of selected areas of geophysics. Prerequisite: consent of instructor. May be repeated for a maximum of 12 credits.

**HIST - HISTORY****HIST 101G - Roots of Modern Europe (3 cr.)**

Economic, social, political, and cultural development from earliest times to about 1700.

**HIST 102G - Modern Europe (3 cr.)**

Economic, social, political, and cultural development from 1700 to the present.

**HIST 110G - Making History (3 cr.)**

General introduction to history: how historians carry out research and develop interpretations about the past.

**HIST 111G - Global History to 1500 (3 cr.)**

Global economic, social, political and cultural developments to 1500. Thematic approach.

**HIST 112G - Global History Since 1500 (3 cr.)**

Global economic, social, political and cultural developments since 1500. Thematic approach.

**HIST 201G - Introduction to Early American History (3 cr.)**

History of the United States to 1877, with varying emphasis on social, political, economic, diplomatic, and cultural development.

**HIST 202G - Introduction to Recent American History (3 cr.)**

History of the United States since 1877, with varying emphasis on social, political, economic, diplomatic, and cultural development.

**HIST 211G - East Asia to 1600 (3 cr.)**

History of China, Korea, Vietnam, and Japan from earliest times through the sixteenth century. Emphasis on cultural and political developments and their social and economic contexts, and the interaction between East Asian societies.

**HIST 212G - East Asia since 1600 (3 cr.)**

History of China, Korea, Vietnam, and Japan from the sixteenth through the twentieth centuries. Emphasis on internal development of each country, as well as the social and political impact of Western Imperialism, and the emergence of each country's unique version of modern society.

**HIST 221G - Islamic Civilizations to 1800 (3 cr.)**

History of Islamic civilizations to 1800.

**HIST 222G - Islamic Civilizations since 1800 (3 cr.)**

History of Islamic civilizations since 1800.

**HIST 261 - New Mexico History (3 cr.)**

Economic, political, and social development of New Mexico from exploration to modern times. Community Colleges only.

**HIST 269 - Special Topics (1-3 cr.)**

Specific subjects to be announced in the Schedule of Classes. Community Colleges only. May be repeated for a maximum of 12 credits.

**HIST 300 - Special Topics (1-9 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated for a maximum of 18 credits.

**HIST 302V - Science in Modern Society (3 cr.)**

The social impact of scientific activity and thought from Newton to the present. The growth of modern scientific institutions; the political and social context of modern science. ENGL 111G recommended.

**HIST 304 - The Global Cold War (3 cr.)**

Survey of the global history of the Cold War. The emergence of the USSR and US as global superpowers, their involvement in the end of the European great-power empire, the rise of petropolitics and the nuclear era, modern terrorism, and the creation of the First, Second and Third Worlds all have their roots in the Cold War. Although the Iron Curtain ran through Europe, with the Berlin Wall considered its main front, the Cold War's impact was not limited to Europe. Proxy wars were fought all over the world; the globe became a set or arenas of contestation. Students will carefully read historical documents as well as textbooks and literary works; in addition to close analysis of different kinds of sources, we will explore different kinds of historical writing.

**HIST 309 - American Indian History I (3 cr.)**

Cultural and social change from before contact with Europeans to 1840.

**HIST 310 - American Indian History II (3 cr.)**

Federal Indian policy, tribal histories, and the emergence of Pan-Indianism from 1840 to present.

**HIST 311V - Colonial Latin America (3 cr.)**

Social, political, and economic development from Columbus to the Wars of Independence. Research paper required.

**HIST 312V - Modern Latin America (3 cr.)**

Post-revolutionary developments in the nineteenth and twentieth centuries; the role of Latin America in world affairs and the Inter-American system. Research paper required.

**HIST 313 - Making the American West (3 cr.)**

Development of the American West from 1803 to 1900 with emphasis on conquest, federal and corporate roles in western development, environmental change, and the Mythic West. Includes meetings outside regular class time to view feature-length films.

**HIST 315 - From the Wild West to the Atomic West (3 cr.)**

Explores the transformation of the West with particular attention to the roles of race, class, gender and culture. Includes meetings outside regular class time to view feature-length films.

**HIST 316 - History of Women in the American West (3 cr.)**

Experiences and interactions among Native American, Spanish/Mexican, immigrant, and Anglo-American women in the American West from 1500 to the present. Same as W S 316.

**HIST 321 - History of Korea (3 cr.)**

Social, political, and cultural history of Korea from earliest times through twentieth century. Emphasis on the interaction between Korean traditions and influences from China and the West.

**HIST 323 - Cultural History of Later Imperial China (3 cr.)**

Covers art and literature of China from the Tang Dynasty (618-907) through the eighteenth century. Developments in cultural theory and practice are traced in the context of the social and economic changes fostering an understanding of Chinese cultural history and its legacy in East Asia today.

**HIST 323 L - Splendor of Imperial China (1 cr. (2P))**

This course consists of a FLIP trip to China, Spring 2014 which will explore the significant sites of imperial Chinese culture by spending 14 days traveling in China. Crosslisted with: ART 311 L and HIST 323.

**HIST 324 - History of Modern Terrorism in the Middle East and Europe (3 cr.)**

Historical analysis of the motives, methods, organization, and actions of terrorist groups.

**HIST 325 - History of the Arab-Israeli Conflict (3 cr.)**

History of the causes, course, and consequences of the Arab-Israeli conflict.

**HIST 329 - History of Egypt (3 cr.)**

History of Egypt from ancient times to the present.

**HIST 330V - Introduction to Religious Studies (3 cr.)**

Provides an overview of old and new methods and theories for the study of religion. Exposure to the ways groups of people in diverse cultural systems construct and change their religious traditions to serve practical and meaningful ends. Same as SOC 330V and ANTH 330V.

**HIST 331 - Rebels, Guerrillas, and Terrorists in Modern Latin America (3 cr.)**

Explores history of rebels in Latin America. Examines guerilla struggles attaining national dimension. Focus on modern events, including Peru's Shining Path, Colombia's FARC, and Mexico's Zapatistas. Same as GOVT 468.

**HIST 334 - Art and Life in Renaissance Italy (3 cr.)**

Examines how Italian Renaissance textual and visual culture offered Europe new ways of seeing and portraying itself, 1350-1550. Topics include: Florence, Venice, Rome, Leonardo, Michelangelo, Titian, humanism, the Medici, and republican and courtly culture. Same as ART 444.

**HIST 338 - World War I (3 cr.)**

Cultural, social, and intellectual background and impact of World War I. Military and diplomatic events of the war. Consequences of the war.

**HIST 339 - World War II (3 cr.)**

Social, cultural and political aspects of World War II, in addition to traditional military events. Emphasis on U.S. involvement.

**HIST 340 - American Economic History (3 cr.)**

The rise of big business and organized labor, increasing price rigidities, and growing government intervention. Same as ECON 340.

**HIST 341 - American Agricultural History (3 cr.)**

From Colonial times to the present, with emphasis upon historical development, politics, and legislation, especially in recent times.

**HIST 342 - Early American Military History (3 cr.)**

Emphasis on American wars up to and including the Civil War, and on the factors contributing to the development of modern military systems.

**HIST 343 - Recent American Military History (3 cr.)**

Emphasis on American wars since the Civil War, and on factors contributing to the development of modern military systems.

**HIST 346 - The Jacksonian Era 1800-1840 (3 cr.)**

Jeffersonian period, War of 1812. Social, political, and economic history of the Jacksonian era.

**HIST 347 - Civil War Era 1840-1877 (3 cr.)**

Mexican-American War, development of secession, American Civil War, Reconstruction.

**HIST 353 - Colonial Mexico (3 cr.)**

Covers major social, political, economic and cultural topics including pre-Columbian civilizations, early European incursions and indigenous responses, economic systems and labor exploitation, religion and spirituality, and resistance to colonial rule. Sixteenth to nineteenth centuries.

**HIST 354 - Modern Mexico (3 cr.)**

Examines interactions of peasants, women, indigenous peoples, and economically/politically dominant groups within the Mexican state from 1810 to the present. Assesses the contentious relationship between Mexico and the United States, focusing on the Mexican-U.S. border.

**HIST 356 - The Mexican Revolution (3 cr.)**

Examines the history of modern Mexico through the lens of the Mexican Revolution, 1910-1920. Course covers military, political, social, cultural and economic developments that shaped Mexico during and after the Revolution.

**HIST 361 - Afro-American History I (3 cr.)**

African background, slave trade, slavery; Civil War and Reconstruction; free blacks in a white society to about 1900.

**HIST 362 - Afro-American History II (3 cr.)**

Black Americans in the United States in the twentieth century; segregation; black leaders, organizations, methods and goals; white reaction; the struggle for equality.

**HIST 365 - Cold War Europe (3 cr.)**

Course deals with the Cold War's bipolar international climate as well as the individual paths charted by each European nation in response. Events, leaders, thinkers, ideas and developments will all be featured.

**HIST 366V - British Imperialism (3 cr.)**

Survey of the activities of the British empire from the 16th century through the 20th century, with emphasis on Ireland, North America and India. Assesses the impact of imperial activities on British domestic politics, culture and social history, and the process and impact of decolonization.

**HIST 367 - Mexican-Americans in the United States (3 cr.)**

Emigration; reception; impact upon society, politics, economics, and culture.

**HIST 368 - Teaching History (3 cr.)**

Philosophical and practical issues of teaching history are explored. Designed to help prospective teachers at all levels clarify their views about studying history. A variety of pedagogical strategies for teaching history are explored.

**HIST 369 - History of Latinos in the United States (3 cr.)**

Development of Latino communities since 1500 in what is today the U.S. Emphasis on 1846 to present, and on Mexican Americans, Puerto Ricans, and Cuban Americans. Major themes: race, colonialism, immigration, nationalism, class, culture, gender, and politics.

**HIST 371 - Ancient Greece (3 cr.)**

Social, cultural, and political history of Greece from the Minoan to Hellenistic periods.

**HIST 372 - The Roman World (3 cr.)**

Republic and Empire; Rome as a world power; institutional, cultural, and intellectual contributions; decline and fall.

**HIST 373 - Islam and the West: Cultural Contacts, Conflicts and Exchanges (3 cr.)**

Examines interactions, encounters and cross-fertilization between the Islamic world and the West from the seventh to the twenty-first centuries. Course includes origins of Islam, relationships between Islam, Judaism, and Christianity, and concludes with the post 9/11 present. Prerequisite: C- or higher in HIST 221G or HIST 222 or HIST 461; or enrollment in one of these courses at the same time as enrollment in HIST 373.

**HIST 374V - The European City: History and Culture (3 cr.)**

Course presents the rich, complex history and cultures of European cities from ancient to modern times, linking these cities to crucial issues in European history. Crosslisted with HON 374V, GEOG 374V, GOVT 374V.

**HIST 376 - Great Battles That Shaped Europe (3 cr.)**

Considers the most significant battles in the West from the 13th century BCE (Troy) to the 16th century CE (Spanish Armada).

**HIST 379 - History of Italy: Rome to the Twentieth Century (3 cr.)**

Analyses the history of Italy from the Etruscan period (600 BCE) through the Roman Empire and Renaissance period to the 21st century CE.

**HIST 382V - Modern Russia (3 cr.)**

Domestic policies and foreign relations from mid-nineteenth century to the present with emphasis on the Soviet period.

**HIST 383 - Germany (3 cr.)**

Political, social, and cultural developments from the eighteenth century to the present, with emphasis on the Nazi era. Same as GOVT 473.

**HIST 385 - The Spanish Borderlands (3 cr.)**

Examines historical relationships between Native American and Hispanic peoples in northern Mexico, American Southwest and other border regions from 1500s to 1821.

**HIST 386 - New Mexico History (3 cr.)**

Economic, political and social development of New Mexico from exploration to modern times.

**HIST 387 - Spain (3 cr.)**

From pre-Roman times to the modern era.

**HIST 388 - Women in Europe I (3 cr.)**

The roles of women and constructions of gender in medieval and early modern Europe, 1100 - 1550. Examines how conceptions of gender and sexuality both shaped and were shaped by political and social transformations in European history. Same as W S 388.

**HIST 390V - The Holocaust (3 cr.)**

The attack upon European Jews by Adolf Hitler and the National Socialist Party in Germany and occupied Europe from his accession to chancellor in 1933 until the end of the Third Reich in 1945.

**HIST 391 - Twentieth Century World History (3 cr.)**

Includes globalization; imperialism; World Wars I and II and the changing roles of Europe: the Cold War; decolonization; the rise and collapse of Communism; new social and intellectual movements; and the growing roles of East Asia, India, Latin America, Africa and the Middle East. Thematic examples.

**HIST 392 - Tudor-Stuart England, 1485-1715 (3 cr.)**

British history from 1485-1715, including the development of the monarchy and Parliament, the Protestant Reformation, the English Civil War and Restoration, and culture and society.

**HIST 394 - Victorian and Edwardian Britain, 1815-1914 (3 cr.)**

Evolution of constitutional monarchy; industrialism and imperialism; repose and reform; increased influence of an intellectual elite and the emergence of the Labor Party.

**HIST 395 - From Rule Britannia to Cool Britannia: Twentieth-Century Britain (3 cr.)**

Edwardian Era, World War I; Reconversion, the 1926 General Strike; the Great Depression and appeasement; Churchill and the war against Nazi Germany; nationalization and the Welfare State.

**HIST 397 - Introduction to Public History (3 cr.)**

Surveys how historians do history in museums, archives, government agencies, and in communities. Hands-on experience provides students a better understanding of history and how historians work outside of the classroom. Seminar project required.

**HIST 398 - Historians and History (3 cr.)**

General historiography and philosophy of history; historical methodology, research, and writing; bibliographical aids and their uses. Prerequisite(s): C or higher grade in ENGL 311G.

**HIST 399 - New Mexico Law (3 cr.)**

Same as GOVT 399, C J 399, JOUR 399, and SOC 399.

**HIST 400 - Special Topics (1-9 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated for a maximum of 18 credits.

**HIST 401 - Environmental History (3 cr.)**

Seminar discusses how the natural environment and people have shaped each other, and how people have perceived and imagined the natural world. May focus upon one specific topic or area. Course includes a field trip outside regular class times.

**HIST 402 - Special Topics in European History (3 cr.)**

Special topics in European history to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits.

**HIST 403 - Special Topics in Middle Eastern History (3 cr.)**

Special topics in Middle Eastern history to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits.

**HIST 404 - Special Topics in Asian History (3 cr.)**

Special topics in Asian history to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits.

**HIST 405 - Special Topics in Latin American History (3 cr.)**

Special topics in Latin American history to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits.

**HIST 406 - Special Topics in United States History (3 cr.)**

Special topics in United States history to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits.

**HIST 408 - Cultures of Africa (3 cr.)**

Explores the rich history and cultural diversity of the continent of Africa. The course first examines the historical processes that have shaped modern Africa, including the evolution of modern humans in Africa, the origins of agriculture and pastoralism, the formation of indigenous African states, the slave trade, and European colonialism. The course also looks at contemporary African societies,

including hunter-gatherer, pastoral, and farming/fishing peoples. In addition, contemporary issues facing modern Africa such as famine and agricultural policy, the status of women, and environmental changes such as deforestation are discussed. Crosslisted with: ANTH 404

**HIST 410 - New Mexico History for Educators (3 cr.)**

Course provides content and innovative techniques for teachers of New Mexico history. Covers pre-contact Native American history through Spanish Colonial and Mexican periods through the twentieth century.

**HIST 411 - History of Death in America (3 cr.)**

This seminar course explores the history of disease, dying, death and funeral practices, and may include such topics as the social and cultural histories of murder, suicide, epidemics, death in wartime, the death penalty, and/or the corpse. The class may be taught with a different national or chronological focus in different semesters. Crosslisted with: HIST 513.

**HIST 412 - Travel Writing (3 cr.)**

Explores how writers describe their travels with an emphasis on the history of a place. Semester paper required. Crosslisted with: HIST 512.

**HIST 413 - Native American History (3 cr.)**

Seminar explores the history of Native Americans, including tribal conflicts, interactions with Europeans and Euro-Americans, land loss, degradation of natural resources, federal Indian policy, pan-Indian movements, cultural resistance and revitalization, and modern tribal economies.

**HIST 415 - Western American History (3 cr.)**

Seminar explores the development of the American West with emphasis on conquest, federal and corporate impact on the West, environmental changes, and the mythic West. Includes extra class meetings to view feature-length films.

**HIST 417 - The Mongol Empire (3 cr.)**

Examines the history and legacy of the Mongol World Empire founded by Chinggis Khan and his sons, and the dynasties that came to dominate Inner Asia in its wake.

Crosslisted with: HIST 517.

**HIST 419 - Central Asia (3 cr.)**

An introduction to the political, cultural and social history of the Central Asian region from pre-history to the present, including coverage of the empires of the Mongols, Tamerlane and their successors. Crosslisted with: HIST 519.

**HIST 420 - History of Women and Gender (3 cr.)**

Seminar discusses the position of women and the roles of both sexes in a specific historical and geographic setting. Course emphasizes the ways in which women and gender were both central to and fundamentally affected by all political and social transformations in history.

**HIST 423 - The History of Food (3 cr.)**

Considers the history of the production and consumption of food in the West from the Neolithic Age to the present with an emphasis on the historical relationships between food, gender, social class, social identity and nationalism. Crosslisted with: HIST 523.

**HIST 424 - History of Art, Thought and Literature (3 cr.)**

Seminar discusses a variety of artistic and literary expressions in their historical contexts and focuses on the ways in which cultural forms both reflect and construct the broader historical trends that surround them.

**HIST 425V - History of Magic and Witchcraft in Medieval and Renaissance Europe (3 cr.)**

Examines history of popular and scientific beliefs about magic and witchcraft in medieval and early modern Europe. Includes origins of occult Western sciences; Arabic sources of medieval magic; the occult sciences in scholasticism; witchcraft and scholasticism; witchcraft and medieval theology, witch hunts of the 16th and 17th centuries; and the decline of belief in magic and witchcraft. Emphasis on boundaries that defined and separated magic, science, and religion in Western thought from late antiquity through the Scientific Revolution. Crosslisted with: HON 425.

**HIST 428 - History of Terrorism in Modern Europe and the Middle East (3 cr.)**

Analyzes causes, methods, and consequences of terrorism in Europe and the Middle East from the Reign of Terror in the French Revolution to Al-Qaeda, Hamas and Hezbollah in the contemporary Middle East and beyond.

**HIST 431 - History of Race and Ethnicity (3 cr.)**

Seminar explores the historical social construction of race and ethnicity, and their relationship to other systems of social difference such as class and gender. Course will examine popular and academic theories of race and ethnicity as well as historical concrete effects of racial and ethnic differences in society.

**HIST 432 - United States Labor History to 1877 (3 cr.)**

Seminar discussions explore United States labor and working-class history to 1877, including such topics as pre-industrial and industrial labor, slavery, debt peonage, indentured servitude, and housework. May explore the history of labor organization, working-class culture and leisure activities, and responses to labor issues by the state.

**HIST 433 - United States Labor History Since 1877 (3 cr.)**

Seminar discussions explore United States labor and working-class history since 1877, including such topics as industrial labor, debt peonage, and housework. May explore the history of labor organization, working-class culture and leisure activities, and responses to labor issues by the state.

**HIST 434 - Urban History (3 cr.)**

Seminar discusses cities as complex catalysts for cultural, political, and scientific development, both within cities themselves and more broadly for their nations and regions. Course deals with such topics as the relationship between social organization and physical space; city development, morphology and dynamics; and the cultural and intellectual history of cities.

**HIST 435 - History of War and Revolution (3 cr.)**

Seminar covers historical dynamics of violent social, political, and economic transitions. May focus upon a particular war or upheaval, such as World War II or the French Revolution, or may examine more generic characteristics of conflict and radical change across many historical examples. Extensive readings in scholarly literature. Research projects relating to specific course contents.

**HIST 436 - Nations and Nationalism (3 cr.)**

Seminar examines major theories of nationalism from the nineteenth century to the twenty-first century. Course includes nationalist case studies, from liberal nationalist state-building to ethnic cleansing in the Balkans.

**HIST 438 - Antiquity and Modernity (3 cr.)**

Seminar explores links between earlier and more recent historical periods. Examples may include the Renaissance rediscovery of ancient Rome or the early modern Chinese reassessment of its classical Confucian heritage. Readings include ancient sources and the modern reception of such works, and the scholarly assessment of these processes. Individual research projects required in areas of student interests.

**HIST 443 - The Cold War in Latin America (3 cr.)**

Seminar discusses Latin American political history during the Cold War. Course focuses on how Latin Americans (individuals, parties, militaries, states) acted in an increasingly politicized arena defined by growing United States concerns over Cuban and Soviet influence in the area.

**HIST 448 - Nuclear Nation (3 cr.)**

Explores post-World War II history and the impact atomic energy has had on the United States and the world.

**HIST 449 - Readings (1-3 cr.)**

Individual study of selected readings and problems. Prerequisite: consent of instructor. May be repeated for a maximum of 6 credits.

**HIST 453 - Cuba: Colony to Castro (3 cr.)**

Economic, social, and political development of Cuba and other colonies and nations in the Caribbean with emphasis on recent events.

**HIST 455 - Brazil (3 cr.)**

Economic, social, and political development of Brazil since independence. The influence of Brazil in the international arena.

**HIST 459 - Peru: From Incas to Inca Kola (3 cr.)**

Explores issues of cultural and national identity in Peru from the Incas to the present, focusing on the modern period. Themes include indigenous resistance and adaptation to colonial rule, nationalism, militarism, terrorism, globalization, and the drug trade. Same as ANTH 459 and GOVT 465.

**HIST 471 - China through the Ming Dynasty (3 cr.)**

History of China from origins to Ming dynasty, (1368-1644). Cultural and political development with emphasis on social and economic contexts and long term trends.

**HIST 472 - China in the Modern World (3 cr.)**

History of China from seventeenth through twentieth centuries. Rise and fall of the Manchu Qing dynasty, internal dynamics of social and political change in nineteenth and twentieth centuries, impact of Western Imperialism, and development of the Peoples Republic since 1949.

**HIST 473 - History of Japan (3 cr.)**

History of Japan through twentieth century. Political and cultural developments and their social and economic contexts. Chinese influence on early Japan, rise of Samurai and Shogunate, impact of Western Imperialism, and emergence of modern Japan.

**HIST 474 - Gender in East Asian History (3 cr.)**

Examines the position of women and the social roles of both sexes in traditional China and Japan, and traces the changes taking place in those societies in the course of modernization in the last century and a half. Scholarly literature and works of Chinese and Japanese literature in translation and cinema used. Same as W S 474.

**HIST 475 - History of the Global Political Economy (3 cr.)**

Traces development of global systems of economic interaction and the rise of European military and political dominance in the 18th and 19th centuries. Emphasis on East and South Asian roles in early modern history, and on challenges to European dominance in the 20th and 21st centuries.

**HIST 479 - Oral History (3 cr.)**

Oral history through readings, discussions, and interviews. Semester project required that includes an interview and transcript.

**HIST 481 - Time Traveling Through New Mexico's Past (3 cr.)**

Teaches historians and educators how to make history come alive. Semester project includes role playing characters and activities from a past era with local schools and museums.

**HIST 483 - Historic Preservation (3 cr.)**

Study of community development, the historic preservation movement, and the built environment. Field project.

**HIST 484 - Historical Editing, Theory and Practice (3 cr.)**

Readings in historical editing. Projects in editing at the university archives. Includes editing papers and helping to produce a scholarly journal.

**HIST 486 - Interpreting Historic Places for the Public (3 cr.)**

Explores historic site interpretation, the scholarship and philosophy of historic interpretation, and the nature of heritage interpretation for historic places.

**HIST 489 - Projects in History (3 cr.)**

Individual projects in history. Prerequisite: consent of instructor. May be repeated for a maximum of 6 credits.

**HNDS-HUMAN-NUTRITION-DIET****HNDS 201 - Seminar 1- The Field of Dietetics (1 cr.)**

This course will introduce students to the field experience, careers, and professions in nutrition. This course is required for students pursuing a Didactic Program in Dietetics verification statement. Consent of Instructor required. Restricted to: HNDS majors. Restricted to Las Cruces campus only.

**HNDS 251 - Human Nutrition (3 cr.)**

Principles of normal nutrition. Relation of nutrition to health. Course contains greater amounts of chemistry and biology than HNDS 163. Open to nonmajors.

**HNDS 300 - Special Topics (1-4 cr.)**

Specific topics and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester and a grand total of 9 credits.

**HNDS 350 - Nutrition Throughout the Lifecycle (3 cr.)**

Relationship of the stages of the human life cycle to changes in nutrient need. Prerequisites: BIOL 254 and (HNDS 163 or HNDS 251), or consent of instructor.

**HNDS 360 - Food for Health (4 cr.)**

This course is designed to provide students the opportunity to learn about the intersection of nutrition and health in terms of food and diet. Students will be introduced to basic concepts within nutrition education, nutrition communication, nutrition and health and food culture. Prerequisite(s): FSTE 263; HNDS 251.

**HNDS 363 - Quantity Food Production and Service (6 cr. (1+10P))**

Covers quantity food production including cooking concepts, sanitation and safety, teamwork, and management responsibilities. Students will apply this knowledge developing product for sale in a student run restaurant. Crosslisted with: HRTM 363. Prerequisite(s): HRTM 263.

**HNDS 400 - Field Experience Commercial Establishments (1-8 cr.)**

Experience in the operation and management of commercial food service with cooperating establishments. Practical experience with supervision by resident faculty as well as supervisor at the work site. Performance at work site will be graded in accordance with university standards. Attendance at one weekly class session required. Maximum of 8 credits per semester and a grand total of 8 credits. Prerequisites: overall GPA of at least 2.5 and junior or senior standing or consent of instructor. Restricted to majors.

**HNDS 401 - Field Experience- Clinical Dietetics (1-8 cr.)**

Experience in various areas of clinical nutrition facilities with emphasis on nutrition care of patients. Practical experience with supervision by resident faculty as well as supervisor at work site. Performance at work site graded in accordance with university standards. May be repeated for a maximum of 8 credits. Consent of instructor required. Prerequisite(s): HNDS 201, overall GPA of 2.5 or higher and junior or senior standing and consent of instructor. Restricted to: Main campus only.

**HNDS 403 - Community Nutrition (3 cr.)**

Overview of the practice of community nutrition. Includes program planning, needs assessment, program implementation and program evaluation. Role of public and private agencies in nutrition programs that impact on nutrition of individuals and groups in the community. Prerequisite: HNDS 350 or consent of instructor.

**HNDS 404 - Maternal, Infant and Child Nutrition (3 cr.)**

Nutritional needs and status during pregnancy, infancy, childhood, and adolescence. Applications also made to preschools and day care centers. Prerequisite: HNFS 251 or consent of instructor.

**HNDS 405 - Seminar II- Entering the Field of Dietetics (1 cr.)**

Students will develop professional materials that will be used in their future careers including a personal statement, curriculum vitae, resume, and interview dialogues. Students will become familiar with career options in the field of dietetics and learn to navigate the processes of becoming a registered dietitian or dietetic technician, registered. Consent of Instructor required. Crosslisted with: HNDS 505. Corequisite(s): HNDS 403, HNDS 446, AND HNDS 448. Prerequisite(s): Students must be enrolled in their last fall semester prior to planned graduation from the DPD program; HNDS 201, HNDS, 251, HNDS 350. Restricted to: HNDS majors.

**HNDS 406 - Geriatric Nutrition (3 cr.)**

Nutritional needs, status, and problems of the elderly. Prerequisite: HNDS 163 OR HNDS 251; and HNDS 350 or consent of instructor.

**HNDS 407 - Field Experience Community Nutrition (1-8 cr.)**

Experience working with nutritional problems of individual families of all socioeconomic and age levels and with agencies concerned with community nutrition. Practical experience with supervision by resident faculty as well as supervisor at the work site. Performance at work site graded in accordance with university standards. Prerequisites: HNFS 201, overall GPA of at least 2.5 and junior or senior standing or consent of instructor. May be repeated for a maximum of 8 credits. Restricted to majors.

**HNDS 409 - Dietetic Science Capstone (3 cr.)**

This course will provide a cumulative review and assessment of the foundational knowledge, concepts, and skills presented throughout the didactic program in nutrition and dietetics to ensure readiness to proceed within the field of dietetics. Students will apply professional skills to prepare them for their future careers. Students will also be guided through the dietetic internship application process. Consent of Instructor required. Crosslisted with: HNDS 509. Prerequisite(s): Students must be enrolled in their last spring semester prior to planned graduation from the DPD program. Restricted to: Dietetics Option majors.

**HNDS 410 - Sports Nutrition (3 cr.)**

Role of nutrition in physical performance of competitive and recreational sports participants. Prerequisites: BIOL 254, BCHE 341, and HNDS 251, or consent of instructor.

**HNDS 416 - Nutrition and Culture (3 cr.)**

Cultural aspects of health, food and nutrition for most ethnic groups of the United States. Traditional versus contemporary food habits addressed along with the history and beliefs that influence such habits.

**HNDS 420 - Nutrition Counseling and Communication (3 cr.)**

This course is designed to meet the needs of individuals entering the healthcare/dietetics field who have little counseling experience, but have a strong foundational knowledge in the field of dietetics. It includes counseling techniques and strategies, behavior change, interviewing, cultural competence, mass media, and nutrition education. Consent of Instructor required. Prerequisite(s): HNDS 251, HNDS 350.

**HNDS 430 - Food Service Organization and Management (3 cr.)**

Personnel, financial and general management in institutional and commercial food service operations. Prerequisite: junior/senior standing or consent of instructor.

**HNDS 440 - Nutrition Education and Research (3 cr.)**

Course will enable students to apply general education and research knowledge to the field of nutrition. Nutrition information will be applied to education topics including learning objective development, backwards design of curriculum, student centered learning and learning assessment. Crosslisted with: HNDS 540. Prerequisite(s)/Corequisite(s): HNDS 251, 350, and 360.

**HNDS 446 - Diet Therapy I (3 cr.)**

Special diets and physiological basis for their use. Laws and regulations concerning the practice of dietetics. Prerequisites: BIOL 254, BCHE 341, and HNDS 251, or consent of instructor.

**HNDS 448 - Advanced Nutrition (3 cr.)**

Application of biochemistry and physiology to nutrition. Prerequisite(s): BIOL 254, BCHE 341, and HNFS 251, or consent of instructor. Restricted to: Main campus only.

**HNDS 449 - Diet Therapy II (3 cr.)**

Continuation of HNDS 446. Prerequisite: HNDS 446 or consent of instructor.

**HNDS 450 - Special Topics (1-4 cr.)**

Specific subjects and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester and a grand total of 9 credits.

**HNDS 492 - Special Problems (1-4 cr.)**

Individual research study in a selected subject area of family and consumer sciences. Maximum of 4 credits per semester and a total of 8 credits.



**HON - HONORS****HON 112 - Introductory Environmental Science (4 cr. (3+2P))**

HON 112 will introduce you to the scientific study of how humans impact the environment and how the environment impacts humans. About half of the course focuses on mechanisms operating at multiple scales, including connections, cycles, and feedback loops of environmental systems. These deal with how things work, such as chemical principles, food webs, and the carbon cycle. The other half of the course deals with environmental phenomena and the search for solutions. It deals with topics like human population growth, agriculture and the future of food supply, toxicology, waste management, and human use of the oceans, forests, fossil fuels, and creating livable cities. Course participants will study environmental issues in their immediate community.

**HON 115 - Journeys of Discovery (1 cr.)**

Weekly conversations among students and a faculty member; organized around a particular subject and a small selection of readings. The seminars illuminate the many paths of discovery explored by the New Mexico State University faculty. Prerequisite(s): Honors eligible.

**HON 200 - Cognitive Science (3 cr.)**

An interdisciplinary investigation of intelligence. Core disciplines include cognitive psychology, computer science (artificial intelligence), philosophy, and linguistics. Examination of perception, memory, language, reasoning, problem solving, and consciousness from the varying perspectives of the core disciplines.

**HON 203G - Understanding the Science of Human Behavior (3 cr.)**

Methods and principles of human behavior are studied within the context of scientific inquiry. Psychology is compared to and contrasted with other sciences, noting commonalities and differences. Recent advances in neuroscience and cognitive science have led to a more interdisciplinary approach to the study of human thought and behavior.

**HON 205G - Life, Energy, and Evolution (4 cr. (3+3P))**

Principles of modern biological science with discussion on the impact of this science in today's world. Selected topics include principles of metabolism, genetics, physiology, evolution, and ecology. Students who pass HON 205G will fulfill the same requirements fulfilled by BIOL 111G and BIOL 111GL.

**HON 208G - Music in Time and Space (3 cr.)**

Survey of music as it interacts with art, mathematics, science (acoustics), and ideas from exotic cultures through the history of Western civilization.

**HON 214 - Successful Fellowship Writing (1 cr.)**

Same as HON 314, for freshmen and sophomores.

**HON 216G - Encounters with Art (3 cr.)**

A multicultural examination of the principles and philosophies of the visual arts and the ideas expressed through them.

**HON 218 - Women Across Cultures (3 cr.)**

Historical and critical examination of women's contributions worldwide with emphasis on the issues of representation that have contributed to exclusion and marginalization of women and their achievements. Restricted to: Main campus only. Crosslisted with: W S 202G

**HON 219G - Earth, Time, and Life (4 cr. (3+3P))**

Covers how the earth's materials form, processes involved in changing the earth's configuration, and extent of people's dependence upon the earth's resources. Includes mineral and energy resources, development of landscapes, environmental problems, evolution of the earth and life forms. May be taken in place of GEOL 111G.

**HON 222G - Foundations of Western Culture (3 cr.)**

Critical reading of seminal texts relating to the foundations of culture and values in Western civilization, from ancient Greece to about 1700. Focus on the development of concepts of nature, human nature, and the state.

**HON 223 - Evolution of Human Sexuality (3 cr.)**

Placed in the context of human evolution, sexuality is evaluated from evolutionary and ecological perspectives, and examined in terms of cultural influences on its expression.

**HON 225G - History of Ethics (3 cr.)**

A critical examination of questions with respect to the meaning and justification of moral judgments and principles. Provides a basic preparation for serious study of contemporary moral problems.

**HON 226G - Puzzles, Paradoxes, and Truth (3 cr.)**

Discusses famous paradoxes which lead to philosophical questions about the idea of truth. Considers questions of the nature of mathematics, the nature of knowledge and reasoning, the possibility of omniscience and free will, and the nature of time.

**HON 227G - Plato and the Discovery of Philosophy (3 cr.)**

Examines arguments and theories found in the Platonic dialogues with a view to determining the nature and value of philosophy both from Plato's point of view and absolutely.

**HON 228G - Religion and the State (3)**

Moral and political questions that arise in connection with church-state relations, including religious toleration, separation of church and state, the individual's moral duty to ignore religious convictions when performing functions of democratic citizenship, and the extent to which these ideas are embodied in our nation's traditions.

**HON 229G - The New Testament as Literature (3 cr.)**

Literature of the New Testament examined from a literary perspective. Emphasis on translation history of the New Testament, generic features of gospel, epistle and apocalypse, precedent literary models, problems of authorship, classification of New Testament texts.

**HON 230G - Bamboo and Silk: The Fabric of Chinese Literature (3 cr.)**

Introductory survey of traditional and modern Chinese prose and poetry in translation with emphasis on genre, theme, and social/historical context.

**HON 232G - The Human Mind (3 cr.)**

Examination of the current understanding of the intricate relationship between mind and matter, with particular emphasis on the functional organization of the human brain. Evolutionary origins of this functional design and its implications for understanding human emotional and cognitive processes.

**HON 233 - Social Problems (3 cr.)**

Introduction to contemporary social problems from multiple perspectives. Discussions of definition, impact, and prospective solutions to major social issues, such as crime, drug abuse, social inequality, family, population, environment, and social change.

**HON 234G - The Worlds of Arthur (3 cr.)**

Arthurian texts and traditions from medieval chronicle histories to modern novels. Emphasis on both the continuities of the Arthurian tradition and the diversity of genres, media, and cultures that have given expression to the legend.

**HON 235G - Window on Humanity (3 cr.)**

Anthropology is the most humanistic of the sciences, and the most scientific of the humanities. This course will use anthropological perspectives to examine the human experience from our earliest origins, through the experiences of contemporary societies. We will gain insights into the influence of both culture and biology on shaping our shared human universals, and on the many ways in which human groups are diverse. Restricted to Las Cruces campus only.

**HON 237G - Archaeology: Search for the Past (3 cr.)**

A critical evaluation of various approaches to understanding prehistory and history. The methods and theories of legitimate archaeology are contrasted with fantastic claims that invoke extraterrestrials, global catastrophes, transoceanic voyages, and extra-sensory perception.

**HON 239G - Medieval Understandings: Literature and Culture in the Middle Ages (3 cr.)**

Intensive, interdisciplinary introduction to the thought and culture of medieval Europe. Core texts will include works by St. Augustine, Marie de France, and Dante, as well as anonymous works such as Sir Gawain and the Green Knight, all supplemented by study of medieval art, architecture, philosophy, and social history.

**HON 241G - Telling American Stories: Society and Culture in Early America (3 cr.)**

Survey of social, political and cultural history of British North America and the United States from the colonial period to the Civil War, with an emphasis on the construction of historical narratives. Emphasis on the experiences of men and women of various classes and ethnic backgrounds, and on the way in which historians have interpreted those experiences.

**HON 242G - Claiming an American Past (3 cr.)**

Survey of history of the United States in the nineteenth and twentieth centuries, with an emphasis on multicultural social and cultural history. Focus on understanding American history from the point of view of dispossessed, impoverished, and disenfranchised Americans who have fought to claim both their rights as Americans and American past.

**HON 244G - Masterpieces of World Literature (3 cr.)**

Introduction to literature through intensive study of masterpieces from a range of cultures. Includes classical and modern works as well as non-Western literature. Genres include poetry, fiction and drama.

**HON 248G - The Citizen and the State: Great Political Issues (3 cr.)**

The fundamental questions of politics: why and how political societies are organized, what values they express, and how well they satisfy those normative goals and the differing conceptions of citizenship, representation, and freedom.

**HON 249G - American Politics in a Changing World (3 cr.)**

American politics and policies examined from a historical and global perspective. Philosophical underpinnings of American national government, the structure of government based on that philosophy, and the practical implications of both the philosophical and structural base. How American government influences and is influenced by the world community.

**HON 265G - Principles of Human Communication Honors (3 cr.)**

Study and practice of interpersonal, small group, and presentational skills essential to effective social, business, and professional interaction.

**HON 270G - Theatre: Beginnings to Broadway (3 cr.)**

Intercultural and historical overview of live theatre production and performance, including history, literature and professionals. Students attend and report on stage productions.

**HON 275G - Spirit and Evolution of Mathematics (3 cr.)**

Spirit and development of major branches of mathematics over two millennia through original mathematical sources. Supplemented with related cultural, biographical, and mathematical history, placing mathematics in a broad human context. Prerequisite: Math ACT score of 25 or better, or meet placement for entry into MATH 190G, or consent of instructor. Same as MATH 275G.

**HON 304V - Dilemmas of War and Peace (3 cr.)**

A multi-disciplinary introduction to war, peace, and world order studies. The origins of war and the foundations of peace are explored in the context of a rapidly changing world order.

**HON 305V - Global Environment (3 cr.)**

Covers global environmental problems with focus on causes and possible solutions.

**HON 306V - Science, Ethics and Society (3 cr.)**

Investigation of the ethical issues related to scientific investigation and the ethical implications of scientific discoveries for society. Emphasis on discussion of case studies about specific ethical issues in science, and readings by both scientists and non-scientists.

**HON 308V - Into the Final Frontier (3 cr.)**

Exploration of space; a brief review of the history of space flight, the Apollo program, joint U.S.-Soviet space missions, and unstaffed exploration of the planets. Emphasis on knowledge gained through these efforts. Includes new space initiatives.

**HON 310 - Languages of the World (3 cr.)**

This course provides as a framework an in-depth study of three major fields of theoretical linguistics with the addition of the applied field of second language

acquisition. Using this framework, students will develop the ability to apply linguistic knowledge to description and analysis of languages of the world.

**HON 313 - Research and Writing (3 cr.)**

Workshop format designed to prepare students for research and writing associated with production of an honors thesis or a major research assignment. Does not count for general education or honors certification credit.

**HON 314 - Successful Fellowship Writing (1 cr.)**

Provides scholars with hands-on skills to complete proposals for scholarships and fellowships, such as the Truman, Rhodes, Marshall, Goldwater, Udall, and others. Other skills include how to write resumes, develop general research skills, and find grant and foundation sources.

**HON 317V - Cultural Lessons of Nazism (3 cr.)**

Examination of the values and cultural manifestations of fascism in the period 1918-45 with multidisciplinary emphasis on European forms of fascism, particularly German Nazism. Course features a survey of literary, dramatic, poetic, cinematic, and artistic treatments of human behavior leading up to fascism, living under fascist rule, and coming to grips with the consequences of war and genocide.

**HON 318V - The World of Cinema (3 cr.)**

Appreciation of the art of motion pictures as world-wide medium specific to national cultures. Refinement of cinematic literacy and critical viewing skills. Historical and thematic overview emphasizes collaborative nature of medium in various genres from 1895 to present. Selected films from different periods and different countries. Substantial library research projects.

**HON 320V - Food and Humanity: World in Crisis (3 cr.)**

In spite of great advances in food production technology, famines affecting millions continue to occur in the world. Focus on the interrelationship between food production, hunger, and population growth. Covers brief introduction to the culture, history and geography of food production; the dynamics of population growth and the prospects of control; the evolution and structure of the American food system, the politics of food, the development of technology, and the impacts of natural resource and environmental issues.

**HON 321V - Agriculture in an Interconnected World (3 cr.)**

Study of the impact of agriculture on cultural and social systems, with special emphasis on twentieth century urban development.

**HON 322V - Science and Public Policy (3 cr.)**

Explores the interaction between science and public policy. Introduces process of science with explicit development of its power and limitations. Statistical inference, cause and effect, and chaotic processes. Economic impacts of public policies and current issues of agricultural and environmental policies.

**HON 324V - Science and the Arts: Theatre and Story (3 cr.)**

This course examines present day relations between the sciences and the representation and communication of science, especially in connection with theatre, narrative fiction, and autobiography. Crosslisted with: THTR329.

**HON 325V - Contemporary International Literature (3 cr.)**

Introduction to contemporary literature through intensive study of works from a range of cultures around the world.

**HON 326V - Art and Mythology (3 cr.)**

Mythological figures, past and present, in the visual arts. Through iconographical studies (attributes and symbols), trace the development of visual traditions that evolved from the literary sources of classical Mediterranean mythology.

**HON 328V - Rock History: 20th Century Popular Music (3 cr.)**

Evolution of popular music in the 20th Century. Examines the history of popular music conventions, influences, and breakthroughs through the 20th Century. Topics include the originations of major music styles and their evolution as cultivated by key artists, scientific advancements, and sociopolitical change, contextualized within the contemporaneous history. Of particular concern are the influences of groundbreaking artists; the effect of evolving playback electronics, recording devices, and musical instruments; and the interplay between music and economic depression, war, civil rights, sexual revolution, and other sociopolitical events.

**HON 335V - Legal Issues in Modern Society (3 cr.)**

Case study approach to contemporary legal problems involving environment, consumer protection, international law, corporate responsibility.

**HON 336 - Latina Feminisms: Testimonios from the Borderlands (3 cr.)**

This course is about the testimonies and autobiographical writings of and by Latinas in the United States. Life stories are told through many forms: testimonios, memoirs, autobiographies and autobiographical fiction, oral histories and short stories, poetry and poetic prose pieces, essays, and audio-stories. Drawing from these sources of knowledge, we will explore feminist epistemologies and cast a critical eye on traditional knowledge claims and objectivity. The course focuses on Chicana/Latina feminist theories, the empirical educational research that draws upon these theories, and testimonios as method, epistemology, and pedagogy. Among the questions we will examine will be those concerning knowledge production, sexual politics, the mind-body-spirit connection, representation, and truth.

**HON 340 - American Indian Law and Policy (3 cr.)**

This course is divided into two major parts: an historical survey of federal Indian law and policy, and selected topics, focusing on contemporary federal Indian law and policy issues and problems. This course assumes that the students have not had any law courses and approaches the topic of the history of federal Indian law and policy from various multidisciplinary and interdisciplinary perspectives. Crosslisted with: BLAW430.

**HON 342V - God and Nature (3 cr.)**

Historical relationship between science and religion (chiefly Christianity) in Western Civilization. The rise of Christianity and its confrontation with pagan philosophy, science and medieval theology, the Reformation and the Scientific Revolution, Darwinism v. Creationism, psychoanalysis and religion.

**HON 346V - Perspectives on Violence (3 cr.)**

Social construction of violence, its impact on especially urban communities, and strategies to disarm it.

**HON 347V - World Dance (3 cr.)**

Examination of dance forms from a cross-cultural perspective, focusing on the role of dance in different cultures around the globe. Same as DANC 451V with differential assignments for Honors students.

**HON 348V - Comparative Mythology: Myth, Ritual, and the Life Cycle (3 cr.)**

Exploration of the central myths of several religious traditions and investigation of how each, through ritual, has given meaning to key moments in the journey of the individual through life.

**HON 349V - Islam and the West: Cultural Contacts, Conflicts, and Exchanges (3 cr.)**

This course examines interactions, encounters and cross-fertilization between the Islamic world and the West from the 7th -21st century. It begins with the origins of Islam and its relationship to Judaism and Christianity and ends in the post 9/11 present, an era some characterize as dominated by a clash of civilizations.

**HON 350V - Law, Culture and Conflict (3 cr.)**

Introduction to the ways law is used to order human relationships, as well as ways cultural subgroups seek freedom from law. Course seeks to expose many of the underlying value conflicts which give rise to law and which are reflected in the use of law, and how we might begin to differentiate between valid and invalid laws.

**HON 351V - Interpersonal Relations and the Self (3 cr.)**

Course explores the ways in which culture influences interpersonal relations and conceptions of the self. The course considers a variety of issues such as: interpersonal communications, self-awareness, self-disclosure, non-verbal behavior, intimacy, love, trust, jealousy, conflict management, self-management, culturally determined views of the self, self-presentation, and self-identity. Differences between the way the issues are viewed by different groups within our society, as well as between societies, will be considered.

**HON 352V - Crime, Justice and Society (3 cr.)**

An overview of crime as a problem across a variety of contemporary societies. History of the criminal justice system; treatment of crime as a public policy issue; political forces impacting the administration of justice in the United States and other nations.

**HON 353V - Justice without Prejudice (3 cr.)**

Exploration of central questions about race, ethnicity, and justice. Students will learn to argue persuasively from different perspectives, both orally and in writing.

**HON 355V - Sexuality in Christianity and Islam (3 cr.)**

Analyzes and compares Christian and Muslim views on appropriate sexual behavior, the meaning of sin, and the role of the body in spiritual transformation.

**HON 362 - Native American Philosophy and Spirituality (3 cr.)**

Survey of philosophical traditions of Indigenous peoples of the Western Hemisphere. This course examines various forms of spiritual expression which encompasses art, dance, music, political/social activism, and the relationship to land. This course looks at present-day spiritual issues and on-going practices in Native America.

**HON 363 - Indigenous Ways (3 cr.)**

This course draws from an array of literature across numerous academic disciplines that are written from, about, and for the purpose of providing a way of knowing the world from an Indigenous/Tribal worldview. Students will gain a greater appreciation of the Indigenous paradigm as they approach their respective fields of study, and will learn to recognize the interrelated relationships between the Western Scientific and Indigenous/Tribal worldviews.

**HON 365V - African and Caribbean: Literature and Film (3 cr.)**

Selected films and literary works shaped by colonial and post-colonial experiences in contemporary Africa and the Caribbean. Focus on the ongoing search for alternative identities in the form of a decolonized literature and culture.

**HON 366V - The Gothic Imagination (3 cr.)**

Introduction to Gothic literature from its beginnings in the late eighteenth century that focuses on the political, psychological, religious, social, and familial values this literary genre explores and questions.

**HON 370V - Design: The Creative Act (3 cr.)**

Explores the nature of design and what it means to design in various diverse media. Included are creative efforts in writing, art, music, and technology. Commonalities and differences are considered.

**HON 374V - The European City: History and Culture (3 cr.)**

Historical overview of development, growth, and culture of European cities.

**HON 375V - The U.S. City: A History of Race, Space, and Urbanization (3 cr.)**

This course takes the city as a starting point to understand larger social and political developments in the United States. Processes of segregation and exclusion have placed people of color in the United States on the periphery of social, cultural and geographical power in the nation. We will explore how Asian Americans, Latinas/os, and African Americans have navigated, created, and made sense of urban environments. Students will learn to interpret space for evidence of past and present social relationships, including how race intersects with gender, class, sexuality, and nation.

**HON 377V - Freedom of Speech and the Law (3 cr.)**

Examination of freedom of speech and of press both in the United States and in other societies. Examines a wide range of laws, court rulings and regulatory schemes covering areas such as defamation, sedition, and regulation of broadcasting and advertising.

**HON 378V - Technology and Policy (3 cr.)**

Study of the processes through which society sets goals for science and technology, of the allocation of resources needed to achieve these goals, and of the obligations and conflicts that develop as the goals are realized. International comparisons of public policies.

**HON 379V - Literature as Film (3 cr.)**

Considers the various results of literary adaptations to the screen. Participants will read literary texts written or translated into English and watch films from various countries as illustrations of this process.

**HON 380V - Comparative Economic Systems (3 cr.)**

A global comparison of economic institutions and problems.

**HON 383V - The Sixties: Society, Culture, and Change (3 cr.)**

An examination of social, political, and cultural change in the 1960s in the United States and around the world. Topics include the New Left, the Black Panthers, the Civil Rights Movement, the Women's Liberation Movement, as well as major cultural changes in music, drugs, and interpersonal behavior.

**HON 384V - Ethical Decisions in Organizations (3 cr.)**

Examines ethical decisions in business, non-profit, and governmental organizations from a managerial perspective. Topics include ethical principles, recognition and application of principle-based ethics, stakeholders in ethical decisions, and analysis of the consistency between organizational decisions and ethical principles.

**HON 385V - Consumers and the Law (3 cr.)**

A study of the multidisciplinary synergism of law, societal concerns, business, and ethics of consumer issues and attendant liability and remedies for the domestic and international markets.

**HON 386V - Women in the Economy (3 cr.)**

Overview of women's participation in the U.S. and other economies. Main economic problems, including role and wage differences between men and women and why those differences exist. Economic theory, empirical studies, and the government's economic policies as they relate to gender.

**HON 387V - Comparative Perspectives on Women (3 cr.)**

The history, antecedents, and consequences of sex and gender systems around the world from the perspective of sociology, anthropology, and psychology.

**HON 388V - Leadership and Society (3 cr.)**

Exploration of the multifaceted nature of leadership in modern society through readings and seminar discussion.

**HON 390 - Worlds of Buddhism (0-3 cr.)**

This course is an introduction to Buddhism and its contribution to the formation of (East) Asian cultures. It provides students with Buddhist and (East) Asian "case studies" - i.e., examples of the ways in which Buddhism has influenced, and has been influenced by, the region's various cultural and social milieus over time. The course is designed to offer opportunities to critically reflect on Buddhism as a transformative philosophical, cultural and individual system. May be repeated up to 3 credits.

**HON 392V - Vietnam: Americas Longest War (3 cr.)**

Discussions of causes and effects of the Vietnam conflict on the Vietnamese people, American society, and international affairs, with special emphasis on the diplomatic and military role of the United States.

**HON 394V - Southwestern and Border Literature (3 cr.)**

Introduction to the culturally diverse literature of the American Southwest and borderlands region. Class analyzes evolution of the Southwest concept and considers degree to which the existence of a borderlands culture is manifest in literature. Prerequisite: honors eligibility.

**HON 400 - Honors Thesis (3 cr.)**

Independent-study research and writing project to be carried out under the supervision of a faculty member. Prerequisite: consent of instructor.

**HON 410 - Honors Internship (3-6 cr.)**

Assignments in departments to be supervised by faculty in the area. A cumulative 3.5 GPA is required. May be repeated for a maximum of 12 credits. Graded S/U.

**HON 411V - Great Theorems: The Art of Mathematics (3 cr.)**

Same as MATH 411G.

**HON 420 - Independent Studies (1-3 cr.)**

Directed, individual studies and projects. Prerequisites: consent of instructor and honors eligibility.

**HON 421 - Special Topics (1-3 cr.)**

Special course offerings, with specific titles listed in Schedule of Classes. May be repeated up to 6 credits. Consent of Instructor required. Crosslisted with: EDUC 315.

**HON 422 - Directed Research (3 cr.)**

Individual research projects supervised by faculty advisers. Consent of instructor required.

**HON 424 - History of Art, Thought and Literature: History of Food (3 cr.)**

Examines the history of food production and consumption in Western history from prehistory through the present through weekly readings and seminar discussions. Topics include the origins of cooked food; food in the bible and the ancient world; medieval mysticism; the Columbian Exchange; the medieval table and the rise of French cooking; food and colonialism; the history of sugar; food and global exchange; the modern diet. Special attention is paid to the relationship between food and social class, as well as to the ways in which food practices are historically gendered. Prerequisite(s): HIST 101.

**HON 425V - Magic and Witchcraft in Medieval and Renaissance (3 cr.)**

Examines the history of popular and scientific beliefs about magic and witchcraft in medieval and early modern Europe. Topics include the origins of the occult sciences in the West, Arabic sources of medieval magic, the occult sciences in scholasticism, witchcraft and medieval theology, the witch hunts of the sixteenth and seventeenth centuries, and the decline of belief in magic and witchcraft in the seventeenth century. Of particular concern are the boundaries that defined and separated magic, science, and religion in western thought from late antiquity through the Scientific Revolution. Same as HIST 425 with differential assignments for HON 425 students. Crosslisted with: HIST425. Prerequisite(s): HIST 101.

**HON 450V - The Sundt Honors Seminar (3)**

The Sundt Honors Seminar is a unique, experience-based, interdisciplinary seminar developed and taught by the holder of the Sundt Honors Professorship for the year. The subject of the course will vary according to the discipline of the Sundt Professor. The course may include a travel experience related to the seminar topic, hosting of outside specialists, or other unique activity. Open to students by application. Students selected for the course are named Sundt Scholars. Prerequisite(s): ENGL 111G or equivalent.

**HORT - HORTICULTURE****HORT 100G - Introductory Plant Science (4 cr. (3+2P))**

Introduction to the physical, biological, and chemical principles underlying plant growth and development in managed ecosystems. In the laboratory portion of the class, students perform experiments demonstrating the principles covered in lecture. The course uses economic plants and agriculturally relevant ecosystems to demonstrate basic principles. Appropriate for nonscience majors. Same as AGRO 100G.

**HORT 110 - Athletic Field and Golf Course Management (1 cr. (2P))**

Survey of proper management of athletic fields, golf courses and other turfgrass stands. Career opportunities in athletic field and golf course management will be discussed. Course includes field trips to local and regional sports turf facilities.

**HORT 200 - Special Topics (1-4 cr.)**

Specific subjects and credits as announced. Maximum of 4 credits per semester and a grand total of 9 credits.

**HORT 205 - Introduction to Horticulture (3 cr.)**

Principles and practices of horticulture. Basic chemical, physical, and biological principles that govern plant growth in different environments. Economics of plant science as related to the field of horticulture. Online course entirely. Intended for non-majors.

**HORT 210 - Ornamental Plants I (4 cr. (3+2P))**

Covers identification, botanical characteristics, culture, and landscape uses of woody plants. Emphasis on deciduous trees, native shrubs, and evergreens.

**HORT 211 - Ornamental Plants II (4 cr. (3+2P))**

Identification, botanical characteristics, culture, and landscape uses of woody plants. Emphasis on flowering trees, cacti, and members of the pea and rose families.

**HORT 240 - Floral Quality Evaluation and Design (2 cr. (1+2P))**

Critical hands-on evaluation of the quality of cut and potted floral and tropical foliage crops, their specific merits and faults, and fundamentals of floral design.

**HORT 241 - Floriculture Field Practicum (1 cr.)**

Participation as team member in the National Intercollegiate Floral Quality Evaluation and Design Competition. Intensive week-long travel for competition, networking with industry, academia, and floriculture tours. May be repeated for a maximum of 3 credits. Prerequisite(s): HORT 240 or consent of instructor.

**HORT 250 - Plant Propagation (3 cr. (2+2P))**

Practical methods of propagating horticultural plants by seed, cuttings, layering, grafting, division and tissue culture. Examination of relevant physiological processes involved with successful plant propagation techniques. Same as AGRO 250.

**HORT 300 - Special Topics (1-4 cr.)**

Specific subjects as announced in the Schedule of Classes. Maximum of 4 credits per semester and a grand total of 9 credits.

**HORT 302V - Forestry and Society (3 cr.)**

Global study of the development and use of forest resources for production of wood, fuel, fiber, and food products. Climatic, edaphic, cultural, and economic influences on forests of the world evaluated. Same as RGSC 302V.

**HORT 305 - Principles of Genetics (3 cr.)**

Covers fundamental principles of reproduction, variation, and heredity in plants and animals. Prerequisite(s): BIOL 111G, BIOL 211G and either CHEM 111G or CHEM 115. Crosslisted with: AGRO 305, ANSC 305, BIOL 305 and GENE 305

**HORT 307 - Landscape Design (3 cr. (1+4P))**

Design elements, the design process, and contemporary planting design used in the design of residential and small commercial landscapes. Basic drafting, drawing, and landscape plan presentation techniques. Prerequisites: HORT 210 or HORT 211 or concurrent enrollment or consent of instructor.

**HORT 310 - Medicinal Herbs (3 cr.)**

Introduction to ethnobotany, including plant cultivation, extraction methods, and analysis of active chemistries.

**HORT 315 - Crop Physiology (3 cr.)**

Whole plant physiological processes as related to growth, development, yield, quality and post harvest physiology of crop plants within the environment of the crop community. Prerequisite(s): EPWS/BIOL 314 or consent of instructor. Crosslisted with: AGRO 315

**HORT 365 - Principles of Crop Production (4 cr. (3+3P))**

Basic principles of crop production including environmental and physiological factors limiting production, plant nutrition and soil science, soil-water management, cropping systems and management, pest management, and economic factors influencing crop production. Prerequisite(s): AGRO/HORT 100, CHEM 111G or equivalent and MATH 120 or equivalent. Crosslisted with: AGRO 365

**HORT 377 - Introduction to Turfgrass Management (4 cr. (3+3P))**

Establishment and maintenance of turfgrass with emphasis on seeding methods, soil and water management, mowing, disease insects and turfgrass varieties. Crosslisted with: AGRO 377

**HORT 378 - Turfgrass Science (4 cr. (3+3P))**

Introduction to the scientific fundamentals for turfgrass management cultural practices, pest management, rootzone construction and ecology. Prerequisite(s): HORT 377 or consent of instructor.

**HORT 391 - Internship (1-6 cr.)**

Professional work experience under the joint supervision of the employer and a faculty member. A written report is required. No more than 6 credits toward a degree. Consent of instructor required. Graded: S/U. Crosslisted with: AGRO 391 and SOIL 391

**HORT 447 - Seminar (1 cr.)**

Review of current literature. Same as AGRO 447 and SOIL 447.

**HORT 449 - Special Problems (1-3 cr.)**

Research problem, experience training, or other special study approved by a faculty adviser. Maximum of 3 credits per semester and a grand total of 6 credits.

**HORT 450 - Special Topics (1-4 cr.)**

Specific subjects as announced in the Schedule of Classes. Maximum of 4 credits per semester and a grand total of 9 credits.

**HORT 462 - Plant Breeding (3 cr.)**

Principles and practices involved with the genetic improvement of plants. Prerequisites: ANSC/AGRO/BIOL/HORT 305. Same as AGRO 462.

**HORT 465 - Landscape Construction and Maintenance (4 cr. (3+2P))**

Application of landscape design and construction principles to build and maintain residential, small commercial and selected public managed landscapes.

**HORT 471 - Plant Mineral Nutrition (3 cr.)**

Basic and applied aspects of plant requirements for soil-derived minerals and the processes whereby minerals are acquired, absorbed, translocated, and utilized throughout the plant. Prerequisite: EPWS/BIOL 314, or concurrent enrollment, or consent of instructor. Same as AGRO/EPWS 471.

**HORT 479 - Advanced Turfgrass Science (3 cr.)**

Extensive reviews of turfgrass sciences including ecology, physiology, entomology, pathology, weed science, and soil science. Prerequisite: HORT 378 or consent of instructor.

**HORT 485 - Vegetable Crop Management (4 cr. (3+2P))**

Physiological, environmental and cultural aspects of vegetable crop production. Corequisite(s): AGRO 365 or HORT 365, or consent of instructor.

**HORT 486 - Materials from Biorenewable Resources (3 cr.)**

Types, sources, composition and properties of biomass. Production, processing, and applications of biomass materials with energy, water, cost, sustainability, and waste management considerations. Crosslisted with: AGRO 485, E S 485, CHME 485 and SOIL 485. Prerequisite(s): CHEM 111G, CHEM 313; a course in plant science, soil science, food science, or biology.

**HORT 488 - Greenhouse Management (4 cr. (3+3P))**

Principles and practices involved in greenhouse structures and construction, site considerations, covering materials, heating and cooling systems, greenhouse crop production techniques, and case studies. Prerequisite: HORT/AGRO 365 or consent of instructor.

**HORT 492 - Diagnosing Plant Disorders (3 cr. (2+3P))**

Systematic diagnosis of the physiological, pathological, and entomological causes of plant disorders. Prerequisites: EPWS 303 and EPWS 310. Same as EPWS 492 and AGRO 492.

**HRTM - HOTEL, RESTUARANT AND TOURISM MANAGEMENT****HRTM 111 - Freshman Orientation (1 cr.)**

Orientation to university life, including available resources and methods to promote success at NMSU. Open to all freshmen and transfer students. Graded S/U.

**HRTM 200 - Special Topics (1-4 cr.)**

Specific subjects and credits to be assigned on a semester basis for both lecture and laboratory assignments. Prerequisite: consent of instructor. May be repeated for a maximum of 4 credits.

**HRTM 201 - Introduction to Tourism (3 cr.)**

Survey of travel and tourism development and operating characteristics.

**HRTM 210 - Colloquium I (1 cr.)**

Distinguished industry and professional speakers lecture on current issues. May be repeated for a maximum of 2 credits. Graded S/U.

**HRTM 221 - Introduction to Hospitality Management (3 cr.)**

Overview of the major segments of the hospitality industry, with a focus on basic management principles.

**HRTM 231 - Safety, Sanitation and Health in the Hospitality Industry (2 cr.)**

Addresses public health, HACCP, safety and culinary nutrition responsibilities in the hospitality industry. Sanitation certification test allows students to receive national credential.

**HRTM 263 - Food Production and Service Fundamentals (3 cr. (1+4P))**

Basic overview of food service systems including menu management, purchasing and production. The course includes basic principles of food fabrication and production. Topics include knife skills, culinary terminology, product identification, quality standards, nutritional cooking theory and application of food preparation techniques. The course includes laboratory aspects and demonstration of basic food production techniques, service styles, practices and procedures in food service operations including culinary math. This course provides students with an understanding of food service sanitation and culinary nutrition. Completion of a national certification examination is required. Prerequisite(s): HRTM 221 or FSTE 263G. Restricted to Las Cruces campus only.

**HRTM 301 - Hotel, Restaurant, and Tourism Marketing (3 cr.)**

The development of effective marketing programs for hospitality service organizations. Prerequisites: HRTM 221

**HRTM 302 - Hospitality Management Accounting (3 cr.)**

Specialized accounting for hotel revenue and expenses; accounting for inventory, property, and equipment; hospitality payroll accounting; hotel departmental financial statements; income statement, balance sheet, and statement of cash flows; the analysis of financial statements; interim and annual reports; budgeting expenses; forecasting sales; budgetary reporting and analysis; and financial decision making. Prerequisite: ACCT 221.

**HRTM 304 - Hospitality and Travel Law (3 cr.)**

Specialized applications of the law to the hospitality and tourism industry. Prerequisite: HRTM 221.

**HRTM 307 - Professional Development (1 cr.)**

Covers essential elements of career management including preparation for a successful internship. Restricted to majors. Graded S/U.

**HRTM 310 - Colloquium II (1 cr.)**

Distinguished industry and professional speakers lecture on current issues. Graded S/U. May be repeated for a maximum of 4 credits.

**HRTM 311 - Hospitality Leadership Management (3 cr.)**

Examines modern leadership theory in the context of the hospitality industry. Connects contemporary leadership topics to their historical antecedents through focused reading, discussion and film. Prerequisites: HRTM 221 and HRTM 201.

**HRTM 331 - Hotel Operations I (3 cr.)**

Analysis of hotel systems design, process, and applications for operating areas including guest services, reservations, reception, telecommunications, guest/city ledger, and the night audit. Prerequisites: HRTM 201 and HRTM 221.

**HRTM 363 - Quantity Food Production and Service (6 cr. (1+10P))**

Covers quantity food production including cooking concepts, sanitation and safety, teamwork, and management responsibilities. Students will apply this knowledge developing product for sale in a student run restaurant. Crosslisted with: HNDS 363. Prerequisite(s): HRTM 263.

**HRTM 400 - Field Experience (1-6 cr.)**

Field experience (Internship) for Hotel, Restaurant, and Tourism Management Program. Prerequisite: consent of instructor. May be repeated for a maximum of 6 credits. Restricted to majors.

**HRTM 404 - Gaming Operations and Organization (3 cr.)**

Introduction to the multi-billion-dollar industry, including an historical overview, social and economic impacts of gaming, and casino operations. Prerequisites: HRTM 201 and HRTM 221.

**HRTM 408 - Hospitality Internship (1 cr.)**

Hospitality and tourism professional work experience for HRTM majors only. Prerequisites: HRTM 307 and consent of instructor. Restricted to majors.

**HRTM 409 - HRTM Internship Seminar (1 cr.)**

A case based approach to analyzing internship experiences. Students will write case studies about specific business issues they encountered during HRTM 408 (Internship) and analyze them. Prerequisites: HRTM 408. Restricted to majors.

**HRTM 410 - Hospitality Cost Control (3 cr.)**

Familiarizes students with all aspects of cost control including financial data entry and hospitality accounting practices, financial report production, analysis and problem solving. Students will learn to understand the roles of the various stakeholders (owners, managers, employees and customers.) Provides tools needed to communicate effectively about global financial issues affecting the hospitality business. Prerequisite: HRTM 408.

**HRTM 412 - Beverage Management (3 cr.)**

Survey of all aspects of beverage management, including wine/beer/distilled spirits origins and trends, cost control, bar management, beverage purchasing, and wine appreciation. Prerequisite: HRTM 408.

**HRTM 413 - Restaurant Operations Management (4 cr. (1+6P))**

Provides a detailed understanding of the processes of restaurant operations management. Students are expected to increase kitchen technical skills, learn to cook from recipes and develop a personal culinary style. Provides the opportunity to perform a detailed analysis of a food and beverage operation, including running and selectively analyzing the reports from systems. Student must be at least 21 years old. Prerequisites: consent of instructor. Restricted to majors.

**HRTM 414 - International Food and Wine (3 cr.)**

An experiential examination of wine through lectures, films, guest speakers and focused tasting of food and wine. Topics include viticulture, wine making varieties, terroir, and food pairings. Student must be at least 21 years old. Prerequisite: consent of instructor.

**HRTM 420 - Club Management and Marketing (3 cr.)**

Provides an understanding of the general operational and administrative procedures practiced in private clubs from a marketing perspective with a special emphasis on managing and marketing club food and beverage operations and service. It will provide the professional golf management and hospitality students with the unique sensitivities required in managing and operating in the increasingly lucrative club management market.

**HRTM 430 - Hospitality Facilities Management (3 cr.)**

Exploration of the engineering and maintenance requirements specific to the hospitality industry. Emphasis on environmental issues, renovation and management of the physical plant. Prerequisite(s): HRTM 331, HRTM 408.

**HRTM 431 - Hotel Operations II (3 cr.)**

The duties and administration of a hotel front office, including housekeeping. Additional focus on the procedures of reservations and night audit. Students also gain exposure to property management systems. Prerequisite(s): HRTM 331, HRTM 408.

**HRTM 432 - Hotel Revenue and Sales Management (3 cr.)**

Examines methods used for profitably managing capacity, including dynamic pricing and allocation of the rooms inventory across market segments to maximize revenues. Focuses on the integration of revenue management principles with information technology, management, marketing and sales concerns at the property and market level. Prerequisite: HRTM 408.

**HRTM 433 - Training for Hospitality Operations (3 cr.)**

Analysis of training needs and methods in hospitality organizations. Prerequisite(s): MGT 332.

**HRTM 434 - Senior Capstone Experience (3 cr.)**

Synthesizes all previous work. Students apply multi-disciplinary principles to the analysis of hospitality business cases and tourism problems. Prerequisite: HRTM 408.

**HRTM 443 - Meetings, Conventions and Special Events (3 cr.)**

Examination of the role of the meeting/event planner, including setting objective, site selection, negotiations, design, budgeting, marketing, registration, on-site logistics, and evaluation. Prerequisites: HRTM 408.

**HRTM 450 - Special Topics (1-4 cr.)**

Specific subjects to be announced in the Schedule of Classes. Prerequisite: consent of instructor. Maximum of 4 credits per semester and a grand total of 9 credits.

**HRTM 492 - Special Problems (1-4 cr.)**

Individual research in a selected subject area of hospitality management. Prerequisite: consent of instructor. Maximum of 4 credits per semester and a total of 6 credits toward a degree.

**I B - INTERNATIONAL BUSINESS****I B 317 - International Marketing (3 cr.)**

Same as MKTG 317.

**I B 351 - International Business (3 cr.)**

The various aspects of international business, and identification and analysis of problems encountered by multinational companies. Prerequisite: junior standing or consent of instructor.

**I B 398 - International Business and Economic Environments (3 cr.)**

Description and analysis of various world regions, e.g., Pacific Rim, Eastern Europe, South Asia. Region will vary from semester to semester.

**I B 449 - Open Economy Macroeconomics (3 cr.)**

This course studies theoretical and empirical macroeconomics in international dimension. It covers from the fundamental concepts of national income and growth, monetary/fiscal and exchange rate policies, foreign exchange markets, international trade and finance, and regionalization/economic integration to the impact analysis of these macroeconomic fundamentals in the open economy. Crosslisted with: ECON 449. Prerequisite(s): FIN 341 OR ECON 372.

**I B 450 - International Economics (3 cr.)**

Trade and capital flows between countries, international payments, government policy in balance-of-payments and tariff matters, international organizations. Prerequisite(s): ECON 251G and ECON 252G. Crosslisted with: ECON 450G

**I B 458 - Comparative International Management (3 cr.)**

Cultural influences on management are examined in a global business environment with a particular emphasis on human behavior in multinational organizations and the management of human resources. Same as MGT 458.

**I B 475 - International Finance (3 cr.)**

Same as FIN 475.

**I B 489 - Senior Seminar in International Business (3 cr.)**

Capstone class for I B majors. Integration of previous classwork via the examination of case studies and completion of a major project. Prerequisite: I B core.

**I E - INDUSTRIAL ENGINEERING****I E 110 - Industrial Engineering Orientation (1 cr.)**

Introduction to Industrial Engineering Department, Facility Research and Resources. Overview of where industrial engineering fits into larger view of all of engineering. Introduction to university resources for industrial engineering students. Restricted to majors.

**I E 151 - Computational Methods in Industrial Engineering (3 cr.)**

History, social implications, and application of computers and an introduction to computer programming, word processing, and database management systems.

Satisfies General Education computer science requirement. Prerequisite: MATH 121G.

**I E 152 - Introduction to Industrial Engineering (2 cr.)**

Historical development of industrial engineering, present practice and trends. Prerequisite: MATH 120.

**I E 200 - Special Problems-Sophomore (1-3 cr.)**

Directed individual projects. Prerequisite: consent of faculty member. May be repeated for a total of 3 credits.

**I E 217 - Manufacturing Processes (2 cr.)**

Manufacturing methods and industrial processes which include casting, forming and machining. Prerequisite(s): MATH 121G. Corequisite(s): I E 217 L. Crosslisted with: E T 217

**I E 217 L - Manufacturing Processes Laboratory (1 cr. (3P))**

Laboratory associated with I E 217.

**I E 300 - Special Problems-Junior (1-3 cr.)**

Directed individual projects. May be repeated for a total of 3 credits. Prerequisite: consent of faculty member.

**I E 311 - Engineering Data Analysis (3 cr.)**

Methodology and techniques associated with identifying and analyzing industrial data. Prerequisite: MATH 192G.

**I E 316 - Methods Engineering (3 cr. (2+3P))**

Methods analysis and design. Work measurement techniques. Job evaluation and wage incentive methods. Prerequisite: I E 311.

**I E 330 - Environmental Management Seminar I (1 cr.)**

Survey of practical and new developments in hazardous and radioactive waste management provided through a series of guest lectures and reports of ongoing research. Restricted to: Main campus only. Crosslisted with: C E 330, CHME 330, E E 330, E S 330, E T 330, M E 330 and WERC 330

**I E 351 - Applied Problem Solving in Industrial Engineering (3 cr.)**

Application of computational techniques to engineering problems including the use of commercial programs in statistics and applied mathematics. Corequisite: I E 311. Restricted to majors.

**I E 365 - Quality Control (3 cr.)**

Statistical analysis of quality in manufacturing. Acceptance sampling and control charts. Prerequisite: I E 311 or equivalent.

**I E 375 - Manufacturing Processes II (3 cr.)**

Review of basic manufacturing processes. Advanced topics in casting, forming, machining and joining; major process parameters; economics of processes. Prerequisite: I E 217 or E T 217.

**I E 381 - Technology Ventures (3 cr.)**

This course looks at how new technology ventures are formed at the individual entrepreneur and corporate levels. It covers the development of science and engineering based ventures from ideas through creating customer value. This is the first course in the Entrepreneurship Minor. The roles of science and engineering specialists in the creation of customer value are defined in preparation for development of technology-based enterprises.

**I E 382 - Business for the Practicing Engineer (3 cr.)**

Business tools and skills, including technology commercialization, patent applications, preparing a technology-oriented business plan, reading and constructing financial documents, modeling and understanding markets, e-commerce, QFD, concurrent engineering, engineer's role in the global economy, and engineer's impact on product design and cost. Prerequisite: engineering major, junior level or above.

**I E 400 - Undergraduate Research (1-3 cr.)**

May be repeated for a maximum of 6 credits. Prerequisite: consent of faculty member.

**I E 411 - Occupational Safety (3 cr.)**

Practical methods to improve safety in the workplace. Topics include OSHA and other regulations, hazard recognition, assessment and control, industry standards, risk assessment and safety management. Material is applicable to a variety of workplace settings. This course is intended for College of Engineering students who have completed their lower-division requirements in mathematics, engineering, technology, and basic science. Same as I E 561 with differential assignments. Prerequisite: Junior standing

**I E 413 - Engineering Operations Research I (3 cr.)**

Deterministic operations research modeling including linear and integer programming. Prerequisite: MATH 192G.

**I E 423 - Engineering Operations Research II (3 cr.)**

Probabilistic operations research modeling, including queuing systems and their optimization; Markov chains. Prerequisite: I E 311.

**I E 424 - Manufacturing Systems (3 cr.)**

Organization and functions of manufacturing planning and control systems including forecasting, MRP, capacity planning, JIT systems, scheduling, and inventory control. Prerequisite: I E 311.

**I E 430 - Environmental Management Seminar II (1 cr.)**

Survey of practical and new developments in environmental management field, hazardous and radioactive, waste management, and related health issues, provided through a series of guest lectures and reports of ongoing research. Restricted to: Main campus only. Crosslisted with: C E 430, CHME 430, E E 430, E S 430, E T 430, M E 430 and WERC 430

**I E 451 - Engineering Economy (3 cr.)**

Discounted cash flows, economics of project, contract and specifications as related to engineering design. Same as CHME 451.

**I E 453 - Leadership and Motivation (3 cr.)**

Theories of leadership and motivation. Motivational programs for complex organizations. Relationships between organizational power, authority, and management styles. Prerequisite: MGT 309 or consent of instructor. Same as MGT 453.

**I E 460 - Evaluation of Engineering Data (3 cr.)**

Analysis of engineering systems possessing variability, employing regression, analysis of variance, distribution theory, and experimental design methods. Prerequisite: I E 311 or equivalent.

**I E 466 - Reliability (3 cr.)**

Application of statistical theory to engineering reliability estimation, reliability improvement, and the analysis of reliability test data. Prerequisite: I E 311 or equivalent.

**I E 467 - Discrete-Event Simulation Modeling (4 cr.)**

Basic modeling concepts, organizations of simulations, input data analysis, random variate generation, simulation design and analysis, model validation, output analysis, and management of simulations. Differentiated graduate assignments. Prerequisite: I E 311 or equivalent. Same as I E 567.

**I E 477 - Ergonomics in Manufacturing Systems (3 cr.)**

Ergonomic analysis applied to manufacturing engineering environment. Covers: task analysis, workplace assessment and design, computer-integrated manufacturing, and legal/regulatory issues in manufacturing task and workplace design.

**I E 478 - Facilities Planning and Design (3 cr.)**

Plant location methods, total process analysis, process integration, materials handling analysis, and traditional and computerized plant layout methodologies. Prerequisite: I E 316. Pre/Corequisite: I E 424.

**I E 480 - Senior Design (3 cr. (2+3P))**

Multi-disciplinary team design project for external clients. Involves semester long activities including major design report and presentation. Prerequisites: senior standing, I E 467.

**I E 490 - Selected Topics (1-3 cr.)**

Prerequisite: consent of the head of the department. May be repeated for a maximum of 9 credits.

**ICT-INFORMATION AND COMMUNICATION TECHNOLOGY****ICT 300 - Special Topics (3 cr.)**

Directed study or project. Consent of Instructor required.

**ICT 320 - Applications Software for Technologists (3 cr.)**

Use of existing software packages for technology application. Prerequisite(s): junior standing.

**ICT 339 - Introduction to Digital Forensics and Incident Response (3 cr.)**

Introduction to the skills required to perform digital forensics and incident response on Windows operating systems. Topics include: live response, evidence acquisition, Windows operating system artifacts, documentation and reporting. Prerequisite(s): ICT 360.

**ICT 345 - Computer Hardware Fundamentals (3 cr.)**

Computer hardware fundamentals including architecture, interfacing, peripherals, troubleshooting, system upgrades, and maintenance. Prerequisite(s): junior standing.

**ICT 352 - Software Programming for Information and Communication Technology (3 cr.)**

Computer programming techniques for information and communication technology topics.

**ICT 360 - Operating Systems for ICT (3 cr.)**

Command Line interface, File systems, File manipulations, remote login. For information and communication technologists.

**ICT 362 - Software Technology II (3 cr.)**

A continuation of topics from ICT 352 that are directed toward more advanced software development. Topics include problem analysis, object oriented, structured logic, and development concepts using JAVA. Prerequisite(s): ICT 352.

**ICT 364 - Windows Server Administration (3 cr.)**

Configuration and maintenance of programs in Windows Server and Server Installation, Active Directory, Storage, Server Maintenance, Troubleshooting Methodology, SQL Server, Web Server, Authentication Procedures, Mail Servers. Prerequisite(s): ICT 360 and ICT 320.

**ICT 377 - Computer Networking I (3 cr.)**

Topics presented from the point of view of the network administrator include computer network design and applications from LAN to WAN to the Internet, office LANs, cable certification, switches, routers, Windows server, TCP/IP networks, network protocols, network diagnostics, campus network and Internet routing, the OSI layers from physical to transport. Prerequisite(s): junior standing.

**ICT 435 - Senior Project (3 cr.)**

Advanced ICT Project. Normally taken during last semester of the program. Prerequisite(s): ICT 462 and ICT 377 and ICT 458.

**ICT 450 - Ethical Hacking (3 cr.)**

Ethical Hacking and Penetration testing techniques. Prerequisite(s): E T 339 OR ICT 339.

**ICT 457 - Introduction to Information Security Technology (3 cr.)**

Practical techniques of Data Encryption Technology, Steganography for Information Technology, Intrusion Detection and Countermeasures. Use of Python to write system tools for detecting anomalies in data flow. Design of physically secure data housing. Techniques of Industrial Espionage. Hiding and finding of secrets in the field. Dead drops, design of Fake ID's. Use of PGP and other public encryption methods. Using DNS tools to track down hackers. Hiding of information in music and other audio files.

**ICT 458 - Database Design and Applications (3 cr.)**

MySQL and PHP. Data conversion using PHP, mysql and Python. Methods of transferring data from electronic boards and data feeds, into databases. Use of SQL in java programming. Remote programming of computers for running



database systems in a mixed OS environment. Generation of web pages directly from Database queries. Prerequisite(s): ICT 360.

**ICT 460 - Web Technologies and Multimedia (3 cr.)**

Addresses the latest multimedia technology advances and how they apply to the information and communication technology fields.

**ICT 462 - Remote Access Operating Systems with Linux/Unix (3 cr.)**

Operating systems applications and interfacing with an introduction to systems administration. C Programming, System Backups, Setup and Maintenance of Unix Based Servers. Webserver with virtual domains, CGI programming and interface with MySQL databases Prerequisite(s): ICT 362 or E T 362.

**ICT 463 - Computer Systems Administration (3 cr.)**

Advance topics in computer systems administration from ICT 462. Includes installation and maintenance of Unix/Linux/Windows versions of Python. Use of Python to solve numerous engineering problems including video and audio. Image manipulation. Using PostScript for image and typesetting development. Integration of C programming with Python. Prerequisite(s): ICT 462 or E T 462.

**ICT 477 - Computer Networking II (3 cr.)**

Advanced concepts in computer network design and applications including managing the campus networks, virtual LANs (VLAN), network security, wireless networks, and LAN to WAN to internet. Prerequisite(s): ICT 377 or E T 377.

**JOUR - JOURNALISM**

**JOUR 102 - Grammar for Journalists (2 cr.)**

Instruction of basic grammar, spelling and punctuation. Required for all journalism students with an ACT English score below 25, SAT Verbal below 570, or students who have not taken ACT/SAT tests. Restricted to Las Cruces campus only.

**JOUR 105G - Media and Society (3 cr.)**

Functions and organization of the mass media system in the United States; power of the mass media to affect knowledge, opinions, and social values; and the impact of new technologies.

**JOUR 110 - Introduction to Mass Media Writing (3 cr. (2+2P))**

Preparation of copy for broadcasting, print, advertising, and public relations. Introduction to Web applications. Prerequisite(s): JOUR 102 or ACT score of 25 and above or SAT score of 570 and above. Restricted to Las Cruces campus only.

**JOUR 201 - Introduction to Multimedia (3 cr.)**

History and critical analysis of Web and new social media as a tool for communication and journalism. Lab experience in designing and basic use of audio, video, and still images.

**JOUR 210 - Newswriting for Print and Internet (3 cr. (2+2P))**

Intensive laboratory practice in writing news for print media as well as Internet news sites. Prerequisite(s): JOUR 102 or ACT score of 25 and above or SAT score of 570 and above and JOUR 110. Restricted to Las Cruces campus only.

**JOUR 300 - Introduction to Advertising (3 cr.)**

Role of IMC (integrated marketing communications) in marketing of goods, services, and organizations. Creative process, strategic planning media, message design, consumer behavior, and social issues of IMC.

**JOUR 302 - Video Production (3 cr.)**

Classroom instruction on basic studio and single camera video productions, focusing on practical aspects of news production. Web video basics. Lab experience in camera basics, studio functions and basic video editing. Includes practical experience through crew assignments at KRWG-TV, a PBS station.

**JOUR 306 - Feature Writing for magazines and Newspapers (3 cr.)**

The preparation of feature stories for newspapers and magazines. How to develop a variety of stories, research topics, interview sources, polish writing and market work. May be repeated for a maximum of 6 credits. Prerequisite(s): JOUR 210 or consent of instructor.

**JOUR 307 - Television Studio Directing (3 cr.)**

Television studio production techniques from Director's point of view. Extensive practice directing actual TV productions. Prerequisite(s): JOUR 302 or permission of instructor.

**JOUR 310 - Intermediate Print Reporting (3 cr.)**

News writing and field reporting for print and Web applications. Instruction in community coverage, reporter responsibility, ethics and news values. Prerequisite(s): JOUR 210.

**JOUR 312 - Advertising/Copywriting (3 cr.)**

Creative process, strategic thinking, and principles of advertising in execution of copy, storyboards, and layouts for clients. Prerequisite(s): JOUR 110 or consent.

**JOUR 314 - Broadcast Reporting (3 cr. (2+2P))**

Writing, editing, producing, announcing and reporting of TV and radio news. Prerequisite(s): JOUR 210 or Consent of Instructor.

**JOUR 315 - News 22 (1-3 cr.)**

Write, report, produce, anchor, shoot and edit video for live student television newscast airing on KRWG, public television for Southern New Mexico sports, weather, and news. Prerequisite(s): JOUR 314 or JOUR 330 or instructor consent.

**JOUR 317 - News Editing (3 cr.)**

Extensive, directed practice in various aspects of computer editing for printed publication. Headline writing, copy editing, design, and layout. Prerequisite(s): JOUR 210.

**JOUR 319 - Intro Photography (3 cr.)**

Basic camera operation, photojournalistic techniques, picture page production, and black and white darkroom experience. Thirty-five millimeter or equivalent camera needed.

**JOUR 320 - Photojournalism (3 cr.)**

Practical news and magazine photography. Wet darkroom and digital applications and techniques. Student provides camera system with flash. Prerequisite(s): JOUR 319 or Consent of instructor.

**JOUR 321 - Media Graphic Design (3 cr.)**

Concepts and design skills useful for all aspects of journalism - print media and newsletters, basics of Photoshop and introduction to Web design. Prerequisite(s): JOUR 210.

**JOUR 330 - Electronic News Gathering (3 cr. (2+4P))**

Overview of technical and aesthetic skills and journalism basics needed for shooting and editing on-location news productions. Single camera videography and nonlinear/digital editing. Prerequisite(s): JOUR 302 or permission of instructor.

**JOUR 350 - History of Mass Media (3 cr.)**

Historical overview of mass media with emphasis on roots of journalism, technological developments, and American role in international media.

**JOUR 374 - Principles of Public Relations (3 cr.)**

Communication techniques and public relations applications. Preparation of material by public relations professionals for mass media use. Prerequisite: JOUR 210.

**JOUR 377V - Mass Media Ethics (3 cr.)**

Philosophical and moral examination of problems relating to mass media. Use of case study method to analyze media situations; development of framework for media professionalism.

**JOUR 380 - Women and the Mass Media (3 cr.)**

Portrayal and participation of women in mass media from colonial to contemporary times. Same as W S 450.

**JOUR 399 - New Mexico Law (3 cr.)**

Same as C J 399, GOVT 399, HIST 399, and SOC 399.

**JOUR 407 - Media Internship (3 cr.)**

Paid supervised work with a mass communications organization. Students who take JOUR 407 may not take JOUR 408. Prerequisite: consent of internship coordinator.

**JOUR 408 - Media Practicum (1-3 cr.)**

Unpaid supervised work with a mass communications organization. May be repeated for a maximum of 3 credits. Prerequisite: consent of internship coordinator.

**JOUR 412 - Documentary Photojournalism (3 cr.)**

Production of documentary photography for print, Web, exhibition and books through storytelling techniques. Prerequisite(s): JOUR 319.

**JOUR 414 - RTV Scriptwriting/Performance (3 cr.)**

Writing and delivery of news scripts for radio and television. Focus on anchoring announcing, voice technique and performance. Prerequisite(s): JOUR 314 or consent of instructor.

**JOUR 423 - Advanced Digital Reporting (3 cr. (2+2P))**

Advanced in-depth news reporting techniques utilizing multimedia and reliable sources. Internet publishing of professional quality journalism. Preparation of professional resumes and news clippings. Prerequisite(s): JOUR 201 and 310.

**JOUR 425 - Media Planning and Buying (3 cr.)**

Covers the principles of media planning for an IMC campaign and procedures for purchasing ad time or space. Prerequisite(s): JOUR 300 or consent of instructor.

**JOUR 427 - Multimedia Publishing (3 cr.)**

Writing-based course stresses the online telling of a story in many ways: text, photography, slide shows, audio and video news gathering, editing and posting. Prerequisite(s): JOUR 201.

**JOUR 460 - Public Relations Promotion in Sports (3 cr.)**

Examination of sports as a business and how public relations promotion is executed in professional sports franchises.

**JOUR 476 - Public Relations Cases and Problems (3 cr.)**

The study and solving of problems in the mass media industry. Prerequisite: JOUR 374.

**JOUR 482 - Electronic Media Regulation and Management (3 cr.)**

Station organization and management of commercial and public radio and television; FCC regulations; programming, sales, ratings.

**JOUR 484 - Public Opinion (3 cr.)**

Seminar on forces which help form public opinion; individual projects in attitude measurement; measuring effectiveness of mass communication.

**JOUR 489 - Mass Media Research (3 cr.)**

Examination of the role of empirical research in solving mass communication problems. Survey techniques, field studies, content analysis, data analysis.

**JOUR 490 - Advertising Campaigns (3 cr.)**

Capstone course utilizing all previous instruction to create and develop plans for a long-term national or local IMC (Integrated Marketing Communications) campaign. Consent of instructor required. Prerequisite(s): JOUR 300 and 312 or consent of instructor.

**JOUR 493 - Mass Communications Law (3 cr.)**

Examination of legal issues relating to mass media in the United States. Invasion of privacy, libel, sedition, copyright, and advertising regulation. Same as COMM 493, GOVT 493.

**JOUR 494 - Special Topics (3 cr.)**

Specific subjects to be announced in the Schedule of Classes.

**JOUR 495 - Mass Communication Theory (3 cr.)**

Theoretical approaches to mass communications. Examination of media effects, audiences, media socialization.

**JOUR 499 - Independent Study in Mass Communications (1-3 cr.)**

Individual study directed by consenting instructor with prior approval of department head. Prerequisites: 2.5 GPA and consent of instructor. May be repeated for a maximum of 6 credits.

**JPNS - JAPANESE****JPNS 111 - Elementary Japanese I (4 cr.)**

Japanese language for beginners.

**JPNS 112 - Elementary Japanese II (4 cr.)**

Japanese language for beginners. Prerequisite: grade of C or better in JPNS 111 or consent of instructor.

**JPNS 211 - Intermediate Japanese I (3 cr.)**

Speaking, reading and writing the Japanese language. Prerequisite: grade of C or better in JPNS 112 or consent of instructor.

**JPNS 212 - Intermediate Japanese II (3 cr.)**

Speaking, reading and writing the Japanese language. Prerequisite: grade of C or better in JPNS 211 or consent of instructor.

**JPNS 320 - Oral Practicum in Japanese (1-3 cr.)**

Service training for facilitators leading informal conversation groups in Japanese. Prerequisites: fluency in Japanese and consent of instructor. May be repeated for a maximum of 4 credits.

**JPNS 453 - Independent Studies in Japanese (1-3 cr.)**

Individualized, self-paced projects for advanced students.

**LANG - LANGUAGE****LANG 111 - Beginning Language I (4 cr.)**

Developing language skills through study abroad for languages not offered at NMSU main campus. Specific languages to be identified with course subtitles. Prerequisite: Language placement exam or consent of the instructor. Main campus only.

**LANG 112 - Beginning Language II (4 cr.)**

Developing language skills through study abroad for languages not offered at NMSU main campus. Specific languages to be identified with course subtitles. Prerequisite: Language placement exam or consent of instructor. Main campus only.

**LANG 211 - Intermediate Language I (3 cr.)**

Developing language skills through study abroad for languages not offered at NMSU main campus. Specific languages to be identified with course subtitles.

**LANG 212 - Intermediate Language II (3 cr.)**

Developing language skills through study abroad for languages not offered at NMSU main campus. Specific languages to be identified with course subtitles. Prerequisite: Language placement exam or consent of instructor.

**LANG 451 - Special Topics (1-3 cr.)**

Selected topics relating to cultures or literatures of a specific country. Credit can be applied only towards fulfilling second language requirement. Credit is not accepted towards any graduate level major or minor. May be repeated for a maximum of 12 credits. Consent of instructor required.

**LANG 453 - Independent Studies (1-3 cr.)**

Individualized, self-paced projects for advanced students. Prerequisite: consent of instructor. May be repeated under different subtitles for a maximum of 6 credits.

**LAT - LATIN****LAT 112 - Elementary Latin II (4 cr.)**

Latin for beginners. Prerequisite(s): C- or better in LAT 111. Restricted to: Main campus only.

**LAT 211 - Intermediate Latin I (3 cr.)**

Reading and writing Latin. Prerequisite(s): C- or better in LAT 112. Restricted to: Main campus only.

**LAT 212 - Intermediate Latin II (3 cr.)**

Reading and writing Latin. Prerequisite(s): C- or better in LAT 211. Restricted to: Main campus only.

**LIB - LIBRARY SCIENCE****LIB 101 - Introduction to Research (1 cr.)**

A practical, hands-on, step-by-step introduction to the basics of university-level library research. Topics include the academic method, plagiarism, selection and use of information resources. (Eight-week course.)

**LIB 111 - Introduction to Information Literacy in an Electronic Environment (3 cr.)**

Introduction to the basics of the research process; the organization, location and evaluation of information using print, non-print and electronic resources; and techniques of effective personal information management in a computerized setting. Uses a combination of active and hands-on learning methods as well as lectures.

**LIB 307 - History of the Book: From Scroll to Scrolling (3 cr.)**

Describes the production and distribution of written works from papyrus scrolls through codex manuscripts and printed books to digital texts. Looks at how technology has influenced the transmission and presentation of texts and the way these factors affect how people perceive the texts. Studies the physical evidence books provide about their own histories.

**LIB 311V - Information Literacy (3 cr.)**

Lecture, hands-on assignments, and written research projects to give students the technological skills and critical thinking abilities needed to use the printed and electronic information resources found on the Information Highway. Includes how to locate, critically evaluate, and apply information for academic, professional, and personal purposes. Prerequisite: ENGL 111G or equivalent; and consent of instructor.

**LING - LINGUISTICS****LING 200G - Introduction to Language (3 cr.)**

Traditional fields of language study (sound, grammar, meaning) and newer ones (language as social behavior, language and cognition, language variation, animal communication).

**LING 301 - Introduction to Psycholinguistics (3 cr.)**

Same as PSY 301.

**LING 302V - Language and Society (3 cr.)**

Study of how social identity including such factors as ethnicity, age, sex, education, power and socio-economic class is expressed in language systems and how misunderstandings arise between groups. Research skills are emphasized.

**LING 303 - Exploring Language Systems (3 cr.)**

Forms of linguistic semantic, syntactic and phonological organization. Prerequisite(s): LING 200G.

**LING 405 - Topics in Linguistics (3 cr.)**

Selected linguistics topics subtitled in the Schedule of Classes. Prerequisite: consent of instructor. May be repeated for a maximum of 6 credits under different subtitles.

**LING 410 - The Sounds of Language (3 cr.)**

Study of how speech sounds are produced and organized in the world's languages. Special focus on English, including national and regional pronunciations. Prerequisite(s): LING 200G or consent of instructor.

**LING 451 - Independent Studies in Linguistics (1-3 cr.)**

Individual or group study of selected topics to be identified by subtitle. Prerequisites: LING 200G and prior arrangement with faculty supervisor. May be repeated for a maximum of 6 credits.

**LING 455 - Research in Linguistics (3 cr.)**

This course will provide a capstone experience for students who have progressed through the program in linguistics and provide the foundation for further study at the post-graduate level in a linguistics-related field. Students will apply their foundation of knowledge and skills in linguistics through the realization of an individualized, inquiry-based project. Prerequisite(s): LING 200G, LING 301, LING 302V, LING 303, plus 9 credit hours of related electives. Consent of instructor may enroll student only in case of elective credit shortfall with concurrent enrollment.

**M E - MECHANICAL ENGINEERING****M E 102 - Mechanical Engineering Orientation (1 cr.)**

Emphasis on tours of M E labs and NMSU facilities that illustrate possible career paths for mechanical engineers. Students are introduced to department faculty, student organizations, and support services at NMSU. Topics include role of good communication skills, using modern technology, team building, and intellectual property. Students are advised in planning balance of their academic program. Restricted to majors.

**M E 159 - Graphical Communication and Design (2 cr. (1+3P))**

Sketching and orthographic projection. Covers detail and assembly working drawings, dimensioning, tolerance specification, and design projects. Pre/Corequisite(s): MATH 190G.

**M E 201 - Supplemental Instruction to Dynamics (1 cr.)**

Optional workshop for students in ME 234. The workshop focuses on problem solving skills associated with ME234. Course does not count toward departmental degree requirements. Corequisite(s): M E 234. Restricted to Las Cruces campus only.

**M E 202 - Supplemental Instruction to Thermodynamics (1 cr.)**

Optional workshop for students in M E 240. The workshop focuses on problem solving skills associated with M E 240. Course does not count toward departmental degree requirements. Corequisite(s): M E 240. Restricted to Las Cruces campus only.

**M E 222 - Introduction to Product Development (3 cr. (2+3P))**

Introduction to modern methods used in the realization of products. Traditional manufacturing processes, such as metal stamping, turning, milling, and casting are reviewed. Modern methods of rapid prototyping and model making are discussed in context of computer-aided design. Techniques for joining metals, plastics, and composites are discussed. Role of quality control is introduced. Prerequisite: M E 159.

**M E 234 - Mechanics-Dynamics (3 cr.)**

Kinematics and dynamic behavior of solid bodies utilizing vector methods. Prerequisite(s)/Corequisite(s): MATH 291G. Prerequisite(s): C E 233.

**M E 236 - Engineering Mechanics I (3 cr.)**

Force systems, resultants, equilibrium, distributed forces, area moments, friction, and kinematics of particles. Prerequisite(s): MATH 192G. Pre/Corequisite(s): PHYS 215G. Restricted to: Main campus only.

**M E 237 - Engineering Mechanics II (3 cr.)**

Kinetics of particles, kinematics and kinetics rigid bodies, systems of particles, energy and momentum principles, and kinetics of rigid bodies in three dimensions. Prerequisite(s): M E 236. Pre/Corequisite(s): MATH 291G. Restricted to: Main campus only.

**M E 240 - Thermodynamics (3 cr.)**

First and second laws of thermodynamics, irreversibility and availability, applications to pure substances and ideal gases. Prerequisite: PHYS 215G.

**M E 261 - Mechanical Engineering Problem Solving (3 cr. (2+3P))**

Introduction to programming syntax, logic, and structure. Numerical techniques for root finding, solution of linear and nonlinear systems of equations, integration, differentiation, and solution of ordinary differential equations will be covered. Multi function computer algorithms will be developed to solve engineering problems. Prerequisite(s): MATH 192G.

**M E 301 - Supplemental Instruction to Engineering Analysis I (1 cr.)**

Optional workshop for students in ME 328. The workshop focuses on problem solving skills associated with ME328. Course does not count toward departmental degree requirements. Corequisite(s): M E 328.

**M E 302 - Fluids Supplemental Instruction (1 cr.)**

Optional workshop for students in ME 338 or AE 339. The workshop focuses on problem solving skills associated with fluid mechanics. Course does not count toward departmental degree requirements. Corequisite(s): M E 338 or A E 339.

**M E 326 - Mechanical Design (3 cr.)**

Design methodology and practice for mechanical engineers. Prerequisite(s): M E 234 and C E 301.

**M E 328 - Engineering Analysis I (3 cr.)**

Mathematical methods for exact and approximate solutions of engineering problems. Prerequisite: MATH 392.

**M E 330 - Environmental Management Seminar I (1 cr.)**

Survey of practical and new developments in hazardous and radioactive waste management provided through a series of guest lectures and reports of ongoing research. Restricted to: Main campus only. Restricted to M E majors. Crosslisted with: C E 330, CHME 330, E E 330, E S 330, I E 330, WERC 330 and E T 330

**M E 331 - Intermediate Strength of Materials (3 cr.)**

Covers stress and strain, theories of failure, curved flexural members, flat plates, pressure vessels, buckling, and composites. Prerequisites: C E 301 and MATH 392.

**M E 332 - Vibrations (3 cr.)**

Vibration of single and n-degree of freedom systems considering free, forced, and damped motion. Lagrange's equations. Dynamic stability. Controls. Matrix iteration. Prerequisite(s): M E 234 and M E 261.

**M E 333 - Intermediate Dynamics (3 cr.)**

Three dimensional kinematics and kinetics, orbital motion, Lagrange's equations, dynamic stability, and controls. Prerequisite(s): M E 234.

**M E 338 - Fluid Mechanics (3 cr.)**

Properties of fluids. Fluid statics and fluid dynamics. Applications of the conservation equations continuity, energy, and momentum to fluid systems. Prerequisite(s): M E 234 and MATH 392. Restricted to: M E majors.

**M E 340 - Applied Thermodynamics (3 cr.)**

Thermodynamic cycles, Maxwell relations, Gibbs and Helmholtz functions, mixtures, psychometrics, chemical reactions, chemical equilibrium. Prerequisite: M E 240.

**M E 341 - Heat Transfer (3 cr.)**

Fundamentals of conduction, convection, and radiation. Design of heat transfer systems. Prerequisite(s): M E 240 and MATH 392.

**M E 345 - Experimental Methods I (3 cr. (2+3P))**

Emphasis on experimental techniques, basic instrumentation, data acquisition and analysis, and written presentation of results. Includes experiments in dynamics and deformable body mechanics. Prerequisite(s)/Corequisite(s): C E 301. Prerequisite(s): MATH 392 and M E 234.

**M E 400 - Undergraduate Research (1-3 cr.)**

Performed with the direction of a department faculty member. May be repeated for a maximum of 6 credits. Prerequisite: consent of faculty member.

**M E 401 - Heating/Air-Conditioning System (3 cr.)**

Same as E T 401.

**M E 405 - Special Topics (3 cr.)**

Topics of modern interest to be offered by the departmental staff. Prerequisite: consent of instructor.

**M E 425 - Design of Machine Elements (3 cr.)**

Design of machine elements through the application of mechanics. Fatigue and theories of failure. Design projects assigned. Prerequisite(s): M E 326.

**M E 426 - Design Project Laboratory I (3 cr. (6P))**

Students address a design problem in which innovation and attention to detail are emphasized. Solution of the problem entails applications of mechanics and/or the thermal sciences. Prerequisite(s)/Corequisite(s): M E 425.

**M E 427 - Design Project Laboratory II (3 cr. (6P))**

Continuation of M E 426. Prerequisite: M E 426.

**M E 430 - Environmental Management Seminar II (1 cr.)**

Survey of practical and new developments in hazardous and radioactive waste management provided through a series of guest lectures and reports of ongoing research. Restricted to: Main campus only. Crosslisted with: C E 430, CHME 430, E E 430, E S 430, E T 430, I E 430 and WERC 430

**M E 445 - Experimental Methods II (3 cr. (2+3P))**

Emphasis on experimental techniques, instrumentation and data acquisition in fluid mechanics, heat transfer, and thermodynamics. Laboratory results will be presented in written and verbal formats. Prerequisite(s): (M E 338 or A E 339), M E 340, M E 341, and M E 345.

**M E 449 - Mechanical Engineering Senior Seminar (1 cr.)**

Senior seminar course covering topics relevant to graduating mechanical engineering seniors (job placement, interviewing techniques, resume preparation). Prerequisite: senior standing.

**M E 452 - Introduction to Automation and Control System Design (3 cr. (2+3P))**

Control system design and implementation. Emphasis on practical applications of traditional control algorithms to mechanical engineering applications in thermofluid systems and mechanical systems. Design of feedback analog and digital control systems. Introduction to robots and automation. Lab assignments include programming industrial robotic and automation systems. Prerequisite(s): M E 328, M E 234, or consent of instructor.

**M E 456 - Experimental Modal Analysis (3 cr.)**

Emphasis on hands-on techniques for structural vibration tests for practical applications. Interpretation of experimental results by means of advanced signal processing tools, basic system identification methodology, and reduced-order modeling procedures. Prerequisite(s): M E 332, MATH 392, M E 261, or consent of instructor.

**M E 460 - Applied Finite Elements (3 cr.)**

Introduction to the practical aspects of structural finite element modeling. Course focuses on providing a working knowledge of how to effectively incorporate finite element techniques into the design process. Prerequisite(s): Senior Standing.

**M E 480 - Nuclear Systems (3 cr.)**

Fundamentals of nuclear energy, systems, design, and analysis. Applications of nuclear energy in power production. Survey of modern nuclear systems. Prerequisite: MATH 192G or consent of instructor.

**M E 481 - Alternative and Renewable Energy (3 cr.)**

Current and future energy needs of the United States and the world will be considered primarily from the standpoint of renewable energy sources such as solar, wind, ocean, and biomass. Technical, economic, and environmental aspects of each technology will be addressed. Prerequisite(s): M E 341, and (M E 338 or A E 339).

**M E 483 - Introduction to Combustion (3 cr.)**

Combustion is one of the most fundamental phenomena related to human activities, such as obtaining thermal energies. Fundamental phenomena and physics related to combustion will be discussed, including thermodynamics, chemical reactions; combustion kinetics, premixed and diffuse flames, and examples. Prerequisite(s): CHEM 112G, MATH 392, and M E 340.

**M E 487 - Mechatronics (3 cr. (2+3P))**

Introduction to the analysis and design of computer-controlled electromechanical systems, including data acquisition and conversion, force and motion sensors, actuators, mechanisms, feedback control, and robotic devices. Students required to work in teams to construct and test simple robotic systems. Prerequisites: E E 201, and M E 345.

**M SC - MILITARY SCIENCE****M SC 110 - Introduction to Military Science (2 cr. (2+1P))**

Concepts of leadership, including basic drill, fitness sessions, rappelling, first aid, map reading, and basic marksmanship. Optional physical fitness sessions and weekend exercises.

**M SC 111 - Introduction to Leadership (2 cr. (2+1P))**

Learning and application of leadership, as well as relating organizational ethics to effective leadership using communication skills to improve individual performance. Optional physical fitness sessions and weekend exercises.

**M SC 210 - Self/Team Development (3 cr. (3+1P))**

Learning and application of leadership skills to building effective teams, using oral/written skills, planning, and coordination of group efforts. Include advanced first aid, land navigation, and basic military tactics. Leadership Lab and three physical fitness sessions per week required.

**M SC 211 - Leadership in Action and Team Building (3 cr. (3+1P))**

Individual and team aspects of military tactics in small unit operations. Use of radio, movement, planning for safety/security and pre-execution checks. Continued leadership development and techniques for training others. Leadership Lab and three physical fitness sessions per week required.

**M SC 225 - Directed Studies (1-3 cr.)**

Individual directed studies under supervision of designated faculty. Prerequisite: GPA 2.5 or better. May be repeated for a maximum of 12 credits. No S/U option.

**M SC 310 - Leading Small Organizations I (3 cr.)**

Practical opportunities to lead small groups in situations of graduated complexity. Use of small unit defensive tactics and opportunities to conduct training for lower division students. Leadership Lab M SC 310L, three physical fitness sessions per week, and weekend exercises required. Prerequisite: must meet Basic Course of Military Science requirements. Corequisite: M SC 310L.

**M SC 310 L - Advanced Course Leadership Laboratories (1 cr.)**

Planning, coordination, execution and evaluation of training and activities with basic course students and ROTC program. Students develop and refine leadership skills in positions of responsibility. Open only to students taking M SC 310. Corequisite: M SC 310.

**M SC 320 - Leading Small Organizations II (3 cr.)**

Delegation and supervision based on leadership case studies that require planning and adaptation to the unexpected in organizations under stress. Use of ethical decision making to enhance team performance. Leadership Lab M SC 310L, three physical fitness sessions per week, and weekend exercises required. Prerequisite: M SC 310 or consent of instructor. Corequisite: M SC 320 L.

**M SC 320 L - Leading Small Organization Lab (1 cr.)**

Practice and refinement of leadership skills. Different roles assigned for students at different levels in the program. Planning, coordination, execution and evaluation of training and activities with basic course students and ROTC program. Open to students taking M SC 320. Corequisite: M SC 320.

**M SC 325 - Advanced Directed Studies (1-3 cr.)**

Directed individual study of advanced subjects. Prerequisite: GPA 2.5 or better. May be repeated for a maximum of 12 credits. No S/U option.

**M SC 350 - Leadership Internship II (1-6 cr.)**

Six-week paid internship conducted at an Army installation. Leadership-course environment is highly structured and demanding. Stresses leadership at small-unit levels under varying conditions. Evaluations during this required internship weigh heavily in type of commission and branch assignment offered. Prerequisite(s): M SC 310, M SC 310 L, M SC 320, and M SC 320 L.

**M SC 401 - Leadership Challenges and Goal Setting (3 cr.)**

Planning, conducting and evaluating activities of the ROTC cadet organization, including the articulation of goals, and actuation of plans to attain them. Assessment of organizational skills and development of strategies to improve group cohesion through learning and application of Army policies and programs. M SC 401L, three physical fitness sessions per week, and weekend exercises required. Prerequisite: M SC 320 or consent of instructor. Corequisite: M SC 401L.

**M SC 401 L - Advanced Course Leadership Laboratories (1 cr.)**

Different roles assigned for students at different levels in the program. Practice and refinement of leadership skills. Planning coordination, execution and evaluation of training and activities with basic course students and ROTC program. Open only to students taking M SC 401. Corequisite: M SC 401.

**M SC 402 - Transition to Lieutenant (3 cr.)**

Continues methodology from M SC 401. Identification and resolution of ethical dilemmas along with counseling and motivation techniques. Examination of tradition and law as these issues relate to the Army officer and prepare the student to be a successful Army lieutenant. Leadership Lab M SC 402L, three physical fitness sessions per week and weekend exercises required. Prerequisite: M SC 401 or consent of instructor. Corequisite: M SC 402L.

**M SC 402 L - Transition to Lieutenant Lab (1 cr.)**

Different roles assigned for students at different levels in the program. Practice and refinement of leadership skills. Planning, coordination, execution, and evaluation of training and activities with basic course students and ROTC program. Open only to students taking M SC 402. Corequisite: M SC 402.

**M SC 425 - Practicum (1-4 cr.)**

Independent projects conducted under the direction of designated faculty, and concerned with analysis of selected leadership or management problems. May be repeated for a maximum of 16 credits. No S/U option.

**M SC 465 - Leading Small Organization - Graduate Level (3 cr.)**

Practical opportunities to lead small groups in situations of graduated complexity. Use of small unit defensive tactics and opportunities to conduct training for graduate students. Leader Lab M SC 465 L, three physical fitness sessions per week and weekend exercises required. Research paper required. Prerequisite: consent of PMS. Corequisite: M SC 465 L. No S/U option.

**M SC 465 L - Advanced Course Leadership Lab - Graduate Level (1)**

Planning, coordination, execution and evaluation of training and activities with basic course students and ROTC program. Students develop and refine leadership skills in positions of responsibility. Open only to students taking M SC 465. Prerequisite: consent of PMS. Corequisite: M SC 465.

**M SC 466 - Graduate-Level Leading Small Organizations (3 cr.)**

Open only to students taking M SC graduate-level courses. Delegation and supervision based on case studies. Use of ethical decision making to enhance team performance. Three physical fitness sessions per week, weekend exercises, and a research paper required. Prerequisite: consent of PMS. Corequisite: M SC 466 L.

**M SC 466 L - Graduate-Level Leading Small Organizations Lab (1)**

Open only to students taking M SC graduate-level courses.

**MATH - MATHEMATICS**

The basic skills requirement in mathematics may be met by earning a grade of C- or higher in both MATH 111 and MATH 112, or in any lower-division mathematics course numbered 120 or above. For other options, see Basic Academic Skills in the General Information chapter.

A student may not receive credit for a lower-division mathematics course if it serves as a prerequisite to a lower-division math course that the student had previously passed with a grade of C- or better.

*Note: Students without an adequate placement score to enroll in MATH 111, MATH 120 or MATH 210G can gain admission to the course by earning a C- or better in CCDM 114N at an NMSU branch campus. Students wishing to enroll in MATH 121, 142G, 180, 191, 230, 235, 279, 280, or STAT 251 must satisfy one of the following: (a) have passed the stated prerequisite course with a C- or better, or (b) have earned an adequate score on the Mathematics Placement Examination, the results of which will be made available to the student's advisor. The Mathematics Placement Examination (MPE) is given daily in Walden Hall when school is in session and during new student programs. A student who has not satisfied one of these requirements before registering may enroll temporarily in UNIV 000, then drop/add to an appropriate course at the beginning of the semester after taking the MPE and being advised*

**MATH 101 - General Supplemental Instruction I (1 cr. (1+2P))**

Collaborative workshop for students enrolled in Intermediate Algebra. Corequisite(s): MATH 120. S/U Grading (S/U, Audit).

**MATH 102 - General Supplemental Instruction II (1 cr. (1+2P))**

Collaborative workshop for students enrolled in College Algebra. Corequisite(s): MATH 121G. S/U Grading (S/U, Audit).

**MATH 111 - Fundamentals of Elementary Mathematics I (3 cr.)**

Numbers and the four operations of arithmetic. Understanding and comparing multiple representations of numbers and operations, in particular how these representations build from whole numbers to integers to fractions and decimals. Applying properties of numbers and operations in contextual situations. Reasoning, communicating, and problem solving with numbers and operations. Applications to ratio, and connections with algebra. Taught primarily through student activities and investigations. Prerequisite(s): ENGL 111G and grade of C or better in MATH 120. Restricted to: EDUC,EPAR,E,EDCED majors.

**MATH 112G - Fundamentals of Elementary Math II (3 cr.)**

Geometry and measurement. Multiple approaches to solving problems and understanding concepts in geometry. Analyzing and constructing two- and three-dimensional shapes. Measurable attributes, including angle, length, area, and volume. Understanding and applying units and unit conversions. Transformations, congruence, and symmetry. Scale factor and similarity. Coordinate geometry and connections with algebra. Reasoning and communicating about geometric concepts. Taught primarily through student activities and investigations. Prerequisite(s): C- or better in MATH 111.

**MATH 120 - Intermediate Algebra (3 cr.)**

Linear and algebraic functions as they arise in real world problems. Exponential and logarithmic functions. Equations and inequalities and their solutions considered symbolically, graphically and numerically. Prerequisite: adequate score on the Mathematics Placement Examination (see note above).

**MATH 121G - College Algebra (3 cr.)**

Fundamental concepts of functions, including algebraic and graphical properties. Fitting functions to data. Finding zeroes and extreme values. Solving systems of equations. Prerequisites: Adequate math placement score or C- or better in MATH 120.

**MATH 142G - Calculus for the Biological and Management Sciences (3 cr. (2+2P))**

Review of functions. Derivatives, exponential and logarithmic functions, antiderivatives and indefinite integrals, basic ordinary differential equations and growth models, with an emphasis on applications. Includes a significant writing component. Prerequisite(s): C- or better in MATH 121G.

**MATH 175 - Trigonometry (3 cr.)**

Trigonometric functions, graphs, identities, inverse functions, polar coordinates and applications. Complex numbers, curve fitting, roots of polynomials, exponential and logarithmic functions, conics, systems of equations and matrices. May not be taken for credit by students having credit for MATH 136. Prerequisite: C- or better in MATH 121G. Restricted to Community Colleges only.

**MATH 190G - Trigonometry and Precalculus (4 cr. (3+2P))**

Elementary functions used in the sciences with emphasis on trigonometric functions and their inverses. Polar coordinates. Complex numbers and Euler's formula. Analytic geometry and vectors. Prerequisite: adequate score on Mathematics placement exam or a C- or better in MATH 121G (see note at beginning of this section).

**MATH 191G - Calculus and Analytic Geometry I (4 cr.)**

Limits and continuity, theory and computation of derivatives, applications of derivatives, extreme values, critical points, derivative tests, L'Hopital's Rule. Prerequisite(s): C- or better in MATH 190G.

**MATH 192G - Calculus and Analytic Geometry II (4 cr.)**

Riemann sums, the definite integral, antiderivatives, fundamental theorems, techniques of integration, applications of integrals, improper integrals, Taylor polynomials, sequences and series, power series and Taylor series. Prerequisite(s): C- or better in MATH 191G.

**MATH 192GH - Calculus and Analytic Geometry II Honors (4 cr. (3+1P))**

A more advanced treatment of the material of MATH 192G with additional topics. Consent of Instructor required. Prerequisite(s): Consent of Department. Restricted to Las Cruces campus only.

**MATH 200 - Directed Study (1-3 cr.)**

Prerequisite: consent of the instructor. May be repeated for a maximum of 6 credits. Graded S/U.

**MATH 210G - Mathematics Appreciation (3 cr.)**

Mathematics and its role in the development and maintenance of civilization. Prerequisites: High school algebra, and an adequate score on the Mathematics Placement Examination.

**MATH 215 - Fundamentals of Elementary Mathematics III (3 cr.)**

Probability, statistics, ratios, and proportional relationships. Experimental and theoretical probability. Collecting, analyzing, and displaying data, including measurement data. Multiple approaches to solving problems involving proportional relationships, with connections to number and operation, geometry and measurement, and algebra. Understanding data in professional contexts of teaching. Taught primarily through student activities and investigations. Prerequisite(s): C- or better in MATH 112G.

**MATH 230 - Matrices and Linear Programming (3 cr.)**

Linear algebra, linear programming and network models, with applications to the behavioral sciences. Prerequisite: C- or better in MATH 121G.

**MATH 235 - Calculus for the Technical Student I (3 cr.)**

Intuitive differential and integral calculus with applications to engineering. Prerequisite: C- or better in MATH 190G.

**MATH 236 - Calculus for the Technical Student II (3 cr.)**

A continuation and extension of the material in MATH 235. Prerequisites: C- or better in MATH 235 or in MATH 192G.

**MATH 242 - Calculus for the Biological and Management Sciences II (3 cr.)**

Calculus of functions of several variables, techniques of integration, differential equations, infinite series. Applications. Prerequisite: C- or better in MATH 142G.

**MATH 275G - Spirit and Evolution of Mathematics (3 cr.)**

Same as HON 275G.

**MATH 278 - Discrete Mathematics for Computer Science (4 cr. (3+1P))**

Same as C S 278. Prerequisite(s): At least C- or better in C S 172.

**MATH 279 - Introduction to Higher Mathematics (3 cr.)**

Logic; sets, relations, and functions; introduction to mathematical proofs. Prerequisite(s): C- or better in MATH 192.

**MATH 280 - Introduction to Linear Algebra (3 cr.)**

Systems of equations, matrices, vector spaces and linear transformations. Applications to computer science. Prerequisite(s): Grade of C- or better in MATH 192G.

**MATH 291G - Calculus and Analytic Geometry III (3 cr.)**

Vector algebra, directional derivatives, approximation, max-min problems, multiple integrals, applications, cylindrical and spherical coordinates, change of variables. Prerequisite: grade of C- or better in MATH 192G.

**MATH 292 - Calculus and Analytic Geometry IV (3 cr.)**

Vector calculus, linear algebra, selected topics. Prerequisite: grade of C- or better in MATH 291G or equivalent. Community Colleges only.

**MATH 300 - Readings (1-3 cr.)**

A selection of readings and reports in the mathematical sciences, the breadth and depth of which is deemed to fit the needs of the student. Prerequisite: consent of instructor. Graded S/U.

**MATH 301 - Special Topics (1-3 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits.

**MATH 313 - Fundamentals of Algebra and Geometry I (3 cr. (3+1P))**

Covers algebra combined with geometry based on measurements of distance (metric geometry). Secondary mathematics education majors may take course as a math elective. MATH 313 does not substitute for other required math courses. Does not fulfill requirements for major in mathematics. Prerequisites: MATH 111 and MATH 112G.

**MATH 316 - Calculus with Hands-on Applications (3 cr.)**

This course, primarily for prospective teachers, is taught in an interactive laboratory format. Students design and construct physical objects for which the planning stage requires calculus techniques. All numerical computations are carried out on graphing calculators. Meets simultaneously with MATH 516, primarily for practicing teachers. Secondary math education majors may take course as a math elective. MATH 316 does not fulfill requirements for majors in mathematics. Consent of instructor required.

**MATH 331 - Introduction to Modern Algebra (3 cr.)**

Elements of abstract algebra, including groups, rings and fields. Prerequisite: C- or better in MATH 279 and MATH 280.

**MATH 332 - Introduction to Analysis (3 cr.)**

Development of the real numbers, a rigorous treatment of sequences, limits, continuity, differentiation, and integration. Prerequisite: C- or better in MATH 192G and MATH 279.

**MATH 377 - Introduction to Numerical Methods (3 cr.)**

Basic numerical methods for interpolation, approximation, locating zeros of functions, integration, and solution of linear equations. Computer-oriented methods will be emphasized. Prerequisites: grade of C- or better in MATH 192G and some programming experience.

**MATH 391 - Vector Analysis (3 cr.)**

Calculus of vector valued functions, Green's and Stokes' theorems and applications. Prerequisite: grade of C- or better in MATH 291G.

**MATH 392 - Introduction to Ordinary Differential Equations (3 cr.)**

Introduction to differential equations and dynamical systems with emphasis on modeling and applications. Basic analytic, qualitative and numerical methods. Equilibria and bifurcations. Linear systems with matrix methods, real and complex solutions. Prerequisite: C- or better in MATH 192G or B or better in MATH 236.

**MATH 400 - Undergraduate Research (1-3 cr.)**

Prerequisite: consent of faculty member. May be repeated for a maximum of 6 credits. Graded S/U.

**MATH 401 - Special Topics (1-3 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be used to fulfill a course requirement for the mathematics major. Prerequisite: An upper division MATH or STAT course, and consent of instructor.

**MATH 402 - General Special Topics (1-3 cr.)**

Specific subjects to be announced in the schedule of classes. May not be used to fulfill a requirement for the mathematics major. Prerequisite: Consent of instructor

**MATH 411V - Great Theorems: The Art of Mathematics (3 cr.)**

Adopts the view of mathematics as art, using original sources displaying the creation of mathematical masterpieces from antiquity to the modern era. Original sources are supplemented by cultural, biographical, and mathematical history placing mathematics in a broad human context. Prerequisites: Grades of B or better in MATH 192G and any upper division MATH/STAT course, with overall GPA of 3.2 or better, or consent of instructor. Same as HON 411G.

**MATH 421 - Financial Mathematics I (3 cr.)**

Types of derivatives, forwards and futures, options, returns and payoffs, Arrow-Debre, complete and incomplete markets, the one period model, the binomial option pricing model, binomial trees, martingales and sub martingales, Brownian motion, stochastic integrals, the Ito integral, Ito's dilemma, the Black-Scholes model, the Black-Scholes formula, European options, American options, free boundary problems, variational inequalities. This course is offered simultaneously

with MATH 521. Prerequisite(s): C- or better in STAT 371 and either MATH 280 or MATH 480 or consent of instructor.

**MATH 422 - Financial Mathematics II (3 cr.)**

Bonds, swaps, exotic options, barrier options, Asian options, look back options, options with transaction costs, Fokker Plank theory, computing expectations, the Heath-Jarrow- Morton theorem, the Ho-Lee model, stochastic volatility models, exponential-affine models, numerical methods. This course is offered simultaneously with MATH 522. Prerequisite: C- or better in MATH 421 or consent of instructor

**MATH 423 - Numerical Optimization and Applications to Financial Mathematics (3 cr.)**

Dynamic optimization of a monopolist, trading off inflation and unemployment, the optimal adjustment of labor demand, infinite planning horizon, the optimal investment path of a firm, the optimal social saving behavior, phase-diagram analysis, optimal control theory, the political business cycle, the dynamics of a revenue-maximizing firm, economic examples of state-space constraints. This course is offered simultaneously with MATH 523. Prerequisite(s): C- or better in MATH 421.

**MATH 430 - Combinatorial Mathematics (3 cr.)**

Methods for solving combinatorial construction and enumeration problems. Topics include Ramsey theory, generating functions, matchings, and block designs. Prerequisite(s): C- or better in MATH 330 or C- or better in MATH 331 or C- or better in MATH 332.

**MATH 451 - Introduction to Differential Geometry (3 cr.)**

Applies calculus to curves and surfaces in three dimensional Euclidean space. Prerequisite(s): C- or better in each of MATH 280 and MATH 391, or consent of instructor.

**MATH 452 - Foundations of Geometry (3 cr.)**

Topics in projective, axiomatic Euclidean or non-Euclidean geometries. Prerequisite(s): C- or better in MATH 331 or MATH 332. Restricted to: Main campus only.

**MATH 453 - Introduction to Topology (3 cr.)**

Introduction to topological spaces and metric spaces, with connections to analysis, geometry, and the classification of surfaces. Prerequisite(s): C- or better in MATH 332 or consent of instructor.

**MATH 454 - Mathematical Logic (3 cr.)**

Propositional calculus and the first order predicate calculus, including Godel's completeness theorem for the latter, and additional topics at the option of the instructor. Prerequisite(s): C- or better in MATH 331 or MATH 332, or consent of instructor.

**MATH 455 - Elementary Number Theory (3 cr.)**

Covers primes, congruences and related topics. Prerequisite: grade of C- or better in MATH 331 or consent of instructor.

**MATH 457 - Applications of Modern Algebra (3 cr.)**

Topics may include coding theory, cryptography, graph theory, or symmetry groups. May be repeated up to 9 credits. Prerequisite(s): C- or better in Math 331 or consent of instructor.

**MATH 459 - Survey of Geometry (3 cr.)**

Basic concepts of Euclidean geometry, ruler and compass constructions. May include topics in non-Euclidean geometry. For non-math majors. Prerequisite(s): C- or better in MATH 331 or MATH 332. Restricted to: Main campus only.

**MATH 466 - Lattice Theory (3 cr.)**

Introduction to partially ordered sets, distributive, modular, and Boolean lattices. Prerequisite(s): C- or better in MATH 330 or C- or better in MATH 331 or C- or better in MATH 332 or consent of instructor.

**MATH 471 - Complex Variables (3 cr.)**

A first course in complex function theory, with emphasis on applications. Prerequisite(s): C- or better in MATH 391 or C- or better in both MATH 392 and MATH 291.

**MATH 472 - Fourier Series and Boundary Value Problems (3 cr.)**

Fourier series and methods of solution of the boundary value problems of applied mathematics. Prerequisite(s): C- or better in MATH 392.

**MATH 473 - Calculus of Variations and Optimal Control (3 cr.)**

Euler's equations, conditions for extrema, direct methods, dynamic programming, and the Pontryagin maximal principle. Prerequisite(s): C- or better in MATH 392.

**MATH 480 - Matrix Theory and Applied Linear Algebra (3 cr.)**

An application driven course, whose topics include rectangular systems, matrix algebra, vector spaces and linear transformations, inner products, and eigenvalues and eigenvectors. Applications may include LU factorization, least squares, data compression, QR factorization, singular value decomposition, and search engines. Prerequisite(s): C- or better in any 300-level course with a MATH or STAT prefix.

**MATH 481 - Advanced Linear Algebra (3 cr.)**

Rigorous treatment of vector spaces and linear transformations including canonical forms, spectral theory, inner product spaces and related topics. Prerequisite: grade of C- or better in MATH 331.

**MATH 491 - Introduction to Real Analysis I (3 cr.)**

Rigorous discussion of the topics introduced in calculus. Sequences, series, limits, continuity, differentiation. Prerequisite: grade of C- or better in MATH 332 or consent of instructor.

**MATH 492 - Introduction to Real Analysis II (3 cr.)**

Continuation of MATH 491. Integration, metric spaces and selected topics. Prerequisite(s): C- or better in MATH 491 or consent of instructor.

**MATH 498 - Directed Reading (1-6 cr.)**

May be repeated for a maximum of 6 credits. Graded S/U.

**MGT - MANAGEMENT****MGT 201 - Introduction to Management (3 cr.)**

Covers the functioning and administration of different types of complex organizations. Concepts and theories of management and organizational behavior.

**MGT 309 - Human Behavior in Organizations (3 cr.)**

Interpersonal and organizational behavior, motivation, communication, team building, leadership, diversity management, legal and ethical issues, and politics in organizations. Credit may not be earned for both MGT 309 and MGT 315V.

**MGT 310V - The Faces of Entrepreneurs (3 cr.)**

Examination of entrepreneurs from a wide range of historical and current contexts.

**MGT 315V - Human Relations in Organizations (3 cr.)**

Interactions among people and groups in societies where organizations abound. Focus on the behavior of people in organizational situations and approaches for understanding that behavior. Explores motivation, communication, leadership and team processes. Restricted to nonbusiness majors. Credit may not be earned for both MGT 309 and MGT 315V.

**MGT 332 - Human Resources Management (3 cr.)**

Survey course in human resources management. Includes recruitment, selection, equal employment opportunity, performance appraisal, training, compensation, safety, and union-management relations.

**MGT 333 - Training and Development (3 cr.)**

Training and development of human resources, including training needs assessment, training approaches and techniques, and evaluation of training effectiveness.

**MGT 334 - Labor Relations (3 cr.)**

Overview of labor-management relations, including the nature of unions and the labor movement. Managing conflict resolution processes in unionized and nonunionized organizations.

**MGT 335V - Business and Government (3 cr.)**

Crosslisted with: ECON 335G

**MGT 336 - Management Communication (3 cr.)**

Communication models with emphasis on application to management problems. Management communication systems and techniques in organizations.

**MGT 344 - Production and Operations Management (3 cr.)**

Management of physical and human resources; management information systems in operations; applications in various organizations. Prerequisite: STAT 251G or A ST 251G or A ST 311; and BCIS 338 or BCIS 350.

**MGT 345V - Quality and Competitiveness: An International Perspective (3 cr.)**

Quality management and competitiveness are studied in manufacturing, services, and the public sector with an international perspective. Topics include: global history of quality, foreign competition and its impact on quality and productivity, quality management and continuous improvement, international operations management, quality assessment, and a review of the emergence of quality and competitiveness in government, education and health care.

**MGT 347 - Management Functions and Processes (3 cr.)**

Planning, organizing, directing, and controlling operating units in an organization. Applications to a variety of types of organizations.

**MGT 351 - Supply Chain Management (3 cr.)**

Acquisition and control and delivery of materials, parts, equipment, and services for end use in the organization. Applications to service and manufacturing industries, nonprofit, and governmental institutions.

**MGT 359 - The Management of Diversity (3 cr.)**

Management of diversity in the workplace. Includes concepts of appreciation and management of workforce diversity, a review of research on diversity and organizational performance, individual and group-level factors in understanding diversity, and organizational context factors in managing diversity.

**MGT 360V - Negotiation and Business Conflict Resolution: Theory and Practice (3 cr.)**

Covers the basics of negotiation theory and practice including the use of quantitative methods and their realistic application in resolving disputes. Application of conflict resolution skills.

**MGT 361 - Managing a Startup (3 cr.)**

Exploration of the tensions and experiences of starting and growing a new company. The course will provide students with the knowledge and experience to increase the likelihood of success whether as a principal in a new company or an investor representative.

**MGT 375V - Global Environmental Assessment and Management (3 cr.)**

Examines the principles of environmental assessment and management. Topics include global environmental concerns, industrial environmental management, life cycle assessment, system analysis, process improvement, and sustainable development, among others.

**MGT 388V - Leadership and Society (3 cr.)**

Exploration of the multifaceted nature of leadership in modern society through readings and seminar discussion.

**MGT 391 - Management Internship and Cooperative Education I (1-3 cr.)**

Application of management skills to the work environment. Open only to students majoring or minoring in management. The amount of academic credit (1-3 cr.) will be determined by the academic experience and not by the work experience. Prerequisites: MGT 309 and consent of instructor. May be repeated for a maximum of 3 credits. Restricted to majors and minors.

**MGT 445 - Operations Planning and Control (3 cr.)**

Managing the flow of goods and services. Emphasis on effective planning and control of job shop and repetitive manufacturing organizations. Includes materials requirements planning, just-in-time techniques and scheduling resources and personnel.



**MGT 448 - Business Consulting (3 cr.)**

Study, analysis, and presentation of recommendations for solving significant problems confronting small businesses.

**MGT 449 - Strategic Management (3 cr.)**

Integrative approach to envisioning the future and shaping strategies for business success. Prerequisite(s): BCIS 338 or 350; BLAW 316; FIN 341; MGT 309; MKTG 303; and one of the following: MGT 344 or MGT 470 or BCIS 485.

**MGT 451 - Selection, Placement, and Performance Evaluation (3 cr.)**

Staffing processes for organizations and the evaluation of employee performance. Use of selection methods and measurement of work behavior.

**MGT 453 - Leadership and Motivation (3 cr.)**

Theories of leadership and motivation. Motivational programs for complex organizations. Relationships between organizational power, authority, and management styles. Crosslisted with: I E 453

**MGT 454 - Work Teams in Organizations (3 cr.)**

Theories of small groups and their application to the work situation. Why and how groups form, grow, communicate, and maintain themselves. Prerequisites: senior or above standing.

**MGT 455 - Public Utilities Regulation (3 cr.)**

Same as ECON 455.

**MGT 458 - Comparative International Management (3 cr.)**

Cultural influences on management are examined in a global business environment with a particular emphasis on human behavior in multinational organizations and the management of human resources. Same as I B 458.

**MGT 460 - Compensation Management (3 cr.)**

An overview of wage and salary administration, including job evaluation, wage and salary surveys, program administration, legal aspects of pay systems, and benefits administration. Prerequisite(s): MGT 332 or consent of instructor.

**MGT 461 - New Venture Creation (3 cr.)**

Via problem-based learning, teams define new business ventures to meet current market needs, develop business plans, and prepare to present to investors. Same as MKTG 461

**MGT 462 - Introduction to Health Services Policy (3 cr.)**

Same as ECON 453.

**MGT 465 - Contemporary Issues in Human Resources Management (3 cr.)**

Integrative course in human resources management, emphasizing the application of advanced concepts to complex personnel cases. Prerequisite: MGT 332.

**MGT 466 - Managing Electronic Commerce: A Business Models Perspective (3 cr.)**

Surveys the emerging Internet technology involving business to business, business to consumer, and consumer to consumer forms of trade. Covers quantitative decision and negotiation analysis techniques as well as auction and market trade mechanisms.

**MGT 470 - Project Management in Organizations (3 cr.)**

Roles, responsibilities, and techniques of project managers in managing projects effectively. Preparation for professional certification.

**MGT 480 - Operations Strategy (3 cr.)**

The formulation and implementation of integrated operations plans as strategic as well as tactical means to organizational competitiveness. Integration of the operations management course sequence with the companion functional areas of business is achieved via the case method and a system design project.

**MGT 490 - Selected Topics (1-18 cr.)**

Seminars in selected current topics in the various areas of management and administration. Prerequisites vary according to the seminar being offered.

**MGT 491 - Management Internship and Cooperative Education II (1-3 cr.)**

Covers the application of management skills to the work environment. The amount of academic credit (1-3 cr.) will be determined by the academic experience and not be the work experience. Prerequisite: MGT 309 and consent of instructor. May be repeated for a maximum of 3 credits. Restricted to majors and minors.

**MGT 498 - Independent Study (1-3 cr.)**

Individual studies directed by consenting faculty with the prior approval of the department head. Prerequisites: junior or above standing and consent of instructor. A maximum of 3 credits may be earned.

**MKTG - MARKETING****MKTG 180 - PGA Golf Management Freshman Orientation (3 cr.)**

Introduction to the Policies and Procedures of the PGA Golf Mgt. Program and the PGA of America Students will also be introduced to the Qualifying Level of the PGA's Educational Program, Rules of Golf, PGA Constitution and the History of the PAG. Additional course fee required. Consent of Instructor required. Restricted to: PGA Golf Management Students. MKTG/PGM majors.

**MKTG 181 - Level 1, PGA's PGM Education Program (Part 1) (3 cr.)**

Introduction of Level 1 of the PGA's Educational Program. This class will focus on Business Planning and Operations, Customer Relations, and the corresponding PGA Work Experience Activities. Additional course fee required. Consent of Instructor required. Restricted to: MKTG/PGM majors.

**MKTG 203 - Introduction to Marketing (3 cr.)**

Covers processes, functions and principles in the current marketing system. Includes role of marketing in the economy, types of markets, product development, distribution channels, pricing and promotion strategies, market research and management of the processes. Community Colleges only.

**MKTG 280 - Level 1, PGA's PGM Education Program (Part 2) (3 cr.)**

Continuation of Level 1 of the PGA's PGM Education Program. This class will focus on Tournament Operations, Golf Car Fleet Management and the corresponding PGA Work Experience Activities. Students will also be required to provide an internship evaluation report. Additional course fee required. Consent of Instructor required. Restricted to: MKTG/PGM majors.

**MKTG 281 - Level 1, PGA's PGM Education Program (Part 3) (1.5 cr.)**

Completion of Level 1 of the PGA's PGM Education Program. This class will focus on Introduction to Teaching and Golf Club Performance and the corresponding PGA Work Experience Activities. Additional course fee required. Consent of Instructor required. Restricted to: MKTG/PGM majors.

**MKTG 303 - Principles of Marketing (3 cr.)**

Process, functions, and principles in the current marketing system.

**MKTG 305 - Marketing Agricultural Products (3 cr.)**

Same as AG E 305.

**MKTG 310 - Marketing Research (3 cr.)**

Design, collection analysis, and presentation of research data. Prerequisites: A ST/STAT 251G or consent of instructor.

**MKTG 311V - Consumer Behavior (3 cr.)**

The different aspects of consumer behavior and the variables affecting consumer decisions. Analysis of current concepts and models.

**MKTG 312 - Personal Selling (3 cr.)**

Implementation of the promotion process through interpersonal communications between salesperson and prospects. Serving customers by sales representatives.

**MKTG 313 - Retail Management (3 cr.)**

Investigates retail business operations and focuses on the strategic profit model, store location, layout, display, merchandising, operations, and personnel.

**MKTG 314 - Advertising Strategy (3 cr.)**

Utilization of advertising as a business administration function; communication with consumers as a means of attaining marketing goals.

**MKTG 317 - International Marketing (3 cr.)**

Focuses on decisions relating to entering markets, market segmentation, marketing strategies, and tactics in the international arena. Same as I B 317.

**MKTG 324 - Product/Service Development (3 cr.)**

Covers product innovation, development, commercialization and resource recovery, price determination and administration strategies, and complementing planning processes.

**MKTG 350 - Non-profit and Social Marketing (3 cr.)**

Examines the role and application of marketing concepts and strategies to social issues and nonprofit organizations.

**MKTG 354 - Sports Marketing (3 cr.)**

The application of marketing concepts to the sports industry. Topics include fans/customers, products, and promotions across a range of sports.

**MKTG 357 - Internet and Social Media Marketing (3 cr.)**

Focuses on the consumer psychology and marketing strategies at work in advertising and selling brands via the Internet and social media networks.

**MKTG 380 - Level 2, PGA's PGM Education Program (Part 1) (1.5 cr.)**

Introduction to Level 2 of the PGA's PGM Education Program. This class will focus on Merchandising and Inventory Management, Golf Operations and the corresponding PGA Work Experience Activities. Students will also be required to provide an internship evaluation report. Additional course fee required. Consent of Instructor required. Restricted to: MKTG/PGM majors.

**MKTG 381 - Level 2, PGA's PGM Education Program (Part 2) (1.5 cr.)**

Completion of Level 2 of the PGA's PGM Education Program. This class will focus on Turfgrass Management, Intermediate Teaching and Golf Club Alteration and corresponding PGA Work Experience Activities. Additional course fee required. Consent of Instructor required. Restricted to: MKTG/PGM majors.

**MKTG 400 - Marketing Internship/Field Experience (3 cr.)**

Internship of field experience in application of marketing principles. The student must accept an internship before being allowed to enroll in the course. Consent of instructor required. Restricted to MKTG majors.

**MKTG 404 - Business-to-Business Marketing (3 cr.)**

Covers suppliers and buyers roles in industry; procurement, vendor selection, marketing research, selling techniques, sales force management; quality/quantity determination.

**MKTG 414 - Athletics Business Administration (3 cr.)**

This course examines the marketing and operations of sports programs with emphasis on Division I Collegiate Programs. Topics include event management, ticketing, marketing, trademark and licensing, NCAA compliance, development, finance, contracts, facility maintenance, television, and the roles and responsibilities of the coaches.

**MKTG 449 - Promotion Management (3 cr.)**

Covers concepts and problems in the use of advertising, internet marketing, social media marketing, personal selling, publicity, and other forms of promotion; planning, coordination, control, and evaluation of effectiveness.

**MKTG 451 - Agribusiness Market Planning (3 cr.)**

Same as AG E 451.

**MKTG 455 - Services Marketing Management (3 cr.)**

How service organizations can grow and prosper through application of marketing. Analyzes nature of services, service environment, customer and marketing mix, and implementation of service strategies.

**MKTG 461 - New Venture Creation (3 cr.)**

Via problem-based learning, teams define new business ventures to meet current market needs, develop business plans and prepare to present to investors. Same as MGT 461.

**MKTG 480 - Level 3, PGA's PGM Education Program (Part 1) (1.5 cr.)**

Introduction to Level 3 of the PGA's PGM Education Program. This class will focus on Human Resource Management/Supervising and Delegating, Food and Beverage and the corresponding PGA Work Experience Activities. Students will also be required to provide an internship evaluation report. Additional course fee required. Consent of Instructor required. Restricted to: MKTG/PGM majors.

**MKTG 481 - Level 2, PGA's PGM Education Program (Part 2)/ Final Experience (3 cr.)**

Completion of Level 3 of the PGA's PGM Education Program. This Class will focus on Advanced Teaching and Club fitting, Player Development/Teaching Business. The Final Experience and the corresponding PGA Work Experience Activities. Please note that the following are requirements for successful completion of this senior level PGA Golf Management capstone course: 16 months of internship, completion of the Qualifying Level, Level 1, Level 2, and Level 3 of the PGA's PGM Education Program and successful completion of the PGA's Playing Ability Test. Consent of Instructor required. Restricted to: MKTG/PGM majors.

**MKTG 489 - Strategy and Policy (3 cr.)**

Techniques and analysis of marketing strategy and policy planning and formulation. Prerequisites: senior standing or consent of instructor.

**MKTG 490 - Selected Topics (1-18 cr.)**

Covers materials and subjects not offered in regular Marketing courses. Students can take 18 credit hours of MKTG 490 if each class is a different subtitle. A maximum of 18 credit hours can be earned through MKTG 490.

**MKTG 498 - Independent Study (1-3 cr.)**

Individual studies directed by consenting faculty with the prior approval of the department head. Prerequisites: junior or above standing and consent of instructor. A maximum of 3 credits may be earned.

**MOLB - MOLECULAR BIOLOGY****MOLB 448 - Special Research Problems (1-3 cr.)**

Individual investigation, theoretical or experimental, under the supervision of a molecular biology faculty member. Prerequisite: consent of instructor. May be repeated for a maximum of 6 credits.

**MUS - MUSIC****MUS 101G - An Introduction to Music (3 cr.)**

An introduction to music for the non-music major to encourage the enjoyment of listening to and understanding the world's great music from the past to the present.

**MUS 102 - Fundamentals of Music (3 cr.)**

Introduction to music notation, meter and rhythm, scales, intervals, triads, seventh chords, fundamentals of harmonic progression, and aural skills. For students with little or no music theory background. Traditional Grading with RR.

**MUS 103 - Ear Training I (1 cr.)**

To develop the ability to accurately hear, identify, sing and notate musical elements including rhythm, melody, intervals and harmony Prerequisite(s): Passing the Theory Placement exam or making a C- or better in MUS 102. Traditional Grading with RR. Restricted to Las Cruces campus only.

**MUS 104 - Ear Training II (1 cr.)**

To develop the ability to accurately hear, identify, sing and notate musical elements including rhythm, melody, intervals and harmony Prerequisite(s): Grade of C- or better in MUS 103 and MUS 105. Traditional Grading with RR.

**MUS 105 - Music Theory I (3 cr.)**

Introduction to vocabulary and syntax of 4-voice 18th c. chorale music through study and harmonic analysis. Prerequisite(s): Passing the Theory Placement exam or making a C- or better in MUS 102.

**MUS 106 - Music Theory II (3 cr.)**

Expansion of vocabulary and syntax of 4-voice 18th c. chorale music through study, harmonic analysis, and part writing. Prerequisite(s): Grade of C- or better in MUS 105.

**MUS 117 - Jazz Improvisation (2 cr.)**

Techniques for extemporaneous playing; jazz harmonic practice. Prerequisite(s): A grade of C- or better in MUS 103 and MUS 105. Traditional Grading with RR. Restricted to Las Cruces campus only.

**MUS 121 - Concert and Recital Laboratory (.5 cr. (.5+1P))**

Serves as a resource and performance lab for all applied areas of musical study. Music majors are expected to perform during the weekly student recital and must attend a designated number of musical performances during the semester. May be repeated up to 4 credits. Restricted to: Music and Music Education majors. S/U Grading with RR. Restricted to Las Cruces campus only.

**MUS 130 - Applied Music (1-2 cr.)**

Private or group instruction for non-music majors, secondary instruments, and music majors preparing for 200-level applied music. May be taken for unlimited credit.

**MUS 141 - Class Voice I (1 cr.)**

Group instruction in voice and vocal pedagogy for instrumental Music Education majors, offering basic principles of healthy vocal production with particular attention to diction, development of vocal range, and the ability to impart that knowledge to elementary, junior and/or high school age students. Restricted to: Music Education majors. Traditional Grading with RR. Restricted to Las Cruces campus only.

**MUS 145 - Functional Piano I (2 cr.)**

Scales, chords, memorization. Harmonization of simple melodies with the ability to play simple melodies and rhythms. May be taken for unlimited credit. Restricted to music majors. No S/U option.

**MUS 146 - Functional Piano II (2 cr.)**

Scales, chords, memorization. Harmonization of simple melodies with the ability to play simple melodies and rhythms. Prerequisite: MUS 145 or consent of instructor. May be taken for unlimited credit. Restricted to music majors. No S/U option.

**MUS 147 - Functional Piano III (2 cr.)**

For music majors preparing for the Piano Proficiency Examination. Prerequisite: MUS 146 or consent of instructor. May be taken for unlimited credit. Restricted to music majors. No S/U option.

**MUS 150 - Orchestra (1 cr.)**

Participation in the Las Cruces Symphony at NMSU. This is a full symphony orchestra concentrating on masterworks of the literature. May be taken for unlimited credit.

**MUS 151 - Philharmonic Orchestra (1 cr.)**

The University Symphony Orchestra is open to all students and performs a wide variety of standard orchestral literature. The orchestra performs each semester and the objectives include refining technique, stylistic characteristics, intonation, balance, bowings, color, rhythmic integrity and dynamics. No audition is required but seating assignments are determined by conductor. May be repeated up to 10 credits. Restricted to Las Cruces campus only.

**MUS 160 - University Singers (1 cr.)**

Select concert and touring choir of undergraduate and graduate students performing a cappella and accompanied choral literature. May be repeated up to 10 credits. Prerequisite(s): By audition only. Restricted to Las Cruces campus only.

**MUS 161 - Concert Choir (1 cr.)**

Campus choir composed of both music and non-music majors. Emphasis on vocal techniques, sight-singing, and basics of choral musicianship. May be taken for unlimited credit.

**MUS 162 - Master Works Chorus (1 cr.)**

Combination campus and community chorus. This group will perform the major chorale compositions for orchestra and/or wind ensemble. May be taken for unlimited credit.

**MUS 163 - Jazz Ensembles (1 cr.)**

Performance ensemble that explore repertoire written for big band, including (but not limited to) dance band, swing, and contemporary compositions. May be repeated up to 10 credits. Prerequisite(s): By audition only. Restricted to Las Cruces campus only.

**MUS 164 - Chamber Ensembles (1 cr.)**

Small groups of singers and/or instrumentalists that perform chamber music. May be taken for unlimited credit.

**MUS 170 - Wind Symphony (1 cr.)**

This elite ensemble of 50 highly qualified graduate and undergraduate students performs a varied repertoire of the highest quality literature for winds. Members will also perform concerts of chamber winds literature each semester. This ensemble is dedicated to professional level performance while fostering the musical growth of its members. Conducted by the Director of Bands, this group serves as the flagship for the entire university bands program. May be repeated up to 10 credits. Prerequisite(s): By audition only. Restricted to Las Cruces campus only.

**MUS 171 - Roadrunner Revue Pep Band (1 cr.)**

For both music and nonmusic majors. Opportunity to perform a variety of music in a showband setting. Prerequisite: by audition only; contact band office for date and time. May be taken for unlimited credit.

**MUS 172 - Marching Band (1 cr.)**

For both music and nonmusic majors. Opportunity to perform all varieties of music in a contemporary styled marching unit. May be taken for unlimited credit.

**MUS 174 - Percussion Ensemble (1 cr.)**

Study and performance of contemporary percussion ensemble literature. May be repeated up to 5 credits. Restricted to: Music and Music Education majors. Restricted to Las Cruces campus only.

**MUS 180 - Symphonic Band (1 cr.)**

This is a select large ensemble, chosen by audition. It provides a challenging musical environment for skilled performers by programming repertoire that ranges from works for chamber winds, to standards of the wind band literature, to cutting edge literature. Conducted by the Associate Director of Bands, this ensemble is comprised of music majors and non-music majors alike and provides the less experienced student an opportunity to hone and refine performance skills. May be repeated up to 10 credits. Prerequisite(s): By audition only. Restricted to Las Cruces campus only.

**MUS 181 - Campus Band (1 cr.)**

This is a non-auditioned ensemble designed to meet the needs of students from all majors across campus. Music majors are encouraged to enroll while performing on a secondary instrument. Marching band members are also encouraged to take the course to build skills and leadership. This ensemble provides an educational experience and serves as an outlet for students who wish to remain musically active in a less intense setting. May be repeated up to 10 credits. Restricted to Las Cruces campus only.

**MUS 201G - History of Jazz in Popular Music: A Blending of Cultures (3 cr.)**

Jazz in popular music as it relates to music history and the development of world cultures.

**MUS 202 - An Introduction to World Music, Jazz and Music Research (3 cr.)**

Introduces world music and jazz within a historical and cultural context, considering significant musical figures, forms, genres, styles, and representative works. A major component will be the development of effective research and scholarly writing skills for the music major or minor. Prerequisite(s): A grade of C- or better in MUS 103 and MUS 105. Restricted to: Music and Music Education majors. Restricted to Las Cruces campus only.

**MUS 203 - Ear Training III (1 cr.)**

Continuation of MUS 104, advanced sight singing, dictation. Prerequisite(s): Grade of C- or better in MUS 104 and MUS 106. Restricted to Las Cruces campus only.

**MUS 204 - Ear Training IV (1 cr.)**

Continuation of MUS 203, advanced sight singing, dictation. Prerequisite(s): Grade of C- or better in MUS 203 and MUS 205. Restricted to Las Cruces campus only.

**MUS 205 - Music Theory III (3 cr.)**

Analysis of Baroque and Classical Music. Vocabulary and syntax of 18th and 19th c. Western art music through study, chordal/formal analysis, and composition. Prerequisite(s): Grade of C- or better in MUS 106. Restricted to Las Cruces campus only.

**MUS 206 - Music Theory IV (3 cr.)**

Analysis of Romantic, Post-Romantic, Impressionist, and Twelve-Tone Music. Vocabulary and syntax of late 19th and early 20th c. Western art music through study, micro/macro analysis, and composition. Prerequisite(s): Grade of C- or better in MUS 205. Restricted to Las Cruces campus only.

**MUS 207 - Music History and Literature: Antiquity through Baroque (3 cr.)**

Surveys Western art music within a historical and cultural context, considering significant musical figures, forms, genres, styles, and representative works from antiquity through the end of the Baroque era. An additional emphasis will be given to effective research and scholarly writing skills. Prerequisite(s): A grade of C- or better in MUS 202. Restricted to: Music and Music Education majors. Restricted to Las Cruces campus only.

**MUS 230 - Applied Music I (1-4 cr.)**

Individual instruction to develop technique, musicianship, performance and improvisational skills, as well as knowledge of significant repertoire. May be repeated up to 16 credits. Consent of Instructor required. Prerequisite(s): Audition. Restricted to: Music and Music Education majors. Traditional Grading with RR. Restricted to Las Cruces campus only.

**MUS 250 - Introduction to Music Education (2 cr.)**

Overview of the basic principals and practices of the music education profession in K-12 settings, emphasizing philosophy and history of music education, methodologies commonly utilized in school curricula, music in special education, classroom/rehearsal management and lesson planning. Explores many aspects of public school teaching through class discussions and directed observations. Restricted to Las Cruces campus only.

**MUS 251 - Opera Workshop (1 cr.)**

Study, translation, analysis, rehearsal and performance of opera. May be repeated up to 10 credits. Consent of Instructor required. Restricted to Las Cruces campus only.

**MUS 260 - Special Topics I (1-3 cr.)**

Emphasis on special areas of music; designed for highly motivated students. May be taken for unlimited credit.

**MUS 261 - Functional Piano IV (2 cr.)**

For music majors preparing for Piano Proficiency Examination. Prerequisite: MUS 147 or consent of instructor. May be taken for unlimited credit. Restricted to music majors. No S/U option.

**MUS 262 - Diction I (2 cr.)**

Introduction to the international phonetic alphabet, and its application to English, Italian, Spanish, and Latin song literature. Main campus only. Restricted to music majors.

**MUS 263 - Diction II (2 cr.)**

Advanced grammar and detailed study of Italian, German and French diction and song literature for vocal students. Prerequisite: MUS 262 or consent of instructor. Restricted to music majors. Main campus only.

**MUS 273 - Introduction to Music Technology (1 cr.)**

Introduction to uses of technology in musical settings. Practical applications in digital music notation, MIDI sequencing, and digital audio recording. Prerequisite(s): MUS 105. Restricted to: MUS, M ED majors. Traditional Grading with RR. Restricted to Las Cruces campus only.

**MUS 301 - Marching Band Techniques (2 cr.)**

This course will help students develop the techniques needed to administer and teach all aspects of a contemporary high school marching band. This includes drill conception and design, instruction, organization, and administration. Stylistic varieties of marching fundamentals, show conception, fundamentals of charting and teaching drill, computer-aided drill design, traditional show design, contemporary show design, rehearsal techniques, and organizational concepts. Restricted to: Music, Music Education majors. Traditional Grading with RR.

**MUS 302 - Music History and Literature: Classic through Romantic (3 cr.)**

Surveys Western art music within a historical and cultural context, considering significant musical figures, forms, genres, styles, and representative works from the beginnings of the Classic era through the end of the Romantic era. An additional emphasis will be given to effective research and scholarly writing skills. Prerequisite(s): A grade of C- or better in MUS 207. Restricted to: Music and Music Education majors.

**MUS 303 - Music History and Literature: 20th Century Through the Present (3 cr.)**

Surveys Western art music within a historical and cultural context, considering significant musical figures, forms, genres, styles, and representative works from the beginning of the 20th Century through the Present. An additional emphasis will be given to effective research and scholarly writing skills. Prerequisite(s): A grade of C- or better in MUS 302. Restricted to: M ED, MUS majors.

**MUS 315 - Brass Techniques I (1 cr.)**

Methods and techniques of teaching high brass instruments, for music education majors. Main campus only.

**MUS 316 - Brass Techniques II (1 cr.)**

Methods and techniques of teaching low brass instruments, for music education majors. Main campus only.

**MUS 317 - Woodwind Techniques I (1 cr.)**

Methods and techniques of teaching high woodwind instruments, for music education majors. Main campus only.

**MUS 318 - Woodwind Techniques II (1 cr.)**

Methods and techniques of teaching saxophone and double reed instruments, for music education majors. Main campus only.

**MUS 319 - String Techniques I (1 cr.)**

Methods and techniques of teaching low string instruments, for music education majors. Main campus only.

**MUS 320 - String Technique II (1 cr.)**

Methods and techniques of teaching high string instruments, for music education majors. Main campus only.

**MUS 321 - Instrumental Techniques for Vocal Music Education Majors (2 cr.)**

Methods of teaching brass, woodwind, percussion, stringed and fretted instruments for vocal music education majors. Restricted to: Music and Music Education majors. Traditional Grading with RR.

**MUS 322 - Guitar Methods (1 cr.)**

Methods and techniques of teaching guitar, for Music Education majors. Restricted to: Music and Music Education majors. Traditional Grading with RR.

**MUS 323 - Percussion Technique I (1 cr.)**

Methods and techniques of teaching percussion instruments with a focus on snare drum, timpani and accessory. Restricted to: Music and Music Education majors. Traditional Grading with RR.

**MUS 324 - Percussion Technique II (1 cr.)**

Methods and techniques of teaching percussion instruments with a focus on keyboard percussion, marching percussion and drum set. Restricted to: Music and Music Education majors. Traditional Grading with RR.

**MUS 325 - Beginning Conducting (1 cr.)**

A study of the fundamentals of conducting and rehearsal strategies with an emphasis on beginning technique applicable to all ensembles. Reading of musical

scores with application via laboratory ensemble experience is included.

Prerequisite(s): A grade of C- or better in MUS 204 and 206. Restricted to: Music and Music Education majors. Traditional Grading with RR.

**MUS 326 - Instrumental Conducting, Techniques and Literature (3 cr.)**

Will continue from MUS 325 in the training for competent musicianship with a focus on conducting gestures and movements, score study, and rehearsal techniques as it relates to the instrumental ensemble. The class will focus primarily on the development of a non-verbal vocabulary that will allow each student to clearly and artistically communicate with the members of an ensemble to solicit a predetermined musical result. Prerequisite(s): A grade of C- or better in MUS 325. Restricted to: Music and Music Education majors. Traditional Grading with RR.

**MUS 327 - Choral Conducting (3 cr.)**

Continuation of conducting study with emphasis on choral rehearsal techniques, ensemble management, and literature. Prerequisite(s): A grade of C- or better in MUS 325. Restricted to: Music and Music Education majors. Traditional Grading with RR.

**MUS 330 - Applied Music II (1-4 cr.)**

Continuation from MUS 230. Individual instruction to develop technique, musicianship, performance and improvisational skills, as well as knowledge of significant repertoire. May be repeated up to 16 credits. Consent of Instructor required. Prerequisite(s): A grade of C- or better in MUS 230 plus a juried audition. Restricted to: Music and Music Education majors. Traditional Grading with RR.

**MUS 339 - Survey of Music Business (3 cr.)**

Survey of career options and exploration of current events/trends within the Music Industry. Non-Music Business majors may be admitted with instructor's approval. Restricted to: Music majors.

**MUS 340 - Junior Recital (1 cr.)**

Public solo performance under the supervision of the appropriate applied instructor. 30 minutes of musical performance is required. Consent of Instructor required. Corequisite(s): MUS 330. Restricted to: Music and Music Education majors. Traditional Grading with RR.

**MUS 346 - Elementary Music Methods (2 cr.)**

Lesson planning, curriculum, teaching methodology, materials, and procedures for teaching music in an elementary school. Emphasis on methodology of Kodaly and Orff, teaching in a multicultural setting, and developing reflective practitioners. This course requires field experience in the public schools. Prerequisite(s): A grade of C- or better in MUS 250 and passing the TEP exam. Restricted to: Music Education majors.

**MUS 349 - Secondary Music Methods (2 cr.)**

Lesson planning, curriculum, teaching methodology, materials, and procedures for teaching music in the middle school and high school. Emphasis on teaching in a multicultural setting and developing reflective practitioners. Prerequisite(s): A grade of C- or better in MUS 346. Restricted to: Music Education majors.

**MUS 350 - Chamber Music (1 cr.)**

Small performing ensembles that may include strings, woodwinds, brass, pianos, percussion, and voices. May be taken for unlimited credit.

**MUS 351 - Opera Workshop (1 cr.)**

Study, translation analysis, rehearsal and performance of opera. May be repeated up to 10 credits. Consent of Instructor required. Prerequisite(s): Consent of instructor.

**MUS 360 - Special Topics II (1-3 cr.)**

Emphasis on special areas of music; designed for highly motivated students. May be taken for unlimited credit.

**MUS 361 - Concert Choir II (1 cr.)**

Composed of both music and nonmusic majors. Emphasis on vocal techniques, sight-singing, and basics of choral musicianship. Students must assume leadership role. Prerequisite: MUS 161 or consent of instructor. May be repeated for unlimited credit.

**MUS 362 - Philharmonic Orchestra II (1 cr.)**

The University Symphony Orchestra is open to all students and performs a wide variety of standard orchestral literature. The orchestra performs each semester and the objectives include refining technique, stylistic characteristics, intonation, balance, bowings, color, rhythmic integrity and dynamics. No audition is required but seating assignments are determined by conductor. May be repeated up to 10 credits. Prerequisite(s): A grade of C- or better in MUS 151.

**MUS 363 - Jazz Ensembles II (1 cr.)**

Performance ensemble that explore repertoire written for big band, including (but not limited to) dance band, swing, and contemporary compositions. May be repeated up to 10 credits. Prerequisite(s): By audition with a grade of C- or better in MUS 163.

**MUS 365 - Composition I (2 cr.)**

Significant forms for various media. Emphasis on structural aspects of original composition. Prerequisite(s): A grade of B or better in MUS 105. Restricted to: M ED, MUS majors.

**MUS 366 - Composition II (2 cr.)**

Applied larger forms. Emphasis on larger vocal and instrumental works. Prerequisite(s): B or better in MUS 365.

**MUS 368 - University Singers II (1 cr.)**

Select concert and touring choir of undergraduate and graduate students performing a cappella and accompanied choral literature. May be repeated up to 10 credits. Consent of Instructor required. Prerequisite(s): By audition with a grade of C- or better in MUS 160.

**MUS 370 - Wind Symphony II (1 cr.)**

This elite ensemble of 50 highly qualified graduate and undergraduate students performs a varied repertoire of the highest quality literature for winds. Members will also perform concerts of chamber winds literature each semester. This ensemble is dedicated to professional level performance while fostering the musical growth of its members. Conducted by the Director of Bands, this group serves as the flagship for the entire university bands program. May be repeated up to 10 credits. Prerequisite(s): MUS 170 and by audition.

**MUS 372 - Marching Band II (1 cr.)**

Composed of both majors and nonmajors. Opportunity to perform all varieties of music in a contemporary style marching unit. May be repeated up to 5 credits. Consent of Instructor required. Traditional Grading with RR.

**MUS 374 - Percussion Ensembles II (1 cr.)**

Study and performance of contemporary percussion ensemble literature. Students must assume a leadership role. May be repeated up to 5 credits. Prerequisite(s): A grade of C or better in MUS 174. Restricted to: Music and Music Education majors.

**MUS 380 - Symphonic Band II (1 cr.)**

This is a select large ensemble, chosen by audition. It provides a challenging musical environment for skilled performers by programming repertoire that ranges from works for chamber winds, to standards of the wind band literature, to cutting edge literature. Conducted by the Associate Director of Bands, this ensemble is comprised of music majors and non-music majors alike and provides the less experienced student an opportunity to hone and refine performance skills. May be repeated up to 10 credits. Prerequisite(s): MUS 170 or MUS 180 and by audition.

**MUS 381 - Campus Band II (1 cr.)**

This is a non-auditioned ensemble designed to meet the needs of students from all majors across campus. Music majors are encouraged to enroll while performing on a secondary instrument. Marching band members are also encouraged to take the course to build skills and leadership. This ensemble provides an educational experience and serves as an outlet for students who wish to remain musically active in a less intense setting. May be repeated up to 10 credits.

**MUS 386 - Applied Music Pedagogy and Literature I (2 cr.)**

Methods, materials, problems, literature, and techniques in teaching individual lessons. Consent of Instructor required. Restricted to: Music and Music Education majors. Traditional Grading with RR.

**MUS 390 - Survey of Wind Literature (2 cr.)**

An examination of beginning to advanced literature for wind bands with an emphasis on the needs of middle and high school ensembles. It will include a means to determine the quality of a piece as well as the standardized level of difficulty (grading). Prerequisite(s): A grade of C- or better in MUS 204 and 206. Restricted to: Music and Music Education majors.

**MUS 391 - Survey of Orchestral Literature (2 cr.)**

An examination of beginning to advanced literature for both string orchestra and symphony orchestra with an emphasis on the needs of middle and high school ensembles. A means to determine the quality of a piece as well as the standardized level of difficulty (grading) will be included. Prerequisite(s): A grade of C- or better in MUS 204 and 206. Restricted to: Music and Music Education majors.

**MUS 392 - Survey of Choral Literature (2 cr.)**

An examination of beginning to advanced literature for choir with an emphasis on the needs of middle and high school ensembles. A means to determine the quality of a piece as well as the standardized level of difficulty (grading) will be included. Prerequisite(s): A grade of C- or better in MUS 204 and 206. Restricted to: Music and Music Education majors.

**MUS 413 - Form and Analysis (3 cr.)**

Forms in tonal music and basic analytic techniques including music from diverse cultures and media. Prerequisite(s): A grade of C- or better in MUS 204 and MUS 206.

**MUS 415 - Orchestration (3 cr.)**

Scoring for full orchestra and various instrumental combinations with consideration of instrument timbres, strengths, weaknesses and ranges. Prerequisite(s): A grade of C or better in MUS 204 and 206. Restricted to: Music and Music Education majors.

**MUS 417 - Studio Accompanying (2 cr.)**

Practical application of collaborative piano skills in a studio setting for Piano Performance majors. May be repeated up to 8 credits. Consent of Instructor required. Restricted to: Music and Music Education majors. Traditional Grading with RR.

**MUS 420 - Music of the Middle Ages and Renaissance (3 cr.)**

An overview of the music of the Middle Ages and Renaissance eras with an emphasis on history and literature. Prerequisite(s): MUS 303.

**MUS 421 - Music of the Baroque Era (3 cr.)**

An overview of the music of the Baroque era with an emphasis on history and literature. Prerequisite(s): MUS 303.

**MUS 422 - Music of the Classic Era (3 cr.)**

An overview of the music of the Classic era with an emphasis on history and literature. Prerequisite(s): MUS 303.

**MUS 423 - Music of the Romantic Era (3 cr.)**

An overview of the music of the Romantic era with an emphasis on history and literature. Prerequisite(s): MUS 303.

**MUS 424 - Music of the Twentieth Century (3 cr.)**

An overview of the music of the Twentieth Century with an emphasis on history and literature. Consent of Instructor required. Prerequisite(s): MUS 303.

**MUS 429 - Opera and Music Drama (3 cr.)**

Lyrical drama of the Greeks through works of Wagner and Verdi to contemporary opera. Prerequisite: MUS 303 or consent of instructor.

**MUS 430 - Applied Music III (1-4 cr.)**

Continuation from MUS 330. Individual instruction to develop technique, musicianship, performance and improvisational skills, as well as knowledge of significant repertoire. May be repeated up to 16 credits. Consent of Instructor

required. Prerequisite(s): A grade of C or better in MUS 330 plus a juried audition. Restricted to: Music and Music Education majors. Traditional Grading with RR.

**MUS 440 - Senior Recital (1-2 cr.)**

Public solo performance under the supervision of the appropriate applied instructor. 60 minutes of musical performance is required for enrollment of 2 hours credit. 30 minutes of musical performance is required for enrollment of 1 hour credit. Consent of Instructor required. Corequisite(s): MUS 430. Restricted to: Music and Music Education majors. Traditional Grading with RR.

**MUS 441 - Supervised Studio Teaching (2 cr.)**

Teaching of private lessons under supervision. May be repeated up to 6 credits. Consent of Instructor required. Restricted to: Music and Music Education majors. Traditional Grading with RR.

**MUS 450 - Research Methods (3 cr.)**

Introduction to methodology of music research. Emphasis on important scholarly resources and academic writing. Prerequisite: consent of instructor. Restricted to majors. Main campus only. No S/U option.

**MUS 451 - Orchestra II (1 cr.)**

Las Cruces Symphony at NMSU, a full symphony orchestra concentrating on masterworks of the literature. Students must assume a leadership role. Consent of Instructor required.

**MUS 455 - Music Business Internship (3 cr.)**

Capstone course for the Music Business degree. Working with the music business coordinator, students must have been accepted as an intern in a music business setting before enrolling. Credit given for the internship based on criteria developed for each placement. Prerequisites: MUS 330 and piano proficiency. Restricted to majors. S/U only.

**MUS 465 - Composition III (2 cr.)**

Emphasis on extended compositional techniques, serialization, and modern counterpoint. Consent of Instructor required. Restricted to: Music majors. Traditional Grading with RR.

**MUS 466 - Composition IV (2 cr.)**

New music notation and techniques. Open forms, aleatory concepts. Consent of Instructor required. Prerequisite(s): MUS 465. Restricted to: Music majors. Traditional Grading with RR.

**MUS 470 - Special Topics III (1-3 cr.)**

Designed for highly motivated students. Independent study and individual guidance. May be taken for unlimited credit.

**MUS 471 - Graduate Theory Review (3 cr.)**

Comprehensive and accelerated study of modes, diatonic harmony, and classical form of the common practice period. Restricted to: Music majors. Traditional Grading with RR.

**MUS 475 - Intermediate Conducting (3 cr.)**

Serves as a bridge from undergraduate conducting study to the graduate level. Advanced undergraduate students may enroll to learn how the graduate program in conducting functions. The course also serves as the introductory experience for newly admitted graduate conducting majors. After successful completion of this course, students will be able to: Study musical scores from a conducting perspective; Demonstrate effective predetermined gestures and movements; Lead an ensemble; Research and give presentations related to composers and their music; Demonstrate advanced knowledge of conducting practices. Prerequisite(s): A grade of C- or better in MUS 326 or 327. Traditional Grading with RR.

**MUS 476 - Music Cultures of the World: History and Criticism (3 cr.)**

Listening, criticism, and analysis of musical cultures around the world. Emphasis on non-Western musical traditions and folk music of the world. Open to all majors.

**MUS 477 - Graduate Music History Review (3 cr.)**

Comprehensive and accelerated study of music history from antiquity to the present. Restricted to: Music majors. Traditional Grading with RR.

**MUS 486 - Applied Music Pedagogy and Literature II (2 cr.)**

Methods, materials, problems, literature, and techniques in teaching individual lessons. Consent of Instructor required. Restricted to: Music majors. Traditional Grading with RR.

**MUS 498 - Independent Study (1-3 cr.)**

For students with a strong musical background wishing to explore content beyond the traditional curriculum. Prerequisite: consent of instructor. Restricted to majors. May be repeated for a maximum of 6 credits.

**NAV - NAVAJO****NAV 101 - Introduction to Navajo Studies (3 cr.)**

Covers geography, demography, institutions of modern Navajo society with historical overview. Restricted to: Community Colleges only.

**NAV 111 - Elementary Navajo I (4 cr.)**

Navajo for beginners with emphasis on speaking skills. Prerequisite: not open to Navajo-speaking students except by consent of instructor.

**NSC - INTEGRATED NATURAL SCIENCES****NSC 131 - General Sciences (3 cr. (2+2P))**

Designed for Allied Health students to explore the fundamentals of physical and life sciences.

**NURS - NURSING****NURS 119 - Dosage and Calculations (1 cr.)**

Covers techniques for accurate measurement, calculation, and administration of medications and fluids for children and adults. Graded S/U.

**NURS 120 - Introduction to Pharmacology (3 cr.)**

General principles of pharmacology including methods of administration, effect on the body, interactions with other drugs, and classification of drugs. Focus on the health care provider's role in safe pharmacologic intervention. Restricted to Allied Health majors. Restricted to: Community Colleges only.

**NURS 130 - Foundations of Pharmacology (3 cr.)**

This course provides the nursing student with an introduction to the foundations of pharmacology including: science of drug action, principles of medication administration, accurate calculation of drug doses, medication therapy across the lifespan, application of medications to treat health alterations, normal and adverse responses by the client to medication therapy, medication safety, medication regulation, national patient safety goals, and appropriate nursing interventions to achieve the desired goals of medication therapy. Only students who have been admitted to the nursing program may enroll in this course. Corequisite(s): NURS 147 NURS 149. Prerequisite(s): Admission into the Nursing Program. Restricted to: NUR majors. Restricted to: Community Colleges only.

**NURS 134 - Foundation of Nursing Skills and Assessment (3 cr. (1+6P))**

This course provides nursing students with introductory nursing knowledge related to performance of nursing skills and assessment including: techniques of fundamental nursing care, basic and intermediate nursing skills, and foundational physical assessment techniques associated with care across the lifespan. Open to students who have been accepted into the nursing program. Corequisite(s): NURS 136 NURS 137 or permission of the Program Director. Prerequisite(s): Admission into the Nursing Program. Restricted to: NUR majors. Restricted to: Community Colleges only.

**NURS 136 - Foundations of Nursing Practice (6 cr. (4+6P))**

This course will introduce the nursing student to foundational theoretical concepts of professional nursing practice, the nursing process, and foundational nursing skills. It includes developmental concepts related to clients across the lifespan. Clinical experiences in the simulation lab, long-term care, the community, and rehabilitation settings will provide the student with the opportunity to apply learned skills to provide total care to meet needs of one adult client and to develop care planning skills related to actual problems. Students must be concurrently enrolled in both the lecture and lab sections of the course. Only students who have been admitted to the nursing program may enroll in this course. Corequisite(s): NURS 134, NURS 136 lab NURS 137 or permission of the

Program Director. Prerequisite(s): Admission into the Nursing Program. Restricted to: NUR majors. Restricted to: Community Colleges only.

**NURS 137 - Care of Geriatric Patient (3 cr.)**

This course will introduce the nursing student to foundational concepts of age-appropriate/specific care of the older adult who represents the largest population of individuals placing demands on the healthcare system. It includes basic and complex concepts and issues related to care of the older client across the care continuum, provision of cost-effective care in a resource sparse environment. Only students who have been admitted to the nursing program may enroll in this course. Corequisite(s): NURS 134 NURS 136 or permission of the Program Director. Prerequisite(s): Admission into the nursing program. Restricted to: NURS majors. Restricted to Community Colleges campuses only.

**NURS 140 - Pathophysiology for Allied Health Professionals (3 cr.)**

Introduction to the nature of disease and its effect on body systems. Deals with the disease processes affecting the human body via an integrated approach to specific disease entities. Includes a review of normal functions of the appropriate body systems. Diseases are studied in relationship to their etiology, pathology, physical signs and symptoms, diagnostic procedures, complication, treatment modalities, and prognosis. Prerequisite: a grade of C or better in OEHO 140. Restricted to Allied Health and Health Information Technology majors. Restricted to: Community Colleges only.

**NURS 146 - Common Health Deviations (6 cr. (4+6P))**

Common health deviations and the manner by which they alter various body functions are explored. The role of the licensed practical nurse in assisting clients with common health deviations is presented. Ethical and legal implications and the role of the practical nurse are also considered. The licensed practical nursing student will utilize the application of knowledge to a client care situation both in the sub-acute care and acute care settings. The nursing process is presented as a guide for coordinating client care with in a chosen nursing system, each phase of the nursing process is utilized as a method of coordinating client care. Grade of C or better required. Prerequisite(s): NURS153, NURS 156, NURS 154, NURS 157, and NURS 210 or consent of program director. Restricted to: Carlsbad campus only.

**NURS 147 - Adult Health I (6 cr. (4+6P))**

This course focuses on application of the nursing process and theoretical concepts of care for adults with commonly occurring health problems. Selected clinical learning experiences in the simulation lab, acute care, and community settings will allow the student to continue development of: prioritization skills, proficiency in performance of nursing skills, collaborative skills with clients, families, peers and health care team members, care planning skills related to patient actual, psychosocial, and potential problems in the delivery of total nursing care to meet needs of one adult client. Students must be concurrently enrolled in both the lecture and lab sections of the course. Only students who have been admitted to the nursing program may enroll in this course. Corequisite(s): NURS 130, NURS 147 lab, NURS 149, or permission of the Program Director. Prerequisite(s): Admission into the Nursing Program. Restricted to: NUR majors. Restricted to Community Colleges campuses only.

**NURS 148 - PhysicalAssessment (2 cr. (1+3P))**

Introduction of concepts and techniques of interviewing, history taking, review of body systems, and physical assessment of an adult client. The student should be able to apply knowledge of anatomy and physiology, assessment skills, communication skills, cultural awareness, nursing process, critical thinking skills, teaching skills, and psychomotor skills. Restricted to: Community Colleges only.

**NURS 149 - Mental Health Nursing (3 cr. (2+3P))**

This course will allow the nursing student to develop skills necessary to provide nursing care for clients with mental health problems in various health care settings including: common mental health disorders, psychosocial dysfunction, psychosocial safety/substance abuse issues, violence, suicide, restraints, developmental age related pathophysiology, psychopharmacology, cultural/religious considerations, grief/loss, promotion of mental health, and therapeutic communication. Selected clinical learning experiences in the simulation lab, acute care, and community settings will allow the student to develop ability to develop: proficiency in performance of nursing skills, collaborative skills with clients, families, peers and health care team members,

care planning skills related to patient actual, psychosocial, and potential problems in the delivery of total nursing care to meet needs of one client across the life span with acute/chronic mental health needs. Students must be concurrently enrolled in both the lecture and lab sections of this course. Only students who have been admitted to the nursing program may enroll in this course. Corequisite(s): NURS 130, NURS 147, NURS 149L, or permission of the Program Director. Prerequisite(s): Admission into the Nursing Program. Restricted to: NUR majors. Restricted to: Community Colleges only.

**NURS 150 - Medical Terminology (3 cr.)**

Understanding of the basic elements of medical words. Use of medical abbreviations. Same as OEHO 120 and BOT 150.

**NURS 153 - Medication and Dosage Calculation (1 cr.)**

Techniques of dosage calculation for medication and fluid administration. RR applicable. Prerequisite(s): Meet NMSU basic skills requirement in mathematics or consent of program director. Corequisite(s): NURS156 and NURS154.

**NURS 154 - Physical Assessment (2 cr.)**

Beginning techniques of physical assessment by systems will be presented by using the nursing process as a guide for identifying self-care requisites throughout the life span. Grade of C- or better required. Prerequisite(s): BIOL 154 or BIOL 225 or consent of program director. Corequisite(s): NURS 153 & NURS 156. Restricted to: Community Colleges only.

**NURS 155 - Special Topics (1-4 cr.)**

Specific subjects to be announced in the Schedule of Classes.

**NURS 156 - Basic Nursing Theory and Practice (6 cr. (4+6P))**

Introduction to the nursing profession and the beginning skills of nursing practice as it relates to normalcy. Embracing the theory of Dorothea Orem, the nursing process is presented as a means of guiding the student in promoting self-care. Ethical and legal aspects of nursing practice are also included. Basic clinical nursing skills will be presented and practiced in the nursing lab. The student will perform these skills with clients in an actual health care setting. Prerequisite(s): Consent of Program Director. Corequisite(s): NURS 153 and NURS 154. Restricted to: Carlsbad campus only.

**NURS 157 - Maternal/Child Health Deviations (8 cr. (6+6P))**

The concepts and principles of nursing care of the family from conception to adolescence. Utilizing the nursing process, the student focuses on the supportive-educative nursing system to assist members of the family in meeting self-care requisites. Theoretical instruction applied to client care situation. Students assist clients in meeting universal and developmental self-care requisites. Experiences may occur in any of the regional health care facilities. Grade of C- or better required. Prerequisite(s): NURS 156, NURS 153, and NURS 154 or consent of program director. Corequisite(s): NURS 210. Restricted to: Carlsbad campus only.

**NURS 170 - Foundations of Nursing (7 cr. (4+9P))**

Holistic approach to basic physical wellness and mental health of the adult client. Clinical experience will include in-patient and out-patient psychiatric settings, wellness, and physical assessment. Restricted to: Community Colleges only.

**NURS 172 - Critical Thinking and Nursing Process (2 cr.)**

Holistic approach to wellness utilizing the nursing process and critical thinking. Introduces the nursing process and various methods of applying the process in delivery of client care. Restricted to: Community Colleges only.

**NURS 173 L - Practicum: Physical Assessment (1 cr. (3P))**

Using the nursing process, the student will be able to perform a basic health history and physical examination on an adult client. Prerequisite(s): BIOL 225 and BIOL 226 OR BIOL 253 and BIOL 254. Restricted to: Community Colleges only. Restricted to NURS and OEEM majors.

**NURS 180 - The Adult Client I (8 cr. (4+12P))**

Holistic care of the adult client throughout the lifespan, utilizing the nursing process to address personal wellness and acute alterations in wellness in a variety of health care settings. Laboratory and clinical practicum will focus on application of the nursing process in simulated and real world settings.

Prerequisite(s): NURS 170, NURS 172, and NURS 173L. Corequisite(s): NURS 185. Restricted to: Community Colleges only.

**NURS 182 - Legal and Ethical Issues in Nursing Practice (2 cr.)**

Introduction to legal and ethical implications of nursing practice (through the holistic approach to wellness) as a registered nurse. Restricted to: Community Colleges only.

**NURS 185 - Holistic Approach to Pharmacotherapeutic Intervention I (2 cr.)**

Level I. Holistic approach to the study of basic pharmacology concepts. Includes pharmacodynamic phases of drug interaction. Nursing process is discussed in relation to medication administration. Special emphasis on the role of the nurse and basic concepts related to specific drug categories. Prerequisite(s): NURS 170, NURS 172, and NURS 173L. Corequisite(s): NURS 180. Restricted to: Community Colleges only.

**NURS 201 - Special Topics (1-4 cr.)**

Specific topics to be announced in the Schedule of Classes. Prerequisite: admission to the nursing program. May be repeated for a maximum of 10 credits. Restricted to: Community Colleges only.

**NURS 209 - Independent Study (1-4 cr.)**

Individual studies to meet identified student needs. Prerequisite: admission to the nursing program. May be repeated for a maximum of 10 credits. Restricted to: Community Colleges only.

**NURS 210 - Pharmacological Requisites of the Childbearing Family (1 cr.)**

Basic concepts of pharmacology including pharmacokinetics, pharmacodynamics, and pharmacotherapeutics, and their relationship to nursing care will be discussed focusing on medications commonly utilized with the childbearing family. Medication classes to be discussed include labor and delivery, analgesic, vitamins, respiratory, gynecological, endocrine, and anti-microbial/anti-infective drugs. Grade of C- or better required. Prerequisite(s): BIOL 225 and BIOL 226 or consent of instructor and NURS 153, NURS 154 and NURS 156. Corequisite(s): NURS 157. Restricted to: Carlsbad campus only.

**NURS 211 - Pharmacological Requisites of Simple Health Deviations (1 cr.)**

Basic concepts of pharmacology including pharmacokinetics, pharmacodynamics, and pharmacotherapeutics, and their relationship to nursing care are addressed focusing on medications related to the psychiatric, gastrointestinal, musculoskeletal, gynecological, hematological, and anti-neoplastic client. Grade of C- or better required. Prerequisite(s): BIOL 225 and BIOL 226 or consent of instructor, and NURS 153, NURS 154, NURS 156, NURS 157 and NURS 210. Corequisite(s): NURS 246 and NURS 258. Restricted to: Carlsbad campus only.

**NURS 212 - Pharmacological Requisites of Complex Health Deviations (1 cr.)**

Basic concepts of pharmacology including pharmacokinetics, pharmacodynamics, and pharmacotherapeutics, and their relationship to nursing care is examined focusing on medications related to complex health deviations. Drug classes to be discussed include cardiovascular, renal, endocrine, and neurological. Grade of C- or better required. Prerequisite(s): BIOL 225 and BIOL 226 or consent of instructor, and NURS 153, NURS 154, NURS 156, NURS 157, NURS 246, NURS 258, NURS 210 and NURS 211. Corequisite(s): NURS 256 and NURS 260. Restricted to: Carlsbad campus only.

**NURS 224 - Maternal Child Nursing (5 cr. (4+3P))**

This course provides the intermediate nursing student with an in-depth review of care of the childbearing woman, family structures and roles, and nursing care of the child from birth through adolescence. Emphasis includes the care of pre-partum, intra-partum and postpartum clients, the neonate and health deviations in pediatric clients. Clinical experiences in the simulation lab, the community, and acute care settings will provide the student with the opportunity to apply learned skills to provide total care to meet needs of up to two adult, neonatal, or pediatric clients and to apply care planning skills related to actual, psychosocial and potential problems. Students must be concurrently enrolled in both the lecture and lab sections of the course. Only students who have been admitted to the nursing program may enroll in this course. Corequisite(s): NURS 224 lab, NURS



235, NURS 236, or permission of the Program Director. Prerequisite(s): Admission into the Nursing Program. Restricted to: NUR majors. Restricted to: Community Colleges only.

**NURS 226 - Adult Health II (6 cr. (4+6P))**

This course focuses on application of nursing process and theoretical concepts of care for adults with complex health alterations. Selected clinical learning experiences in the simulation lab, acute care, and community settings will allow the student to apply: prioritization skills, maintain proficiency in performance of nursing skills, collaborative skills with clients, families, peers and health care team members, and care planning skills related to patient actual, psychosocial, and potential problems in the delivery of nursing care to meet needs of three adult clients. Students must be concurrently enrolled in both the lecture and lab sections of the course. Only students who have been admitted to the nursing program may enroll in this course. Corequisite(s): NURS 224, NURS 226 lab, NURS 235 or permission of the Program Director. Prerequisite(s): Admission into the Nursing Program. Restricted to: NUR majors. Restricted to: Community Colleges only.

**NURS 234 - Community Health Nursing (1 cr.)**

This course provides an introduction to community health, focusing on health care systems, epidemiology, and nursing care of individuals, families and aggregates of varied cultural backgrounds. Primary, secondary, and tertiary prevention are emphasized. Diverse roles of the community health nurse are examined. Educational theories and their applications are explored. Restricted to: Community Colleges only.

**NURS 235 - Nursing Leadership and Management (2 cr.)**

This course introduces the intermediate nursing student to professional practice principles of nursing leadership and management including: health policy and politics, fiscal management budgeting, conflict management, decision making, interdisciplinary practice, working with teams, roles in disaster planning and management, application of standards of care to risk management, organization of care delivery, health care systems, processes, and practice environments. Corequisite(s): NURS 224 NURS 226, or permission of the Program Director. Prerequisite(s): Admission into the Nursing Program. Restricted to: NUR majors. Restricted to: Community Colleges only.

**NURS 236 - Nursing Preceptorship - Adult Health III (6 cr. (2+12P))**

This course is the final course involving care of the patient with acute or chronic illness. It focuses on care of patients with complex or multi-system problems allowing the graduating nursing student to discuss and apply all the skills learned in previous nursing courses. After successfully passing the HESI exam, students have clinical practice with preceptor in various health care settings. Selected clinical learning experiences in the simulation lab, acute care, and community settings will allow the student to: organize care of a group of clients, maintain proficiency in performance of nursing skills, collaborate with clients, families, peers and health care team members, and support care planning skills related to patient actual, psychosocial, and potential problems in the delivery of nursing care to meet needs of the preceptors group of clients. Students must be concurrently enrolled in both the lecture and lab sections of the course. Only students who have been admitted to the nursing program and have successfully completed all level 1, 2 and 3 nursing courses may enroll in this course. Clinical may include inpatient or outpatient care, days, evenings, nights, or weekend experiences. Students are required to work the preceptors assigned schedule. Corequisite(s): NURS 201, NCLEX Review or permission of the Program Director. Prerequisite(s): Admission into the Nursing Program. Restricted to: NUR majors. Restricted to: Community Colleges only.

**NURS 240 - Healthcare Quality and Performance Improvement (3 cr.)**

Practical applications of health information management concepts as they apply to health record systems and the health care industry. Quality assessment and improvement standards and requirements of licensing, accrediting, fiscal and other regulatory agencies will be presented. Restricted to: Community Colleges only. Restricted to: Majors.

**NURS 246 - Health Deviations I (7 cr. (4+9P))**

Introduction to medical/surgical clients whose self-care needs are routine and predictable. Focus is on simple health deviations, including concepts relative to health promotion and maintenance. Pharmacological therapies are included.

Focus on the care of individuals with simple health deviations. Nursing process utilized to assist patients with meeting self-care needs. Student expected to apply all nursing systems while providing care for a group of two or three clients. Grade of C or better required. Prerequisite(s): NURS 153, NURS 156, NURS 154, NURS 157 and NURS 210 or consent of program director. Corequisite(s): NURS 211 and NURS 258. Restricted to: Carlsbad campus only.

**NURS 256 - Health Deviations II (8 cr. (4+12P))**

Concepts and principles applied to clients with complex health deviations. Focus will be on acutely ill clients that require the nurse to function in all three nursing systems. Building upon knowledge gained in NURS 246, the student focuses on individuals with complex health deviations. The nursing process continues to serve as a guide in assisting clients to meet self-care needs. The student assists the health care team in all aspects of client care. Preceptorship experience in which the student makes application of all knowledge gained throughout the nursing program. Student experiences the role of the staff nurse under the guidance and direction of their preceptor and nursing instructor. Grade of C- or better required. Prerequisite(s): NURS 153, 154, 156, 157, 210, 211, 246, and 258 or consent of program director. Corequisite(s): NURS 260 and NURS 212. Restricted to: Carlsbad campus only.

**NURS 258 - Psychosocial Requisites: A Deficit Approach (3 cr. (2+3P))**

Nursing theory and practice as it relates to the care of the client experiencing psychosocial health deviations. The role of the nurse is discussed along with the ethical and legal aspects of caring for the client with psychosocial disorders. Building upon the communication skills of listening and responding, the student develops the therapeutic skills of interpersonal relationships. All nursing systems will be utilized as the student makes application to the care of clients experiencing psychosocial deviations. Grade of C- or better required. Prerequisite(s): NURS 153, 154, 156, 157, 210, 246, and 258 or consent of program director. Corequisite(s): NURS 211 and NURS 246. Restricted to: Carlsbad campus only.

**NURS 260 - Management of Patients with Health Deviations (2 cr.)**

A capstone experience to the nursing program in which principles in management and delegation to less prepared personnel is explored. Includes the development of delegation skills while directing client activities in a work setting, and the development of the beginnings of nursing leadership roles. During this experience, the student makes application of all knowledge gained throughout the nursing curriculum. A review of leadership roles, legal issues and scope of practice with preparation for the NCLEX is included. Grade C- or better required. Lab fee included to cover cost of NCLEX review. Prerequisite(s): NURS 153, 154, 156, 157, 210, 211, 246, and 258 or consent of program director. Corequisite(s): NURS 212 and NURS 256. Restricted to: Carlsbad campus only.

**NURS 270 - The Adult Client II (5 cr. (2+9P))**

Care of adult clients experiencing chronic, life-threatening, and end-of-life health alterations with emphasis on the geriatric population using a holistic approach to wellness. Nursing process, pathophysiology, pharmacology, diet therapy, and alternative therapies are stressed throughout the course. Clinical component will provide an opportunity to apply the nursing process in both the hospital and community setting. Prerequisite(s): NURS 170, NURS 172, NURS 173L, NURS 180, and NURS 185. Corequisite(s): NURS 285. Restricted to: Community Colleges only.

**NURS 272 - Care for the Aging Client (1 cr.)**

Normal physiological changes of aging and nursing implications related to safety and wellness. Restricted to: Community Colleges only. Restricted to NURS majors.

**NURS 275 - Holistic Approach to Pharmacotherapeutic Interventions II (2 cr.)**

Level II. Holistic approach to the study of basic pharmacology concepts. Includes pharmacodynamic phases of drug interaction. Nursing process is discussed in relation to medication administration. Special emphasis on the role of the nurse and basic concepts related to specific drug categories. Prerequisite: NURS 185. Corequisites: NURS 280 and NURS 283. Restricted to majors. Community Colleges only.

**NURS 280 - Women's Health Issues (4 cr. (2+6P))**

Consists of lecture and associated clinical/laboratory experiences that focus on the holistic health concerns for women and the care of families expecting birth. Emphasis placed on the wellness of normal and high-risk women's health,

including maternal and newborn care. The nursing process will be utilized to develop caring interventions and effective community communication through teaching healthy strategies. Prerequisite(s): NURS 170 and NURS 180. Corequisite(s): NURS 275 and NURS 283. Restricted to: Community Colleges only.

**NURS 282 L - Practicum: Management of Client Care (1 cr. (3P))**

Organization and delivery of wellness care services for groups of clients based on the nursing process. Prerequisite(s): NURS 170, NURS 172, NURS 173L, NURS 180, and NURS 185. Corequisite(s): NURS 284L. Restricted to: Community Colleges only.

**NURS 283 - Pediatric Nursing (4 cr. (2+6P))**

Consists of lecture and associated clinical and laboratory experiences which focus on the care of children from infancy through adolescence including acute and chronic health care problems. Employs nursing process, pathophysiology, pharmacology, and diet therapy through the holistic approach to wellness. Prerequisite(s): NURS 170 and NURS 180. Corequisite(s): NURS 275, NURS 280. Restricted to: Community Colleges only.

**NURS 284 L - Practicum: Preceptorship (3 cr. (9P))**

Clinical experience in a leadership role in specific practice areas enhancing the transition from student to practitioner utilizing the holistic approach to wellness. Prerequisite(s): NURS 182. Corequisite(s): NURS 282L. Restricted to: Community Colleges only.

**NURS 285 - Holistic Approach to Pharmacotherapeutic Intervention III (1 cr.)**

Level III. Holistic approach to the study of basic pharmacology concepts. Includes pharmacodynamic phases of drug interaction. Nursing process is discussed in relation to medication administration. Special emphasis on the role of the nurse and basic concepts related to specific drug categories. Prerequisite(s): NURS 185 and NURS 275. Corequisite(s): NURS 270. Restricted to: Community Colleges only.

**NURS 290 - Pathophysiology I (1-3 cr.)**

An introduction to pathophysiologic concepts using a body systems approach. Prerequisite: BIOL 226 or BIOL 254. Restricted to: Community Colleges only.

**NURS 291 - Pathophysiology II (1-3 cr.)**

A continuation of materials presented in NURS 290, Pathophysiology I, covering the remaining body systems. Prerequisite(s): BIOL 226 or 254 and NURS 290 or consent of program director. Restricted to: Community Colleges only.

**NURS 293 - Introduction to Nursing Concepts (3 cr.)**

This course introduces the nursing student to the concepts of nursing practice and conceptual learning. Same as NMNEC course no.: NMNEC101. Corequisite(s): NURS 294, NURS 362. Prerequisite(s): Admission to Nursing Program. Restricted to: BSN, BSNP, BSNR, NURS majors. Restricted to Las Cruces campus only.

**NURS 294 - Principals of Nursing Practice (4 cr.)**

This course introduces the nursing student to the application of concepts through clinical skills in seminar, laboratory, and/or clinical settings. Principles of communication, assessments, safety, and interventions including accurate calculation, measurement, and administration of medications will be included. Same as NMNEC course no.: NMNEC102. Corequisite(s): NURS 293, NURS 362. Prerequisite(s): Admission to the nursing program. Restricted to: NURS majors. Restricted to Las Cruces campus only.

**NURS 300 - Principles of Professional Nursing Practice (7 cr. (4+6P))**

Focus on the principles, concepts, theories, and terminology central to the study of nursing and its evolution. Uses the nursing process as a framework for providing research-based professional nursing care. Includes clinical component. Restricted to Majors. Restricted to BSN, BSNP, BSNR, NURS majors.

**NURS 302 - Foundations of Health Assessment (3 cr. (2+2P))**

Theoretical basis and skills for biopsychosocial assessment of adults. Includes clinical component. Restricted to BSN, BSNP, BSNR, NURS majors.

**NURS 303 - Professional Nursing (4 cr.)**

Uses the nursing process as a framework for providing professional nursing care. Focus on the principles, concepts, theories, and terminology basic to the study of nursing and in the evolution of nursing and nursing education.

**NURS 314 - Computer Technology for Nurses (3 cr.)**

Introduction to health care informatics and its use in nursing practice. Focus includes electronic communication resources, issues and technological applications that support nursing and health care.

**NURS 315 - Introduction to Professional Nursing for the R. N. (3 cr.)**

Transition course for the R.N. providing an overview of theories and concepts that are the bases for professional nursing practice.

**NURS 322 - Nursing Health Assessment (3 cr.)**

Theoretical basis for the biopsychosocial assessment of individual patients across the life span for the RN. Restricted to Majors.

**NURS 324 - Nursing Care of the Older Adult (3 cr.)**

Survey course addressing nursing care provisions for the elderly population in a variety of acute, community and home settings.

**NURS 325 - Human Pathophysiology for Nursing (3 cr.)**

Concepts of alteration and adaptation in structure and function of the human body across the life span.

**NURS 326 - Pharmacology in Clinical Nursing Practice (4 cr.)**

Pharmacological concepts and principles and their implications for nursing practice. Includes techniques of dosage calculation for medication and fluid administration. Restricted to BSN, BSNP, BSNR, NURS majors.

**NURS 328 - Human Pathophysiology Foundation for Nursing (4 cr.)**

Human pathophysiology concepts of adaptation and alteration in function and structure across the life span and their implications for nursing practice. Corequisite(s): NURS 362, NURS 293, NURS 294. Prerequisite(s): Grade of C- or better in both BIOL 253 and BIOL 254. Restricted to: BSN, BSNP, BSNR majors.

**NURS 337 - Foundations of School Nursing (3 cr.)**

Orientation to school nursing. Overview of health care in the schools. Qualifications, roles, and functions of school nurses. Health needs of diverse school populations, legal mandates for school health, and components of school nursing.

**NURS 352 - Bioterrorism (3 cr.)**

Examines the role of today's nurse in the face of real or potential radiological and chemical threats. Emphasis is placed on clinical and public education and safety as well as nursing/logical responses. Taught online.

**NURS 353 - Nursing Informatics (3 cr.)**

This course addresses nursing informatics principles and practices. Key concepts include relationship with evidence-based nursing practice, use of decision support systems, clinical information systems, telehealth, and standardized nursing language. Restricted to BSNC majors.

**NURS 360 - Introduction to Nursing Concepts (3 cr.)**

This course introduces the nursing student to the concepts of nursing practice and conceptual learning. Same as NMNEC course no.: NMNEC101 Corequisite(s): NURS 361, NURS 362. Prerequisite(s): Admission to Nursing Program. Restricted to: NURS majors.

**NURS 362 - Evidence Based Practice (3 cr.)**

The focus of this course is the principles of evidence based nursing practice. It includes the identification of clinical practice problems, the evaluation of available evidence, and the integration of evidence with clinical expertise and patient preferences in application to practice. Same as NMNEC course no.: NMNEC103. Corequisite(s): NURS 293, NURS 294. Prerequisite(s): Admission to the nursing program. Restricted to: NURS majors.

**NURS 372 - Adult Health Nursing I (8 cr. (4+8P))**

Theoretical basis for select acute and chronic illnesses related to adults is provided, and critical thinking is used to plan nursing care. Includes clinical component.

**NURS 373 - Nursing the Psychiatric-Mental Health Client (5 cr. (3+4P))**

Theoretical and practical knowledge applied to provision of psychiatric-mental health nursing service across the health care continuum. Includes clinical component. Restricted to BSN, BSNR, BSNP, NURS majors.

**NURS 375 - Introduction to Nursing Research (3 cr.)**

Introduction to scientific inquiry. Evaluation and utilization of nursing research for clinical practice. Prerequisite(s): (STAT/A ST 251G, A ST 311, OR STAT 271G) and (NURS 303, NURS 326, and NURS 328) or consent of instructor. Restricted to BSN, BSNP, BSNR, NURS majors.

**NURS 376 - Research and Evidence-Based Practice for the Practicing RN (3 cr.)**

Course provides introduction to evidenced-based practice and research principles for the practicing RN. Evidence-based practice principles and processes are covered. Foundations of research (quantitative and qualitative) research designs and research evaluation are included. Emphasis is placed on ethical and practical issues in critiquing and using research/evidence-based findings. Prerequisite(s): A ST 311, or admission to RN-BSN Option with consent of instructor. Restricted to BSNC majors.

**NURS 377 - Health and Illness Concepts I (3 cr.)**

This course will focus on health and illness concepts across the lifespan. Concepts covered are related to homeostasis/regulation, sexuality/reproductive, protection/movement and emotional processes. Same as NMNEC course no.: NMNEC201 Corequisite(s): NURS 378, NURS 379, NURS 380. Prerequisite(s): NURS 294, NURS 293 & NURS 362. Restricted to: NURS majors.

**NURS 378 - Health Care Participant (3 cr.)**

This course introduces the nursing student to the attributes of the health care participant as an individual, a family, or a community. Same as NMNEC course no.: NMNEC202. Corequisite(s): NURS 377, NURS 379, NURS 380. Prerequisite(s): NURS 293, NURS 294 & NURS 362. Restricted to: NURS majors.

**NURS 379 - Nursing Pharmacology (3 cr.)**

This course introduces the nursing student to pharmacologic nursing practice from a conceptual approach. Same as NMNEC course no.: NMNEC203. Corequisite(s): NURS 328. Prerequisite(s): BIOL 253 & BIOL 254 OR SP M 271 & SP M 371 OR BIOL 225 & BIOL 226. Restricted to: BSN, BSNP, BSNR, NURS majors.

**NURS 380 - Assessment and Health Promotion (4 cr.)**

This course introduces the nursing student to the assessment of and the health promotion for the health care participant as an individual, a family, or a community. This course uses seminar, laboratory and/or clinical settings. Same as NMNEC course no.: NMNEC204. Corequisite(s): NURS 377, NURS 378, NURS 379. Prerequisite(s): NURS 293, NURS 294, NURS 362. Restricted to: NURS majors.

**NURS 395 - Health and Illness Concepts II (3 cr.)**

This course will cover health and illness concepts across the lifespan. Concepts covered are related to oxygenation and hemostasis, homeostasis and regulation, protection and movement, and cognitive and behavioral processes. Same as NMNEC course no.: NMNEC301. Corequisite(s): NURS 396, NURS 398. Prerequisite(s): NURS 328, NURS 377, NURS 378, NURS 379, NURS 380. Restricted to: BSN, BSNP, BSNR, NURS majors.

**NURS 396 - Professional Nursing Concepts I (3 cr.)**

This course covers foundational concepts for professional development, including selected professional attributes and care competencies. Same as NMNEC course no.: NMNEC302. Prerequisite(s): NURS 328, NURS 377, NURS 378, NURS 379, NURS 380. Restricted to: BSN, BSNP, BSNR, NURS majors.

**NURS 397 - Special Topics (1-9 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated for at total of 21 credits.

**NURS 398 - Care of Patients with Chronic Conditions (4 cr. (8P))**

The focus of this course is to provide safe, evidence-based nursing care for patients with chronic conditions, across the lifespan in a variety of settings. This course builds upon curricular concepts. This course is a combination of lab and clinical. Same as NMNEC course no.: NMNEC303. Corequisite(s): NURS

395, NURS 396. Prerequisite(s): NURS 328, NURS 377, NURS 378, NURS 379, NURS 380. Restricted to: BSN, BSNP, BSNR, NURS majors.

**NURS 410 - Adult Health Nursing II (6 cr. (3+6P))**

Focus is on the use of critical thinking to plan nursing care of adults with selected complex illnesses. Clinical component included.

**NURS 415 - Parent-Child Nursing (8 cr. (4+8P))**

Concepts and principles of nursing applied to healthy and ill infants, children, adolescents, and childbearing women within the context of the family. Includes clinical component.

**NURS 416 - Older Adult Nursing (2 cr.)**

Introduction to aging, health problems and issues associated with aging. Implications for nursing care of the elderly.

**NURS 420 - Community Health Nursing (3 cr.)**

Concepts basic to the nursing care of families, groups, and communities with an emphasis on health promotion, disease prevention, and health maintenance.

**NURS 426 - Community Health Nursing for the R.N.: Clinical (3 cr. (6P))**

Nursing process applied to the care of families, groups, and communities.

**NURS 460 - Strategies for Student Success (3 cr.)**

This course is designed to assist and support students as they identify learning needs and develop a plan for successfully mastering nursing knowledge. Course activities and assignments will be designed to address student's self-identified learning goals to enhance their opportunity for success. Restricted to NURS, BSN, BSNP, BSNR majors.

**NURS 465 - Physical Assessment and Evaluation of Child Abuse (3 cr.)**

This course will acquaint the student with physical assessment of specific injuries found in children who have experienced physical abuse and neglect. Topics will include patient interviewing techniques, taking a medical history, evaluating developmental milestones, and elements of the physical examination. Consent of instructor required.

**NURS 466 - Health and Illness Concepts III (4 cr.)**

This course will cover health and illness concepts across the lifespan. Concepts covered are related to hemostasis/regulation, oxygenation/homeostasis, protection/movement, and emotional processes. Same as NMNEC course no.: NMNEC401. Corequisite(s): NURS 467, NURS 468. Prerequisite(s): NURS 360, NURS 361, NURS 362. Restricted to: BSN, BSNP, BSNR, NURS majors.

**NURS 467 - Clinical Intensive I (4 cr. (0-1)+(0-6P))**

This is the first of two Level Four clinical courses in which the student will apply the curricular concepts in the management of care participants with acute conditions across the lifespan. This course is a combination of seminar, lab, and clinical. Same as NMNEC course no.: NMNEC402. Corequisite(s): NURS 466, NURS 468. Prerequisite(s): NURS 395, NURS 396, NURS 398. Restricted to: BSN, BSNP, BSNR, NURS majors.

**NURS 468 - Clinical Intensive II (3 cr.)**

This is the second of two Level Four clinical courses in which the student will apply the curricular concepts in the management of care participants with acute conditions across the lifespan. This course is a combination of seminar, lab, and clinical. Same as NMNEC course no.: NMNEC404. Corequisite(s): NURS 466, NURS 467. Prerequisite(s): NURS 395, NURS 396, NURS 398. Restricted to: BSN, BSNP, BSNR, NURS majors.

**NURS 470 - Nursing Organization and Management (3 cr.)**

Concepts of organization and delivery of care to groups of patients based on the nursing process. Emphasis on the roles of the nurse as manager, leader, and change agent within health-care organizations.

**NURS 472 - Community and Population Focused Nursing (6 cr. (3+6P))**

Synthesis of nursing, social, and public health science to develop health promotion, disease prevention, and protection strategies for communities and populations. Clinical component included.

**NURS 475 - Issues and Trends in Professional Nursing (3 cr.)**

Explores the challenges associated with issues and trends in health care and the legal and ethical implications of professional nursing practice.

**NURS 476 - Nursing Organization & Management for the R.N.: Clinical (3 cr. (6P))**

Nursing process applied to organization, management, and delivery of health care. An integrating experience for the R.N. student designed to facilitate the transition to professional practice. Students work with mentors in a clinical setting to develop professional nursing roles related to leadership and management.

**NURS 477 - Nursing Organization and Management for the RN (3 cr.)**

Course covers nursing organization, leadership, and management principles, theories, and research for the practicing RN. Restricted to BSNC majors.

**NURS 479 - Nursing Care for Complex Patients (8 cr. (2+12P))**

Principles and priorities of nursing care for patients across the life span experiencing complex care problems. Includes integrating experiences designed to facilitate the transition from student to professional nurse. Includes clinical component.

**NURS 486 - Concept Synthesis (3 cr.)**

This course will focus on the synthesis of curricular concepts in the care of complex patients. Same as NMNEC course no.: NMNEC501. Corequisite(s): NURS 487, NURS 488, NURS 489. Prerequisite(s): NURS 466, NURS 467, NURS 468. Restricted to: BSN, BSNP, BSNR, NURS majors.

**NURS 487 - Professional Nursing Concepts II (3 cr.)**

This course covers policy concepts for professional nursing. Same as NMNEC course no.: NMNEC502. Prerequisite(s): NURS 466, NURS 467, NURS 468. Restricted to: BSN, BSNP, BSNR, NURS majors.

**NURS 488 - Clinical Intensive III (4 cr.)**

The focus of this clinical course is application of the curricular concepts in the management of care participants with complex conditions across the lifespan. This course is a combination of seminar, lab, and clinical. Same as NMNEC course no.: NMNEC503. Corequisite(s): NURS 486, NURS 487, NURS 489. Prerequisite(s): NURS 466, NURS 467, NURS 468. Restricted to: BSN, BSNP, BSNR, NURS majors.

**NURS 489 - Capstone (4 cr.)**

The synthesis, integration, and application of concepts to professional nursing practice will be applied in the final clinical course to ensure readiness to enter practice. Same as NMNEC course no.: NMNEC504. Corequisite(s): NURS 486, NURS 487, NURS 488. Prerequisite(s): Successful completion of all previous nursing courses. Restricted to: BSN, BSNP, BSNR, NURS majors.

**NURS 490 - Independent Study (1-3 cr.)**

Individual studies with prior approval of department head.

**P E - PHYSICAL EDUCATION****P E 100 - Fly Fishing (1 cr.)**

An introduction to the sport of fly fishing. Following basic instruction a trip to an appropriate fishing venue will be required.

**P E 102 - Beginning Weight Training (1 cr.)**

Introduction to basic principles and techniques of weight training.

**P E 103 - Beginning Weight Training for Women (1 cr.)**

Introduction to basic principles and techniques of weight training as related to women.

**P E 104 - Military Physical Fitness (1 cr.)**

Directed physical fitness activities designed to develop and maintain muscular strength/endurance, cardiopulmonary efficiency, flexibility, and coordination required for leadership roles after graduation.

**P E 106 - Beginning Hapkido (1 cr.)**

Introductory course in Korean throwing, falling, pressure point and joint locking techniques. Movements are powerful yet suitable for people of any fitness level.

**P E 108 - Inline Hockey Fundamentals (1 cr.)**

The fundamentals of inline hockey will be taught through a series of instructional drills, including various skating techniques (forward, backward, step-over), ball/puck handling, shooting, and passing. The playing rules of the game (as regulated by USA Hockey Inline) will also be taught. Students will be evaluated on participation, a cumulative skills mastery test, and a written final exam.

**P E 109 - Pilates (1 cr.)**

Designed exercise program involves the entire body while focusing on strengthening the core muscles of the torso. Exercises promote coordination, balance, and strength.

**P E 110 - Sports Conditioning (1 cr.)**

Sport specific conditioning using aerobic and resistive overload training. Prerequisite: consent of instructor. May be repeated for a maximum of 4 credits.

**P E 112 - Beginning Volleyball for Men (1 cr.)****P E 113 - Beginning Volleyball for Women (1 cr.)****P E 114 - Basketball for Women (1 cr.)****P E 115 - Basketball for Men (1 cr.)****P E 117 - Beginning Soccer (1 cr.)**

Introduction to the basic techniques and skills of soccer.

**P E 127 - Cardio-Kickboxing (1 cr.)**

Activities that mimic punches, blocks, and kicks which have been modified to serve the purpose of providing a cardiovascular workout.

**P E 128 - Aerobic Dance (1 cr.)**

Designed to increase knowledge of the human body's responses to exercise, enhance the level of muscular development, and cardiovascular endurance with the use of music.

**P E 129 - Step Aerobics (1 cr.)**

Designed to increase knowledge of the human body's responses to exercise, enhance the level of muscular development, and cardiovascular endurance with the use of music and steps.

**P E 130 - Beginning Swimming (1 cr.)****P E 131 - Aqua Aerobics (1 cr.)**

Designed to increase knowledge of the human body's responses to exercise, enhance the level of muscular development, and cardiovascular endurance through exercise in water.

**P E 132 - Intermediate Swimming (1 cr.)**

Development of fitness through participation in aquatics activities. Prerequisite(s): Ability to swim 200 yards.

**P E 133 - Water Polo (1 cr.)**

Fundamentals and team play for men and women. May be repeated one time. Prerequisite: P E 130 or ability to swim 100 yards.

**P E 134 - Lifeguard Training (2 cr.)**

Skills training for a nonsurf lifeguard. Course will include Standard First Aid and CPR certification. Prerequisites: swim 500 yards, dive to 9-foot depth and retrieve a 10-pound brick, surface dive to 5 feet then swim under water 15 yards, tread water one minute.

**P E 135 - Springboard Diving (1 cr.)**

May be repeated one time. Prerequisite: ability to swim in deep water.

**P E 147 - Beginning Tennis (1 cr.)****P E 148 - Beginning Racquetball (1 cr.)****P E 150 - Beginning Golf (1 cr.)****P E 153 - Beginning Karate (1 cr.)****P E 154 - Personal Defense (1 cr.)**

Physical conditioning and defense skills for men and women.

**P E 155 - Beginning Judo (1 cr.)****P E 157 - Archery (1 cr.)****P E 158 - Beginning Kung Fu (1 cr.)**

Foundations of Chinese martial arts, self defense, and health systems with special emphasis on the Wing Chun style.

**P E 159 - Introduction to Brazilian Jiu-Jitsu (1 cr.)**

Brazilian Jiu-Jitsu is primarily a ground fighting art. This course will place heavy emphasis on positional strategy and focus on the sportive aspect of the sport. A Judo/Jiu-Jitsu Gi (uniform) is required.

**P E 166 - Futsal (Five-A-Side Soccer) (1 cr.)**

Futsal, official form of indoor soccer, approved by FIFA.

**P E 173 - Running Fitness (1 cr.)**

Basic fitness knowledge techniques and training methods of fitness running are practiced and refined.

**P E 199 - Yoga (1 cr.)**

A holistic approach to exercise benefiting the body, mind, and spirit. Practices focus on alignment, strength, breath relaxation, and restoration.

**P E 200 - Introduction to Sailing (1 cr.)**

Course designed to introduce the student to this recreational activity. Two full day outings to sailing venues are required. Travel expenses and associated fees are the responsibility of the student.

**P E 202 - Intermediate Weight Training (1 cr.)**

Intermediate training and skill techniques in weight lifting. Prerequisites: P E 102 or consent of department head.

**P E 203 - Weight Training for Olympic and Powerlifting (1 cr.)**

Designed to teach the Olympic form-the clean, jerk and snatch. Class format is a preprogrammed style of instruction with preset programs. Emphasis placed on developing sound lifting techniques. Prerequisite(s): P E 103 or consent of department head.

**P E 204 - Cross Training (1 cr.)**

Intensive training program that incorporates both aerobic and resistive overload approaches to training.

**P E 205 - Walking Fitness (1 cr.)**

Basic fitness knowledge techniques and training methods of fitness walking are practiced and refined.

**P E 206 - Beginning Physical Fitness (1 cr.)**

Progressive exposure to steady state exercise tailored to individual needs for the purpose of determining, improving, and maintaining physical fitness.

**P E 207 - Triathlon (1 cr.)**

To prepare the student to participate in triathlon races, which include running, swimming, and bicycling.

**P E 208 - Marathon Preparation (1 cr.)**

Gradual training progression for novice and experienced runners to develop and/or refine a training program enabling completion of or better personal record for the marathon. Discussions on equipment, nutrition, injury prevention and treatment. Prerequisite: presently running three miles, three to four times per week.

**P E 209 - Intermediate Pilates (1 cr.)**

Intermediate training and skill techniques in Pilates. Prerequisite(s): PE 109 or consent of instructor.

**P E 210 - Orienteering (2 cr.)**

Same as GEOG 210.

**P E 212 - Intermediate Volleyball-Men (1 cr.)**

Prerequisite: P E 112 or consent of department head.

**P E 213 - Intermediate Volleyball-Women (1 cr.)**

Prerequisite: P E 113 or consent of department head.

**P E 215 - Intermediate Walking (1 cr.)**

A continuation of basic fitness knowledge techniques and training methods of fitness walking are practiced and refined. Prerequisite: P E 205 or consent of department head.

**P E 216 - Advanced Walking (1 cr.)**

Advanced walking fitness and training techniques are presented, practiced, and refined.

**P E 224 - Intermediate Jazz (1 cr.)**

Prerequisite: P E 124 or consent of instructor.

**P E 228 - Intermediate Aerobic Dance (1 cr.)**

Aerobic dance at a high intensity level with a more in-depth study of the body's physiological response to exercise. Prerequisite: P E 128 or consent of department head.

**P E 229 - Intermediate Step Aerobics (1 cr.)**

Step aerobic dance at a high intensity level with a more in-depth study of the body's physiological response to exercise. Prerequisite: P E 129 or consent of department head.

**P E 230 - Advanced Swimming (1 cr.)**

Perfection of basic strokes, survival swimming, and physical fitness. Prerequisite(s): P E 130 or ability to swim 100 yards.

**P E 234 - Water Safety Instructor (2 cr.)**

To become proficient in the WSI program as stipulated by the American Red Cross. IHSE, Standard First Aid, and CPR training included. Prerequisite: must have a current Water Emergency or Lifeguard Training certificate.

**P E 247 - Intermediate Tennis (1 cr.)**

Prerequisite: P E 147 or consent of department head.

**P E 248 - Intermediate Racquetball (1 cr.)**

Advanced skills and strategies in racquetball. Prerequisite: P E 148 or consent of instructor.

**P E 250 - Intermediate Golf (1 cr.)**

Prerequisite: P E 150 or consent of department head.

**P E 253 - Intermediate Karate (1 cr.)**

Prerequisite: P E 153 or consent of department head.

**P E 255 - Intermediate Judo (1 cr.)**

Designed for the student who is already familiar with the basic history, terminology, and fundamental techniques of Judo up to the 7th Kyu level. The curriculum will cover the Kyu requirements up to 4th Kyu. Prerequisite: P E 155 or consent of department head.

**P E 259 - Intermediate Brazilian Jiu-Jitsu (1 cr. (2P))**

Builds upon material learned in Introduction to Brazilian Jiu-Jitsu. Positional dominance will still be stressed but with more focus on submissions. Prerequisites: P E 159 or consent of department head.

**P E 263 - Outdoor Recreation Skills (1 cr.)**

Selected outdoor activities. Appropriate subtitles, such as hiking and backpacking, camping and survival, hunting and gun safety, casting and angling skills. May be repeated for maximum of 4 credits.

**P E 264 - Intermediate Cycling (1 cr.)**

Introduction to competitive cycling. Content includes techniques in training, riding, racing, and racing tactics.

**P E 270 - Special Topics (1-3 cr.)**

Specific subjects to be announced in the Schedule of Classes. Each offering will carry appropriate subtitle. May be repeated for a maximum of 4 credits.

**PE 276 - Intermediate Aqua Aerobics (1 cr.)**

A continuation of basic fitness to increase knowledge of the human body's responses to exercise, enhance the level of muscular development and cardiovascular endurance through exercise in water.

**PE 299 - Intermediate Yoga (1 cr.)**

Intermediate training and skill techniques in Yoga. Prerequisite(s): PE 199 or consent of instructor.

**PE 310 - Advanced Weight Training: Theory and Practice (3 cr.)**

For men and women who wish to continue weight training and learn principles of strength training.

**PE 336 - Scuba Diving (2 cr.)**

Prerequisites: 1/4 mile continuous swim, 20-minute survival float, 75-foot underwater swim, and towing a person 100 yards. Medical exam required.

**PE 401 - Advanced Scuba Diving (2 cr. (1+3P))**

Provides divers a structured means to explore special diving interests and gain dive experience. Allows student divers to customize their training path and learn various underwater tasks that broaden their awareness of the environment and their capabilities as divers. Prerequisite: PADI Open Water Certification or consent of instructor. Must pass a basic diving skills and knowledge assessment. Medical exam required.

**PE P - PHYSICAL EDUCATION****PE P 185 - Introduction and Foundations (3 cr.)**

Historical and cultural foundations and vocational, scientific, and educational data on careers in health education, physical education, and recreation. Restricted to: Main campus only.

**PE P 195 - Theory and Technique of Athletics (1 cr.)**

Knowledge and skills related to fundamental motor skills, tumbling, track, and field.

**PE P 208 - Fitness for Health and Sport (3 cr.)**

A study of the fitness needs for health enhancement and sport participation. Restricted to: PE, SP, M, KIN, S ED majors.

**PE P 210 - Theory and Technique of Aquatics (2 cr.)**

Introduction to fundamental aquatics knowledge and skills. Prerequisite(s): Ability to swim 100 yards.

**PE P 213 - Practicum (1-2 cr.)**

Directed leadership learning activities for careers in educational, governmental, social, and commercial agencies. Prerequisites: PE P 296 required for coaching-related practicum. Maximum of 2 credits per semester and a total of 4 credits.

**PE P 216 - Individual Activities (2 cr.)**

Knowledge and skills related to the individual activities of track and field, aerobics, and weight training with emphasis on developmental strategies and skill performance that influence pedagogical content knowledge. Administrative issues will be addressed.

**PE P 217 - Dance and Movement (1 cr. (2P))**

Knowledge and skills related to dance movement, with emphasis on the analysis of dance elements, its role in movement education, the arts, and in cultural and multicultural areas.

**PE P 218 - Outdoor Activities (1 cr. (2P))**

Knowledge, skill, techniques, policies and procedures related to selected outdoor recreation activities. Class utilizes lectures, small group activities, and outdoor field experiences for an introduction to outdoor recreation activities.

**PE P 280 - Perceptual Motor Development (3 cr.)**

Designed primarily for early childhood workers in day care centers, nursery and Head Start programs. Focus upon perceptual development in the young child, sequential skill progression, assessment, remediation activities through lab involvement.

**PE P 281 - Theory and Technique of Fundamental Motor Skills (1 cr.)**

Knowledge and skills related to fundamental motor skills with emphasis on the developmental, kinesiological, and psychological foundations of fundamental motor skill performance.

**PE P 286 - Wellness and Lifestyle Choices (3 cr.)**

A multidisciplinary study in personal decision-making (choices) as it relates to wellness. Issues in fitness, nutrition, and stress will be discussed.

**PE P 296 - Theory of Coaching I (3 cr.)**

Focus on areas of academic theory associated with coaching athletics. Orientation: theoretical and practical application.

**PE P 302 - Coaching Baseball (2 cr. (1+2P))**

Emphasis on the technical and ethical aspects of coaching baseball. Prerequisite: junior standing.

**PE P 306 - Coaching Softball (2 cr. (1+2P))**

Covers the technical and ethical aspects of softball coaching. Prerequisite: junior standing.

**PE P 311 - Organization and Administration (3 cr.)**

Organization and administration of physical education programs at the public school and collegiate levels. Prerequisites: PE P 185 or consent of instructor.

**PE P 313 - Practicum (1-2 cr.)**

Directed leadership learning experiences for careers in educational, governmental, social and commercial agencies. A maximum of 2 credits during any one semester and a grand total of 4 credits. Prerequisites: sophomore standing and consent of instructor; PE P 296 required for coaching related practicum.

**PE P 315 - Elementary School Physical Education (3 cr. (2+2P))**

Methods for teaching physical education at the elementary level. Primary focus on creating a learning environment for the acquisition and enhancement of developmentally appropriate locomotor, manipulative, and nonmanipulative skills. Field experience included. Consent of instructor required. Prerequisite(s): GPA of 2.5. Restricted to SED/PE P majors.

**PE P 318 - Lifetime Activities I (2 cr.)**

Knowledge and skills related to the lifetime sports of tennis, racquetball, handball, and golf. Emphasis on learning progression for these sports.

**PE P 319 - Lifetime Activities (2 cr.)**

Knowledge and skills related to the lifetime activities of swimming, weight training, and other fitness promoting activities with emphasis on learning progressions. Prerequisite(s): PE P 208.

**PE P 321 - Team Sports I (2 cr.)**

Knowledge and skills related to the team sports of flag football, soccer, and softball with emphasis on developmental strategies and skill performance that influences pedagogical content knowledge. Administrative issues will be addressed.

**PE P 322 - Team Sports II (2 cr.)**

Knowledge and skills related to the team sports of basketball, volleyball, and team handball with emphasis on developmental strategies and skill performance that influence pedagogical content knowledge. Administrative issues will be addressed.

**PE P 323 - Racquet Sports (2 cr.)**

Knowledge and skills related to the racquet sports of tennis, badminton, and pickleball with emphasis on developmental strategies and skill performance that influences pedagogical content knowledge. Administrative issues will be addressed.

**PE P 346 - Personal Training (3 cr.)**

Combines the theoretical aspects of personal training and associated practical experiences which prepare students to sit for personal training certification by the National Council on Strength and Fitness.

**PE P 363 - Theory and Technique of Lifelong Outdoor Leisure Activities (2 cr.)**

Knowledge and skills related to lifelong outdoor leisure activities, including the examination of environmental science and awareness, kinesiology, and fundamental motor skills.

**PE P 392 - Theory and Technique of Sports and Games (2 cr.)**

Knowledge and skills related to team sports and games, with emphasis on developmental strategies and skill performance that influence pedagogical content knowledge. Administrative issues will also be addressed.

**PE P 393 - Theory and Technique of Dance and Rhythms (2 cr.)**

Knowledge and skills related to dance and rhythms, with emphasis on the analysis of dance elements and its role in physical education.

**PE P 394 - Designing Student Centered Afterschool Physical Activity Clubs (2 cr.)**

Knowledge, skills and field based practical application for creating student centered and student designed after school physical activity clubs.

**PE P 410 - Physical Education Curriculum and Assessment (3 cr.)**

Theoretical and practical applications for curriculum development and assessment. Provides the opportunity to develop curricula and a variety of authentic assessments in physical education settings. Consent of instructor required. Corequisite(s): PE P 466. Restricted to PE P majors.

**PE P 455 - Adapted Physical Education (3 cr.)**

Selection and scope of corrective activities in posture and body mechanics, and the adaptation of movement activities for the exceptional student. Prerequisite: junior or senior standing.

**PE P 465 - Senior Seminar (3 cr.)**

Capstone course for physical education. Prerequisite: senior standing. Graded S/U.

**PE P 466 - Methods of Teaching Secondary Physical Education (6 cr.)**

Theoretical and practical applications of curriculum, pedagogy and assessment for teaching secondary physical education. Provides the students opportunities to develop curriculum, teach, and assess student learning through a supervised practicum in both middle and high school physical education settings. Consent of instructor required. Prerequisite(s): PE P 315 and admittance to TEP required.

**PE P 499 - Problems (1-3 cr.)**

Problems in physical education and recreation and independent work in their solutions. A maximum of 3 credits during any one semester. May be repeated up to 6 credits. Consent of Instructor required.

**PHIL - PHILOSOPHY****PHIL 100G - Philosophy, Law and Ethics (3 cr.)**

An introduction to practical problems in moral, social, political, and legal philosophy. Topics to be discussed may include ecology, animal rights, pornography, hate speech on campus, same-sex marriage, justice, abortion, terrorism, treatment of illegal immigrants, and New Mexican Aboriginal Peoples' land claims.

**PHIL 101G - The Art of Wondering (3 cr.)**

Introduction to some of the main problems of philosophy, with an emphasis on critical thinking. Philosophy conceived as an aid to living in this world with oneself and with others.

**PHIL 124G - Philosophy of Music (3 cr.)**

This is an introductory course in the philosophy of music. This course will survey three questions: What is music? Why is music important? How can we distinguish good music from bad music? We will draw examples from a wide variety of musical genres, from classical music, jazz and blues to punk and rap. Students will be encouraged to apply philosophical theorizing to think about their preferred musical form.

**PHIL 136G - The Quest for God (3 cr.)**

An effort to understand the religious life; a consideration of some of the traditional approaches to God and what it means to be religious.

**PHIL 201G - Introduction to Philosophy (3 cr.)**

Selected problems within the main branches of philosophy: metaphysics, theory of knowledge, ethics. Practice given in critical thinking.

**PHIL 211G - Informal Logic (3 cr.)**

Logical analysis of ordinary language, construction of definitions, argumentation, analysis of fallacious modes of thought and basic rhetorical considerations.

**PHIL 223G - Ethics (3 cr.)**

The philosophical explication of morality. Significant ethical systems developed in the history of Western thought.

**PHIL 302 - Business Ethics (3 cr.)**

An analysis of the ethical issues that arise in contemporary business life, including the obligations businesses and employees have to each other, consumers, society and the environment.

**PHIL 303 - Asian Philosophy (3 cr.)**

Survey of the most important philosophies of the East; emphasis is on the basic teachings.

**PHIL 305 - Philosophy and Literature (3 cr.)**

Examination of philosophical ideas as presented in selected literary works and literary criticism.

**PHIL 306 - Philosophy Through Film (3 cr.)**

An exploration of a range of philosophical issues through the use of film. Topics include personal identity and memory, faith and the problem of evil, free will and moral responsibility, and the meaning of life. Films may include *The Prestige*, *Memento*, *The Third Man*, *A Clockwork Orange*, *Fight Club*, and *Synecdoche, New York*.

**PHIL 312 - Formal Logic (3 cr.)**

Introduction to symbolic logic and its application in the analysis of arguments in scientific and ordinary discourse.

**PHIL 315 - Philosophy of Language (3 cr.)**

A critical examination of philosophical inquiries into the syntactic, semantic, and pragmatic dimensions of language.

**PHIL 316 - Philosophy of Mathematics (3 cr.)**

Survey of traditional philosophical problems and views concerning the nature of mathematics including such questions as: What is the nature of mathematical knowledge? What is mathematical truth? What is a number? What is proof? What is the relationship between logic and mathematics?

**PHIL 320 - Social and Political Philosophy (3 cr.)**

This course critically examines such fundamental concepts as liberty, equality and human rights.

**PHIL 321 - Biomedical Ethics (3 cr.)**

Examines ethical dimensions of such issues as abortion, euthanasia, and physician-assisted suicide; informed consent as a condition of treating patients and experimenting on subjects; genetic engineering; and alternative reproductive methods, including surrogate motherhood. Also considers what implications moral theories have for these issues.

**PHIL 322 - Environmental Ethics (3 cr.)**

Explores the ethical and topical issues raised by mining and grazing, air and water pollution, factory farming, global warming, and treatment of animals. It also studies some recent ecological movements such as ecofeminism, social ecology, and deep ecology.

**PHIL 323V - Engineering Ethics (3 cr.)**

The moral legal responsibilities of engineers to clients, employers, the public, and the environment. Topics include criteria for judging when risk is acceptable, the duty to safeguard public health and welfare, conflicts of interest, and whistle-blowing. Prerequisite: Junior standing or higher.

**PHIL 325 - Topics in Feminist Philosophy (3 cr.)**

Philosophical treatment of issues concerning women, gender, and feminism. Topics may include social and political equality, pornography and freedom of

speech, ethical issues raised by reproductive technologies, and feminist critiques of science.

**PHIL 327 - Ethics and Sports (3 cr.)**

Examines contemporary ethical issues related to sports, including the relationship between morally right action and that required for competitive success, strong paternalism in sports, fair play, doping, sportsmanship, and the impact of sports on society.

**PHIL 328 - Applied Ethics (3 cr.)**

Examines the implications of utilitarianism, Kantian ethics, natural law theory, and other moral theories for controversial moral issues such as the death penalty, euthanasia, abortion, genetic engineering, gay marriage, affirmative action, and pornography.

**PHIL 330 - Ethics and Biomedical Research (3 cr.)**

Explores some ethical issues raised by biological and biomedical research. Topics include: possible abuses of genetic engineering, cloning, and genetically modified foods; experimentation on humans and informed consent; animal experimentation; honesty in research and conflicts of interest; and intellectual property.

**PHIL 331 - Philosophy of Religion (3 cr.)**

The nature, fundamental concepts, and problems of religion. Emphasis on the significance of religion for creative and practical value.

**PHIL 332 - Ethics and Global Poverty (3 cr.)**

Philosophical scrutiny of and moral reflection on various aspects of global poverty and foreign aid. For example: Is poverty fundamentally a lack of income, or can it be understood as a failure to meet basic needs, or as a lack of valuable freedom? Do human rights exist? What, if any, are the moral obligations of rich countries to poor countries? Can foreign aid be immoral? How should the answers to these questions influence public policy? Restricted to: Main campus only.

**PHIL 341 - Ancient Philosophy (3 cr.)**

Introduction to the philosophies of the pre-Socratics, Socrates, Plato, Aristotle, with brief discussion of the Epicureans and Stoics.

**PHIL 344 - Modern Philosophy (3 cr.)**

Foundations of contemporary thought: introduction to the philosophies of Descartes, Bacon, Spinoza, Leibniz, Locke, Berkeley, Hume, Kant, and Hegel.

**PHIL 346 - Philosophy of Mind (3 cr.)**

Examination of some of the most influential accounts of the mind, focusing on such issues as the relation between the mind and the body, mental causation and consciousness.

**PHIL 350 - Epistemology (3 cr.)**

Introduction to epistemology. The philosophical critique of alleged ways of knowing. An examination of the nature of truth.

**PHIL 351 - Philosophy of Science (3 cr.)**

Philosophical examination of the methodology of science. The logical, metaphysical, epistemological, and ethical critique of science and its impact on human affairs.

**PHIL 361 - Special Topics (3 cr.)**

Specific subjects announced in the Schedule of Classes. May be repeated for a maximum of 9 credits.

**PHIL 363 - Independent Studies (1-3 cr.)**

For students with some background in philosophy. Independent work in a specific area. Prerequisite: consent of instructor. May be repeated for a maximum of 6 credits.

**PHIL 373 - Ethical Theory (3 cr.)**

The critical examination of the justification of ethical theories with particular attention to the language of moral discourse.

**PHIL 376 - Philosophy of Law (3 cr.)**

Ethical, logical, and epistemological implications of law, together with an analysis of the rhetoric of legal practice.

**PHIL 380 - Metaphysics (3 cr.)**

Introduction to metaphysics: a treatment of such issues as the meaning of existence, the mind-body problem, the problem of universals, and free will versus determinism.

**PHIL 413 - Modal Logic (3 cr.)**

A formal introduction to the logic of necessity, possibility, and impossibility: the syntactic and semantic aspects of the formal modal systems T, S4, S5, as well as their philosophical implications.

**PHIL 448 - Writing Philosophy (3 cr.)**

A workshop on writing philosophy papers. Includes how to read and understand philosophical writing, organize a paper effectively, present a clear and forceful argument, and avoid common mistakes. Prerequisite(s): completed 18 hours of philosophy credit.

**PHIL 463 - Independent Studies (1-3 cr.)**

For students with a strong background in philosophy. Independent work in a specific area. Prerequisite: consent of instructor. May be repeated for a maximum of 6 credits.

**PHLS - PUBLIC HEALTH SCIENCES**

**PHLS 100 - Introduction to Health Science (1 cr.)**

An overview of professional career opportunities in the realm of health science as well as the functional roles of practice, education, administration, and research. Some field trips will be required.

**PHLS 150G - Personal Health and Wellness (3 cr.)**

A holistic and multi-disciplinary approach towards promoting positive lifestyles. Special emphasis is placed on major problems that have greatest significance to personal and community health. Topics to include nutrition, stress management, fitness, aging, sexuality, drug education, and others.

**PHLS 275 - Foundations of Health Education (3 cr.)**

Role and responsibility of the health educator with emphasis on small group dynamics, oral and written communication skills, building community coalitions and an introduction to grant writing. Taught with PHLS 375. Cannot receive credit for both PHLS 275 and PHLS 375. Prerequisite(s): Either PHLS 100 or PHLS 150G, or consent of instructor.

**PHLS 295 - Essentials of Public Health (3 cr.)**

The course will focus on principles and major areas of public health, including ecological and total personal concept of health care system, epidemiological approaches to disease prevention and control. Consent of Instructor required.

**PHLS 300 - Drugs and Behavior (3 cr.)**

A multi-dimensional approach to drugs in society: pharmacology, cultural, legal applications and psychosocial influences on the individual and the environment.

**PHLS 301V - Human Sexuality (3 cr.)**

Examination of human sexuality from a variety of perspectives: cultural, sociological, physiological and psychological. Issues examined from viewpoints such as gender, individual, family, and professional roles.

**PHLS 305V - Global Environmental Health Issues (3 cr.)**

Introduction to global environmental health challenges in the 21st century with an emphasis on environmental problems as they affect public health and personal well-being.

**PHLS 320 - Human Stress Management (3 cr.)**

The physiology of stress, stress-related disease processes, and stress reduction through exercise and coping behaviors, and stress reduction techniques. Same as PE P 320.

**PHLS 355 - Responding to Emergencies (3 cr.)**

Concepts of advanced first aid and emergency care. Includes American Red Cross certification.



**PHLS 375 - Foundations of Community Health Education (3 cr.)**

Role and responsibility of the health educator, with emphasis on small-group dynamics, oral and written communication skills, building community coalitions, and an introduction to grant writing. Taught with PHLS 275. Cannot receive credit for both PHLS 275 and PHLS 375. Restricted to: Main campus, Grants campus.

**PHLS 380V - Women's Health Issues (3)**

A focus on the unique issues and problems that confront women today and how they affect the health of women.

**PHLS 395 - Foundations of Public Health (3 cr.)**

The course will focus on principles and major areas of public health, including ecological concepts of healthcare systems and epidemiological approaches to disease promotion and control.

**PHLS 450 - Epidemiology (3 cr.)**

Epidemiologic approaches to disease prevention and control. Factors influencing health status. Prerequisite(s): PHLS 471. Restricted to: PHTH majors.

**PHLS 451 - Biometrics and Health Research (3 cr.)**

Critical analysis of community health research and related methodologies. Prerequisite(s): A ST 311G. Restricted to: C HL majors.

**PHLS 452 - Environmental Health (3 cr.)**

Introduction to environmental health designed to address public health issues. Prerequisite(s): Junior or Senior standing. Restricted to: C HL, HNFS and E S majors. Crosslisted with: E S 454

**PHLS 453 - Occupational Health (3 cr.)**

Identification, control, and prevention of occupational diseases and injuries. Prerequisite(s): Junior or Senior standing. Restricted to: C HL and E S majors. Crosslisted with: E S 455

**PHLS 454 - Environmental Epidemiology (3 cr.)**

Covers thematic and research aspects, as well as methodological issues related to environmental health and epidemiology, along with international and national priorities. Prerequisites: PHLS 450 and PHLS 452.

**PHLS 457 - Administration of Health Programs (3 cr.)**

Covers administrative responsibilities, organizational theory, strategic planning, and systems theory as applied to the administration of a variety of health programs. Prerequisite(s): PHLS 395 or PHLS 450, or consent of instructor. Restricted to: C HL majors.

**PHLS 458 - Public Health Resources and Policy Analysis (3 cr.)**

Covers issues related to U.S.-health policy and allocation of resources. Examination of local, state, and federal public health and health care funding. Assessment of impact of health policy on health education, medical practice, and the workplace. Prerequisite: PHLS 457 or consent of instructor. Same as MPH 558.

**PHLS 459 - Infectious and Noninfectious Disease Prevention (3 cr.)**

History, etiology, and prevention of diseases affecting humans. Prerequisite(s): PHLS 395 or PHLS 470. Restricted to: PHTH majors.

**PHLS 460 - American Indian Health (3 cr.)**

Critical health issues facing American Indians in the contemporary world. Course included in the undergraduate American Indian Program minor.

**PHLS 461 - Health Disparities: Determinants and Interventions (3 cr.)**

Investigates: descriptions of health disparities and measurement issues; physical environmental factors, behavioral and emotional variables; impact of aging of the populations, increased racial and ethnic diversity, and technological developments; intervention strategies and evaluation results.

**PHLS 462 - Hispanic Health Issues (3 cr.)**

Cultural differences that aid or hinder communication with Hispanic clients and the application of cross-cultural communication skills. Some field trips may be required.

**PHLS 464V - Cross-Cultural Aspects of Health (3 cr.)**

An examination of health practices from a variety of cultural perspectives: communication, observation, research, and assimilation. Issues to be addressed will be examined from a number of viewpoints, such as individual, family, community, and professional roles.

**PHLS 465 - International Health Problems (3 cr.)**

Comparison of domestic health programs and problems with those in other parts of the world; emphasis on political parameters and delivery processes. Additional attention is focused on the health issues of the U.S.-Mexico border. Prerequisite: PHLS 395 or consent of instructor. Same as MPH 565.

**PHLS 466 - International Health Practicum (1-3 cr.)**

Intensive examination of health practices and beliefs from a cultural perspective. Focus on health structure, index of diseases, morbidity, mortality and epidemiological approaches to planning. Required travel (personal travel, lodging, and related expenses are extra).

**PHLS 467 - Rural Health Issues (3 cr.)**

Comprehensive overview of rural health services with Southwestern United States and New Mexico focus. Prerequisite: PHLS 395.

**PHLS 468 - Coping with Loss and Grief: A Cross-Cultural Perspective (3 cr.)**

A cross-cultural perspective to death, loss and grief. Hospice philosophy of caring for the dying will be included.

**PHLS 469 - U.S.-Mexico Border Health Issues (3 cr.)**

Interdisciplinary analysis of the impact of living conditions and health issues of communities along the U.S.-Mexico border and of the strategies and initiatives to address these issues. Problem-based learning, case analysis, lecture, guest speakers, computer based instruction, and field trips.

**PHLS 471 - Health Informatics (3 cr.)**

The application of technology to engage communities and individuals in behavioral and environmental change processes. The course will focus on the use of technology to describe the magnitude of health problems and their sources; analyze risk factors; identify community strengths from which strategies may be defined and tools created to intervene, prevent problems, and promote health and well-being; and continuously evaluate, refine, and implement what works. Prerequisite(s): PHLS 395 or consent of instructor. Restricted to: PHTH majors.

**PHLS 473 - Health Program Planning (3 cr.)**

Planning and development of community health education interventions for behavior change at the individual, family, social network levels of practice. Emphasis on applying program-planning models and designs into a grant-writing project. Restricted to: C HL majors.

**PHLS 475 - Methods of Community Health Education (3 cr.)**

Responsibilities of health educators, analysis of social forces affecting health needs, application of wide range of health education methods and instructional media, and program implementation skills. Prerequisite(s): PHLS 275 and PHLS 375. Restricted to: PHTH majors.

**PHLS 476 - Theoretically-Based Interventions (3 cr.)**

Identifying and developing interventions to problematic health-related behaviors. Taught with MPH 576. Prerequisite(s): PHLS 473. Restricted to: C HL majors only.

**PHLS 478 - Health Program Evaluation and Research (3 cr.)**

Covers the application of research and evaluation models for decision-making program and policy development of community health education interventions. Focus on the individual, family, and social network levels of practice. Prerequisite: PHLS 473. Restricted to: PHTH majors.

**PHLS 480 - Communicable Disease Control (3 cr.)**

Provide an understanding of the microbiology of pathogenic organisms and a public health approach to the control of disease. Restricted to: PHTH majors.

**PHLS 481 - Public Health Preparedness and Response (3 cr.)**

This course is designed to teach students about the role of public health in emergency preparedness and response. It focuses on the nature of public

emergencies as well as the role various sectors have in responding to them. One purpose of this online course is to introduce students to the basics of disaster preparedness and responding to disasters, and to build a base for further development in responder training. The course provides training and resources for a basic understanding of the Incident Command System (ICS) and National Incident Management System (NIMS).

**PHLS 486 - Special Topics (3 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits.

**PHLS 490 - Independent Study (1-6 cr.)**

Individual studies with prior approval of department head. Maximum of 12 credits. Prerequisites: consent of instructor.

**PHLS 491 - Mind-Body Health and Complementary and Alternative Medicine (3 cr.)**

An examination of the multiple dimensions of health from international and cultural views, mind-body interaction, and health promotion assess-assessment and intervention techniques.

**PHLS 492 - Health Care of the Aged (3 cr.)**

General concepts and principles of aging. Introduces students to the aging process and assists them in understanding the various aspects of growing old.

**PHLS 496 - Community Health Education Field Experience (1-6 cr.)**

Senior-standing community health education majors will integrate and apply various concepts related to actual community health education practice. Experience aims to prepare students to integrate the competencies and responsibilities of community health education. Approximately 55 hours at field agency required per credit hour. May be repeated for a maximum of 6 credits. Consent of instructor required. Prerequisite(s): PHLS 475 or concurrent enrollment. Corequisite(s): PHLS 497. Restricted to C HL majors.

**PHLS 497 - Senior Seminar in Community Health Education (1 cr.)**

Critical analysis of issues in CHE and health care. Readings focus on social, economic, cultural, and political issues as they affect the profession and practice. Emphasis on future, local, national, and international health trends. Prerequisite(s): PHLS 475 or consent of instructor. Corequisite(s): PHLS 496. Restricted to C HL majors.

**PHLS 499 - Problems in Health Education (3 cr.)**

Provides opportunity for synthesis of program planning, implementation, and evaluation methodologies in the preparation and delivery of health education topics. Some field trips will be required. Prerequisite(s): Either PHLS 395, PHLS 478, PHLS 476, or consent of instructor. Restricted to C HL majors.

**PHYS - PHYSICS**

**PHYS 110G - The Great Ideas of Physics (4 cr. (3+3P))**

Conceptual, quantitative, and laboratory treatments of the great ideas and discoveries that have influenced lives and changed perceptions of nature, from Johannes Kepler's laws of planetary motion and Isaac Newton's and Albert Einstein's laws of motion and gravity to the modern concepts of the quantal structure of nature and the big bang universe.

**PHYS 120G - Introduction to Acoustics (4 cr. (3+2P))**

Lecture, demonstration, and laboratory treatment of the general properties of waves, the production, transmission, and reception of sound waves, including musical and vocal sounds, and characteristics of the human ear and several kinds of sources.

**PHYS 150 - Elementary Computational Physics (3 cr. (2+2P))**

Introduction to computational techniques for the solution of physics-related problems. Prerequisite(s): a C- or better in MATH 121G.

**PHYS 203 - Supplemental Instruction to PHYS 213 (.5-1 cr.)**

Optional workshop as a supplement to PHYS 213. The tutorial sessions focus on reasoning and hands-on problem solving. May be repeated up to 1 credits. Corequisite(s): PHYS 213.

**PHYS 204 - Supplemental Instruction to PHYS 214 (.5-1 cr.)**

Optional workshop as a supplement to PHYS 214. The tutorial sessions focus on reasoning and hands-on problem solving. May be repeated up to 1 credits. Corequisite(s): PHYS 214.

**PHYS 205 - Supplemental Instruction to PHYS 215G (.5-1 cr.)**

Optional workshop as a supplement to PHYS 215G. The tutorial sessions focus on reasoning and hands-on problem solving. May be repeated up to 1 credits. Corequisite(s): PHYS 215G.

**PHYS 206 - Supplemental Instruction to PHYS 216G (.5-1 cr.)**

Optional workshop as a supplement to PHYS 216G. The tutorial sessions focus on reasoning and hands-on problem solving. May be repeated up to 1 credits. Corequisite(s): PHYS 216G.

**PHYS 207 - Scientific Reasoning (3 cr.)**

Nature of science, estimation, proportional reasoning, control and elimination of variables, linear and nonlinear relationships, scaling, interpolation and extrapolation, scientific model-building, experimental design, graphical representations, uncertainty, statistical modeling. Prerequisite(s): MATH 120.

**PHYS 208 - Physics by Inquiry I (4 cr. (3+3P))**

Selected topics in physics, with emphasis on depth of understanding and development of reasoning skills essential to the scientific process. Develops scientific literacy and provides background for teaching physical science as a process of inquiry. Prerequisite(s): C- or better in MATH 120 or higher.

**PHYS 211G - General Physics I (3 cr.)**

Non-calculus treatment of mechanics, waves, sound, and heat. Knowledge of simple algebra and trigonometry is required.

**PHYS 211GL - General Physics I Laboratory (1 cr.)**

Laboratory experiments in topics associated with material presented in PHYS 211G. Prerequisite(s)/Corequisite(s): PHYS 211G.

**PHYS 212G - General Physics II (3 cr.)**

Non-calculus treatment of electricity, magnetism, and light. Prerequisite(s): PHYS 211G or PHYS 221G.

**PHYS 212GL - General Physics II Laboratory (1 cr.)**

Laboratory experiments in topics associated with material presented in PHYS 212G. Prerequisite(s)/Corequisite(s): PHYS 212G.

**PHYS 213 - Mechanics (3 cr.)**

Newtonian mechanics. Pre/Corequisite(s): MATH 191G.

**PHYS 213 L - Experimental Mechanics (1 cr. (3P))**

Laboratory experiments associated with the material presented in PHYS 213. Science majors. Pre/Corequisite(s): PHYS 213.

**PHYS 214 - Electricity and Magnetism (3 cr.)**

Charges and matter, the electric field, Gauss law, the electric potential, the magnetic field, Ampere's law, Faraday's law, electric circuits, alternating currents, Maxwell's equations, and electromagnetic waves. Prerequisite(s): PHYS 213 or PHYS 215G. Pre/Corequisite(s): MATH 192G.

**PHYS 214 L - Electricity and Magnetism Laboratory (1 cr. (3P))**

Laboratory experiments associated with the material presented in PHYS 214. Prerequisite(s)/Corequisite(s): PHYS 214. Prerequisite(s): a C- or better in PHYS 213L or PHYS 215GL.

**PHYS 215G - Engineering Physics I (3 cr.)**

Calculus-level treatment of kinematics, work and energy, particle dynamics, conservation principles, simple harmonic motion. Prerequisite(s): MATH 191G.

**PHYS 215GL - Engineering Physics I Laboratory (1 cr. (3P))**

Laboratory experiments associated with the material presented in PHYS 215G. Students wishing to use the PHYS 215G-216G sequence to satisfy the basic natural science general education requirement must register for either PHYS 215GL or PHYS 216GL. Pre/Corequisite(s): PHYS 215G.

**PHYS 216G - Engineering Physics II (3 cr.)**

A calculus-level treatment of topics in electricity, magnetism, and optics. Prerequisite(s): PHYS 213 or PHYS 215G and MATH 192G.

**PHYS 216GL - Engineering Physics II Laboratory (1 cr. (3P))**

Laboratory experiments associated with the material presented in PHYS 216G. Prerequisite(s)/Corequisite(s): PHYS 216G. Prerequisite(s): A C- or better in PHYS 213L or PHYS 215GL.

**PHYS 217 - Heat, Light, and Sound (3 cr.)**

Calculus-level treatment of thermodynamics, geometrical and physical optics, and sound. Prerequisite: PHYS 213 or PHYS 215G.

**PHYS 217 L - Experimental Heat, Light and Sound (1 cr. (3P))**

Laboratory experiments associated with the material presented in PHYS 217. Science majors. Prerequisite(s)/Corequisite(s): PHYS 217. Prerequisite(s): a C- or better in PHYS 213L or PHYS 215GL.

**PHYS 221G - General Physics for Life Sciences I (3 cr.)**

This algebra-based introduction to general physics covers mechanics, waves, sound, and heat. Special emphasis is given to applications in the life sciences. This course is recommended for students in the life sciences and those preparing for the physics part of the MCAT. Prerequisites: a C- or better in MATH 120 or higher.

**PHYS 221GL - Laboratory to General Physics for Life Science I (1 cr.)**

Laboratory experiments in topics associated with material presented in PHYS 221G. Prerequisite(s)/Corequisite(s): PHYS 221G. Restricted to Las Cruces campus only.

**PHYS 222G - General Physics for Life Sciences II (3 cr.)**

This algebra-based course covers electricity, magnetism, light, atomic physics, and radioactivity. Special emphasis is given to applications in the life sciences. This course is recommended for students in the life sciences and those preparing for the physics part of the MCAT. Prerequisite: PHYS 211G or PHYS 221G.

**PHYS 222GL - Laboratory to General Physics for Life Sciences II (1 cr.)**

Laboratory experiments in topics associated with material presented in PHYS 222G. Prerequisite(s)/Corequisite(s): PHYS 222G. Restricted to Las Cruces campus only.

**PHYS 223 - Supplemental Instruction to PHYS 221 (1 cr.)**

This optional workshop supplements Physics for Life Sciences I. The tutorial sessions focus on reasoning and hands-on problemsolving. Corequisite(s): PHYS 221G.

**PHYS 224 - Supplemental Instruction to PHYS 222 (1 cr.)**

This optional workshop is a supplement to Physics for Life Science II. The tutorial sessions focus on reasoning and hands-on problem solving. Corequisite(s): PHYS 222G.

**PHYS 280 - Independent Study (1-3 cr.)**

Individual analytical or laboratory studies directed by a faculty member. Prerequisite: consent of instructor. May be repeated for a maximum of 6 credits.

**PHYS 290 - Special Topics (1-3 cr.)**

Topics to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits.

**PHYS 303V - Energy and Society in the New Millennium (3 cr.)**

Traditional and alternative sources of energy. Contemporary areas of concern such as the state of depletion of fossil fuels; nuclear energy, solar energy, and other energy sources; environmental effects; nuclear weapons; and health effects of radiation. Discussion of physical principles and impact on society. Focus on scientific questions involved in making decisions in these areas. No physics background required.

**PHYS 304 - Forensic Physics (4 cr. (3+3P))**

Theories, laboratory, and field techniques in the area of forensic physics.

**PHYS 305V - The Search for Water in the Solar System (3 cr.)**

Examines the formation, abundance and ubiquity of water in our Solar System stemming from comets, Martian and Lunar poles, Earth's interior and into the outer reaches of the Solar System. Topics will include nuclear synthesis, Solar System formation, remote sensing, as well as past, present and future NASA missions for water.

**PHYS 315 - Modern Physics (3 cr.)**

An introduction to relativity and quantum mechanics, with applications to atoms molecules, solids, nuclei, and elementary particles. Prerequisites: MATH 291G and PHYS 214 or PHYS 216G.

**PHYS 315 L - Experimental Modern Physics (3 cr. (1+6P))**

Elementary laboratory in modern physics which supports the subject matter in PHYS 315. Required for physics majors. Prerequisite(s): a C- or better in PHYS 214 L or 216GL. Pre/Corequisite(s): PHYS 315.

**PHYS 350 - Special Topics (1-3 cr.)**

Lectures, demonstrations, and discussions on such topics as lasers and holography, energy sources, clouds, and biophysics. May be repeated for a maximum of 12 credits under different subtitles.

**PHYS 380 - Individual Study (1-3 cr.)**

Individual analytical or laboratory studies directed by a faculty member. Prerequisite: consent of instructor. May be repeated for a maximum of 6 credits.

**PHYS 395 - Intermediate Mathematical Methods of Physics (3 cr.)**

Introduction to the mathematics used in intermediate-level physics courses. Topics include vector calculus, curvilinear coordinates, matrices, linear algebra, function spaces, partial differential equations, and special functions. Prerequisite(s): MATH 291G. Pre/Corequisite(s): MATH 392.

**PHYS 400 - Undergraduate Research (1-3 cr.)**

May be repeated for a maximum of 6 credits. Prerequisite: consent of instructor.

**PHYS 450 - Selected Topics (1-3 cr.)**

Readings, lectures or laboratory studies in selected areas of physics. May be repeated for a maximum of 12 credits.

**PHYS 451 - Intermediate Mechanics I (3 cr.)**

Vector calculus, Lagrangian and Hamiltonian formulations of Newtonian mechanics. Topics include central force motion, dynamics of rockets and space vehicles, rigid body motion, noninertial reference frames, oscillating systems, relativistic mechanics, classical scattering, and fluid mechanics. Prerequisite(s): PHYS 213 or PHYS 215G, and MATH 291G. Pre/Corequisite(s): MATH 392.

**PHYS 454 - Intermediate Modern Physics I (3 cr.)**

Introduction to quantum mechanics, focusing on the role of angular momentum and symmetries, with application to many atomic and subatomic systems. Specific topics include intrinsic spin, matrix representation of wave functions and observables, time evolution, and motion in one dimension. Prerequisite(s): PHYS 315. Pre/Corequisite(s): MATH 392 and PHYS 395.

**PHYS 455 - Intermediate Modern Physics II (3 cr.)**

Continuation of subject matter of PHYS 454. Specific topics include rotation and translation in three dimensions, solution of central potential problems, perturbation theory, physics of identical particles, scattering theory, and the interaction between photons and atoms. Prerequisite(s): PHYS 454.

**PHYS 461 - Intermediate Electricity and Magnetism I (3 cr.)**

The first part of a two-course sequence in classical electrodynamics. Covered topics include static electric and magnetic fields, Laplace's and Poisson's equations, electromagnetic work and energy, Lorentz force, Gauss's, Biot-Savart, and Ampere's laws, Maxwell's equations, as well as electric and magnetic fields in matter. Prerequisite(s)/Corequisite(s): MATH 392 and PHYS 395. Prerequisite(s): PHYS 214 or PHYS 216G or equivalent and MATH 291G.

**PHYS 462 - Intermediate Electricity and Magnetism II (3 cr.)**

Continuation of subject matter of PHYS 461. Covered topics include Maxwell's equations and their applications, electromagnetic waves, reflection, refraction, dispersion, radiating systems, interference and diffraction, as well as Lorentz transformations and relativistic electrodynamics. Prerequisite(s): PHYS 461.

**PHYS 467 - Nanoscience and Nanotechnology (3 cr.)**

See CHME 467. Crosslisted with: CHME 467. Prerequisite(s): CHEM 112G and (PHYS 211G or PHYS 215G) and (EH&S Safety training to include the courses: (1) Employee & Hazard Communication Safety (HazCom); (2) Hazardous Waste Management; and (3) Laboratory Standard.).

**PHYS 471 - Modern Experimental Optics (2-3 cr.)**

Advanced laboratory experiments in optics related to the material presented in PHYS 473. Prerequisite(s)/Corequisite(s): PHYS 473.

**PHYS 472 - Non-Linear Optical and Laser Physics (3 cr.)**

An introduction to the physics of non-linear optical processes primarily involving the interaction of intense laser radiation with matter. Topics include elements of laser physics, harmonic generation, stimulated Rayleigh, Raman, and Brillouin scattering, self-focusing and optical phase conjugation.

**PHYS 473 - Introduction to Optics (3 cr.)**

The nature of light, Geometrical optics, basic optical instruments, wave optics, aberrations, polarization, and diffraction. Elements of optical radiometry, lasers and fiber optics. Prerequisite(s): PHYS 216G or PHYS 217. Crosslisted with: E E 473

**PHYS 475 - Advanced Physics Laboratory (1-3 cr.)**

Advanced undergraduate laboratory involving experiments in atomic, molecular, nuclear, and condensed-matter physics. Prerequisite(s): PHYS 315 and 315L.

**PHYS 476 - Computational Physics (3 cr.)**

An introduction to finite difference methods, Fourier expansions, Fourier integrals, solution of differential equations, Monte Carlo calculations, and application to advanced physics problems. Prerequisite(s): PHYS 150 or equivalent and MATH 392.

**PHYS 477 - Fiber Optic Communication Systems (4 cr. (3+3P))**

See E E 477 Crosslisted with: E E477. Prerequisite(s): C- or better in E E 315 or PHYS 461.

**PHYS 478 - Fundamentals of Photonics (4 cr. (3+3P))**

See E E 478. Crosslisted with: E E478. Prerequisite(s): PHYS 216G or PHYS 217.

**PHYS 479 - Lasers and Applications (4 cr. (3+3P))**

See E E479 Crosslisted with: E E479. Prerequisite(s): C- or better in E E 315 or PHYS 461.

**PHYS 480 - Thermodynamics (3 cr.)**

Thermodynamics and statistical mechanics. Basic concepts of temperature, heat, entropy, equilibrium, reversible and irreversible processes. Applications to solids, liquids, and gases. Prerequisites: PHYS 217, PHYS 315 and MATH 291G.

**PHYS 485 - Independent Study (1-3 cr.)**

Individual analytical or laboratory studies directed by a faculty member. Prerequisite: consent of instructor. May be repeated for a maximum of 6 credits.

**PHYS 488 - Introduction to Condensed Matter Physics (3 cr.)**

Crystal structure, X-ray diffraction, energy band theory, phonons, cohesive energy, conductivities, specific heats, p-n junctions, defects, surfaces, and magnetic, optical, and low-temperature properties. Prerequisite(s): PHYS 315.

**PHYS 489 - Introduction to Modern Materials (3 cr.)**

Structure and mechanical, thermal, electric, and magnetic properties of materials. Modern experimental techniques for the study of material properties. Prerequisite: PHYS 315.

**PHYS 491 - High Energy Physics I (3 cr.)**

Particle detectors, accelerators, and experimental techniques. Fundamental particles and interactions. Symmetries in particle physics. Quark model of hadrons. Electroweak theory. Strong interactions and QCD. Nuclear interactions at high energies. Grand unification. Super symmetry. Prerequisite(s): PHYS 455.

**PHYS 493 - Experimental Nuclear Physics (3 cr. (1+6P))**

Selected experimental investigations in nuclear physics such as measurement of radioactivity, absorption of radiation, nuclear spectrometry. Prerequisite(s): PHYS 315 and PHYS 315L.

**PHYS 495 - Mathematical Methods of Physics I (3 cr.)**

Applications of mathematics to experimental and theoretical physics. Topics selected from: complex variables; special functions; numerical analysis; Fourier series and transforms, Laplace transforms. Prerequisite(s): MATH 392 and PHYS 395.

**PHYS 497 - Introduction to Space Plasma Physics (3 cr.)**

Properties of plasmas, especially those in the heliosphere such as the solar wind, planetary magnetospheres and ionospheres, cosmic rays, and the Sun. Topics include both independent-particle and fluid descriptions of plasmas such as magnetohydrodynamics, the solar cycle and solar flares, planetary magnetic substorms and aurorae, Van Allen radiation belts, shocks in the solar wind, and wave propagation in plasmas. Prerequisite(s): (PHYS 461 or E E 351) and MATH 392.

**PLAN - PLANNING****PLAN 495 - Directed Readings (1-3 cr.)**

Individual study through readings. A maximum of 6 credits may be earned. Prerequisite: consent of instructor.

**PORT - PORTUGUESE****PORT 213 - Portuguese for Romance Language Students I (3 cr.)**

Introduction to the Portuguese language, Brazilian culture and civilization. Taught in Portuguese. Open to students with any previous Romance language study (French, Italian, Portuguese, Romanian, Spanish).

**PORT 214 - Portuguese for Romance Language Students II (3 cr.)**

Continuation of PORT 213. Prerequisite: C- or better in PORT 213 or consent of instructor.

**PORT 325 - Portuguese Conversation (3 cr.)**

Spoken Portuguese with emphasis on contemporary topics. Prerequisite: PORT 214 or consent of instructor.

**PORT 453 - Independent Luso-Brazilian Studies (1-3 cr.)**

Individualized, self-paced projects for advanced students in Luso-Brazilian studies.

**PSY - PSYCHOLOGY****PSY 201G - Introduction to Psychology (3 cr.)**

Methods and principles of behavior. Topics include human evolution and development, biopsychology, perception, learning, thinking, motivation, social interaction, and the diagnosis and treatment of abnormal behavior.

**PSY 266 - Applied Psychology (3 cr.)**

Explanation of the psychological principles of everyday living. Emphasizes motivation, learning of intelligent behavior, and applications of psychology to social issues. Community Colleges only.

**PSY 274 - A Study of Substance Abuse through Service Learning (3 cr.)**

Physiological and psychological impact of drug use on human behavior. Emphasizes practical applications of intervention and prevention in the community. Community Colleges only.

**PSY 290 - Psychology of Adjustment (3 cr.)**

Analyzes the responses people have to conflict, emotional stress, and frustration. It focuses on adapting to these problems and examines both normal and neurotic responses. Community College campus only.

**PSY 301 - Introduction to Psycholinguistics (3 cr.)**

Psychological aspects of language, including linguistic theories of grammar, psychological factors influencing language performance, primary language acquisition and the relationship of language to thought processes. Prerequisites: PSY 201G and one of: STAT 251G, STAT 271G, or A ST 311; and PSY 310 or consent of instructor. Same as LING 301.

**PSY 302 - Abnormal Psychology (3 cr.)**

Introduces the types, causes, and treatment of mental disorders. Descriptions and explanations of the neuroses, affective disorders and the psychoses. Case histories are also analyzed. Prerequisites: PSY 201G, MATH 120 and ENGL 111G.

**PSY 303 - Community Psychology (3 cr.)**

Emphasizes prevention (not treatment) of mental health problems through early intervention programs. The role of paraprofessionals, and nontraditional interventions in such fields as education and criminal justice are reviewed. Prerequisite: PSY 201G.

**PSY 310 - Experimental Methods (4 cr. (2+4P))**

The basic skills of literature search, experimental design, research methodology, and research reporting are emphasized; includes laboratory. Prerequisite(s): PSY 201G, and either STAT 251G, STAT 271G, or A ST 311.

**PSY 311 - Advanced Research Seminar (4 cr. (2+4P))**

Psychological research in conjunction with designing, conducting, writing, and presenting an independent research project. May also include various computer applications. Will discuss issues regarding application to graduate programs. Course should be taken no later than the first semester of senior year. Prerequisite: PSY 310.

**PSY 315 - Emotion (3 cr.)**

An overview of the past century of research on human emotion from William James to Antonio Damasio. Explores a cognitive science perspective on emotion that includes questions about developmental, physiological, and evolutionary aspects of emotion and an exploration of the proximate and ultimate functions of emotion. Topics range from understanding the feeling component of emotion to understanding the role of facial displays of emotion. Prerequisite(s): PSY 201G, and one of: STAT 251G, STAT 271G, or A ST 311, and PSY 310 or consent of instructor.

**PSY 317 - Social Psychology (3 cr.)**

Ways in which people are influenced by the behavior of others are analyzed. Includes aggression, altruism, conformity, attraction, sexual behavior, prejudice, and nonverbal behavior. Prerequisites: PSY 201G, MATH 120, and ENGL 111G.

**PSY 320 - Learning (4 cr. (3+2P))**

Covers: habituation, Pavlovian conditioning, Thorndikian learning, stimulus generalization, transfer of training, and the learning and forgetting of related and unrelated material. Prerequisites: PSY 201G, and one of: STAT 251G, STAT 271G, or A ST 311, and PSY 310.

**PSY 321 - Psychology of Personality (3 cr.)**

Introduces personality theories and supporting research. Psychoanalytic, physiological, and behavioral theories as they apply to personality are examined. Focuses on normal personality functioning. Prerequisites: PSY 201G, and one of: STAT 251G, STAT 271G, or A ST 311, and PSY 310.

**PSY 324 - Sexual Behavior (3 cr.)**

Examines viewpoints of the evolution, control and function of human sexual behavior. Includes human sexuality, reproduction, male-female conflicts and the social implications of sex. Prerequisites: PSY 201G, MATH 120, and ENGL 111G

**PSY 325 - Health Psychology (3 cr.)**

Life stress, surgical stress, coronary-prone behavior, biofeedback, pain control, psychosocial approaches to geriatrics and cancer, behavioral treatments for addictions, obesity, and interpersonal issues in health care. Prerequisite: PSY 201G.

**PSY 330 - Psychology and the Law (3 cr.)**

Discretionary practices in the judicial system including pretrial procedures, jury selection, jury decision making, eyewitness testimony, insanity, expert witnesses, and probation judgments. Prerequisite: PSY 201G.

**PSY 340 - Cognitive Psychology (3 cr.)**

Review of research and theory in the study of human cognitive processes. Topics include information processing, pattern recognition, memory, attention, language, problem solving, decision making, and reasoning. Prerequisites: PSY 201G, and one of: STAT 251G, STAT 271G, or A ST 311, and PSY 310.

**PSY 342 - Cognitive Neuroscience (3 cr.)**

Introduction to the study of the neural mechanisms underlying cognitive processes. Topics include relations between neural processes and attention, perception, memory, thinking and language; measuring changes in electrical activity, blood flow, and metabolism in the brain during cognition; the problem of consciousness; and evolutionary perspectives. Prerequisites: PSY 201G and PSY 310.

**PSY 350 - Developmental Psychology: Conception through Childhood (3 cr.)**

Covers a wide range of topics concerning human psychological development from conception through childhood with special emphasis on current research and theory. Prerequisite: PSY 201G.

**PSY 351 - Developmental Psychology: Adolescence through Old Age (3 cr.)**

Covers a wide range of topics concerning human psychological development from adolescence through old age with special emphasis on current research and theory. Prerequisite: PSY 201G.

**PSY 359 - Psychology of Women (3 cr.)**

Examines theories and research on the psychological functioning of women in North American society. Influential theories of gender in psychology and current controversies in the psychological literature. Topics include women's development across the lifespan, women and work, women's physical and mental health and sexuality, the victimization of women, gender stereotypes, biological, social, and cultural influences on women's behavior, and gender comparisons in abilities and personality. Prerequisite: PSY 201G. Same as W S 359.

**PSY 370 - Special Topics (1-3 cr.)**

May be taken under different subtitles announced in the Schedule of Classes for unlimited credit. Prerequisite: PSY 201G. May be repeated for a maximum of 12 credits.

**PSY 374 - Psychopharmacology and Toxicology (3 cr.)**

How and why drugs and environmental chemicals affect behavior. Prerequisites: PSY 201G, PSY 310 and PSY 311.

**PSY 375 - Psychology and the Brain (3 cr.)**

An exploration of how the brain produces thinking, emotion, and behavior. Prerequisite(s): PSY 201G, and one of: STAT 251G, STAT 271G, or A ST 311 or consent of instructor.

**PSY 376 - Evolutionary Psychology (3 cr.)**

This course introduces the student to the science of Evolutionary Psychology. In this class we will explore how evolutionary psychologists think about a variety of topics ranging from our capacity for (and appreciation of) art, emotions, and beauty to an exploration of the design of our minds in regards to mating, status striving, social behavior and cultural production. Prerequisite(s): PSY 201G, and one of: STAT 251G, STAT 271G, or A ST 311, and PSY 310 or consent of instructor.

**PSY 380 - Perception (4 cr. (4+4P))**

Primary emphasis on vision. Topics include measurement of sensations, development of visual-motor coordination, reading, speech perception, picture perception, illusions, 3-dimensional space, and causes and consequences of visual abnormalities. Prerequisites: PSY 201G, and one of: STAT 251G, STAT 271G, or A ST 311, and PSY 310.

**PSY 383 - Memory (3 cr.)**

Examines facets of human memory from the information processing viewpoint, including encoding, storage, and retrieval and memory-aiding techniques. Prerequisites: PSY 201G, and one of: STAT 251G, STAT 271G, or A ST 311, and PSY 310 or consent of instructor.

**PSY 384 - Perceptual and Cognitive Development (3 cr.)**

Development across the lifespan in perception, memory, attention, reasoning, language and academic skills. Prerequisites: PSY 201G, and one of: STAT 251G, STAT 271G, or A ST 311, and PSY 310 or consent of instructor.

**PSY 400 - Research (1-3 cr.)**

Individual research projects supervised by a department faculty member. Prerequisites: PSY 310 and consent of instructor. May be repeated for a maximum of 6 credits.

**PSY 401 - Directed Readings (1-3 cr.)**

Prerequisites: PSY 201G and consent of instructor. May be repeated for a maximum of 6 credits.

**PSY 402 - Field Experience (1-3 cr.)**

Working with preschool, juvenile delinquent, handicapped, aged, convict, or mentally ill. Approximately five hours scheduled work per week per credit. May be repeated to 6 credits. Prerequisites: 6 psychology credits and consent of instructor.

**PSY 417V - Intercultural Relations (3 cr.)**

Exploration of cultural and subcultural differences from a psychological perspective. Emphasis on modern cultural settings. Issues may include: ethnocentrism, stereotyping, intercultural communication, culture shock, cultural differences, nonverbal behavior, conflict management, and developing intercultural interaction skills. Prerequisite: PSY 201G.

**PSY 430 - Human-Computer Psychology (3 cr.)**

Theories, methodologies, and data from psychology applicable to interface design, with an emphasis on construction and application of conceptual psychological models. Prerequisites: PSY 201G, and one of: STAT 251G, STAT 271G, or A ST 311, and PSY 310 or consent of instructor.

**PSY 440 - History and Systems of Psychology (3 cr.)**

History of scientific method emphasizing outstanding methodological problems of contemporary science, especially psychology. Also covers recent history of psychology and development of schools of psychology. Prerequisites: PSY 201G, and one of: STAT 251G, STAT 271G, or A ST 311, and PSY 310 or consent of instructor.

**PSY 442 - Thinking (3 cr.)**

Research and theory pertaining to human thinking and problem solving. Effective problem-solving methods and common obstacles to problem solving are analyzed. Prerequisites: PSY 201G and PSY 310.

**PSY 445 - Clinical Psychology (3 cr.)**

Basic theories in clinical psychology and techniques of psychotherapy. Prerequisites: PSY 201G, PSY 302, and one of: STAT 251G, STAT 271G, or A ST 311, and PSY 310 or consent of instructor.

**PSY 450 - Senior Thesis (3 cr.)**

A laboratory or field research project conducted under faculty supervision. Requires written research proposal, conduct of research, data analysis, and final written report. Prerequisites: PSY 310, 6 additional psychology credits, consent of supervising faculty member, and junior or above standing. May be repeated for a maximum of 6 credits.

**PSY 470 - Special Topics (1-3 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits.

**RDG - READING****RDG 350 - Teaching and Learning Reading and Writing (3 cr. (2+2P))**

The foundation of this course is on understanding the reading process including the relationship between reading, writing, listening, and speaking; individual needs and abilities in reading instruction; and how to organize classrooms and select materials to support literacy development. Concepts of phonemic awareness, phonic instruction, vocabulary development, fluency and comprehension are integrated with the developmentally appropriate use of authentic assessment techniques, language/literacy immersion, and multicultural children's literature. Prerequisite(s): ECED 235. Corequisite(s): ECED 440, ECED 455, ECED 329. Crosslisted with: RDG 360

**RDG 360 - Elementary School Literacy I (3 cr. (2+2P))**

Reading development, curriculum, and instruction in the elementary grades. Required of all elementary education majors as a prerequisite to student teaching. Corequisites: ECED 450, EDUC 451, and EDUC 452 (Block A courses). Same as RDG 560 with differentiated assignments for graduate students.

**RDG 361 - Elementary School Literacy II (3 cr. (2+2P))**

Reading development in curriculum and instruction with assessment and evaluation in the elementary grades (K 8). Prerequisite: RDG 360. Corequisites: EDUC 453, EDUC 454, and EDUC 455 (Block B courses). Same as RDG 561 with differentiated assignments for graduate students.

**RDG 371 - Instruction for Special Reading Needs (3 cr.)**

Emphasizes appropriate techniques for teaching reading to learners with special needs. Prerequisites: RDG 356 or RDG 360 and RDG 361. Cannot substitute for RDG 361.

**RDG 395 - Special Topics (1-3 cr.)**

Each course will be identified by a qualifying subtitle. A maximum of 3 credits in any one semester and a grand total of 6 credits.

**RDG 414 - Content Area Literacy (3 cr. (2+2P))**

Surveys integrated reading/writing/discursive practices in middle/secondary content areas. Same as RDG 514.

**RGSC - RANGE SCIENCE****RGSC 150 - Rangeland Science Profession (1 cr.)**

Introduction to scientific disciplines and career opportunities in rangeland science and management.

**RGSC 250 - Special Topics (1-4 cr.)**

Specific subjects and credits announced in the Schedule of Classes. Maximum of 4 credits per semester and a grand total of 9 credits.

**RGSC 294 - Rangeland Resource Management (3 cr.)**

Overview of arid and semi-arid ecosystems in the US and abroad, rangeland plant physiology, ecology of rangeland plant communities and ecosystems, sustainable management for multiple uses including grazing livestock production, wildlife habitat, recreation and ecosystem services, and economics of rangeland-based enterprises. Restricted to: Main campus only.

**RGSC 302V - Forestry and Society (3 cr.)**

Global study of the development and use of forest resources for production of wood, fuel, fiber, and food products. Climatic, edaphic, cultural, and economic influences on forests of the world evaluated. Same as HORT 302V.

**RGSC 316 - Rangeland Plants (3 cr. (2+3P))**

Identification, classification, cultural uses, and economic importance of native and introduced rangeland plants.

**RGSC 317 - Rangeland Communities (3 cr.)**

Rangeland associations and communities, their plant species composition, and ecological factors affecting management of communities.

**RGSC 318 - Watershed Management (3 cr. (2+2P))**

Management of rangeland and forest watersheds with emphasis on hydrologic cycle and land use effects on runoff and water quality.

**RGSC 325 - Rangeland Restoration Ecology (3 cr.)**

Principles and practices of vegetation management and ecological restoration. Course emphasizes problems associated with rangeland degradation, and implementation of rangeland restoration and improvements. Prerequisite(s): Sophomore standing or consent of instructor.

**RGSC 350 - Special Topics (1-4 cr.)**

Specific subjects and credits announced in the Schedule of Classes. Maximum of 4 credits per semester and a grand total of 9 credits.

**RGSC 357 - Grass Taxonomy and Identification (3 cr. (1+4P))**

Taxonomy of grasses; grass anatomy, variation in reproductive structures, and identification of grasses by sight and through the use of dichotomous keys. Prerequisite(s)/Corequisite(s): Junior standing or consent of the instructor.

**RGSC 390 - Internship (1-3 cr.)**

Professional work experience under the joint supervision of the employer and a faculty member. A written report is required. No more than 3 credits toward a degree. Prerequisite: consent of instructor. Graded S/U.

**RGSC 402 - Seminar (1 cr.)**

Topics in range science. Oral and written reports. Prerequisite: senior standing.

**RGSC 406 - Rangeland Team Competition (1 cr.)**

Description and characteristics of range plants. May be repeated for a maximum of 4 credits.

**RGSC 440 - Rangeland Resource Ecology (3 cr.)**

Plant adaptations to arid environments. Life histories of arid land plants. Biotic interactions among rangeland organisms. Arid land plant communities: their physiognomy, diversity, productivity, and response to disturbance. Arid land ecosystem dynamics. Prerequisite(s): Senior standing.

**RGSC 440 L - Rangeland Resource Ecology Lab (1 cr. (2P))**

Living and nonliving factors of the range environment, the life forms and role of range plants and animals on succession and interactions in range ecosystems. Corequisite(s): RGSC 440.

**RGSC 448 - Problems (1-4 cr.)**

Individual investigation in a specific area of range science. Maximum of 4 credits per semester and a grand total of 6 credits. Consent of Instructor required.

**RGSC 452 - Vegetation Measurements for Rangeland Assessment (4 cr. (2+4P))**

Sampling principles, sampling design, and measurement methods used to quantify vegetation attributes and to assess the structure and function of rangeland ecosystems. Laboratory emphasizes practical field techniques, quantitative analysis, and interpretation of results. Prerequisite(s): RGSC 294 and A ST 311.

**RGSC 458 - Livestock Behavior, Welfare and Handling (3 cr. (2+3P))**

Principles of animal behavior and evaluation of management practices on animal welfare in confined and rangeland livestock operations. Low stress livestock handling techniques. Design of livestock handling facilities. Prerequisite(s): RGSC 294 or ANSC 100. Crosslisted with: ANSC 458

**RGSC 460 - Rangeland and Natural Resource Planning and Management (4 cr. (3+3P))**

Planning and problem solving in rangeland and natural resource management. Public land planning and policy. Application of land management principles to resolve rangeland, riparian and habitat issues. Prerequisite(s): Senior or graduate student standing.

**S WK - SOCIAL WORK****S WK 221G - Introduction to Social Welfare (3 cr.)**

A broad overview of current social problems and the role of social agencies and community members in addressing these problems.

**S WK 251 - Women s Issues in Social Work (3 cr.)**

Examines gender-specific social problems and their identification and resolution through the use of social agencies and community resources. Community Colleges only.

**S WK 253 - Case Management (3 cr.)**

Introduction to case management for social- and human-services workers. Overview of typical duties and responsibilities of a case manager, including setting goals, performing assessments, writing progress notes, and linking clients with other resources in the community. Recommended for students considering a career in social work or human services. Prerequisites: PSY 201G and S WK 221G. Community Colleges only.

**S WK 300 - Social Work Practice Skills (3 cr.)**

Introduction to generalist social work practice. Interpersonal skills, values, and ethics required in the helping relationship. Taught in a small-group format. Corequisite(s): S WK 301. Restricted to: S WK majors. Restricted to Las Cruces campus only.

**S WK 301 - Orientation to Field (1 cr.)**

This course will provide an orientation to requirements for a social work field practicum and to establish the transfer of learning between classroom instruction and future practicum skill application. Corequisite(s): S WK 300. Restricted to S WK majors.

**S WK 309 - Sociocultural Concepts (3 cr.)**

Theoretical and sociohistorical perspectives on racism, sexism, ageism, heterosexism, classism, ableism, and other forms of discrimination and oppression. Cultural diversity, strengths, and Southwest and border issues are examined.

**S WK 311 - Human Behavior and the Social Environment I (3 cr.)**

Major theories of human behavior and the life span from conception to adolescence. Corequisite(s): S WK 309. Restricted to: S WK majors.

**S WK 312 - Human Behavior and the Social Environment II (3 cr.)**

Continuation of S WK 311. Major theories of human behavior and the life span from young adulthood through old age. Prerequisite(s): S WK 311. Restricted to: S WK majors.

**S WK 313 - Social Work Practice with Individuals (3 cr.)**

Generalist social work practice theory and skills in engagement, information gathering, assessments, planning, interventions, evaluation, and termination with individual client systems. Prerequisite(s): S WK 300. Restricted to: S WK majors.

**S WK 315 - Social Work Practice with Families (3 cr.)**

Generalist social work practice theory and skills in engagement, information gathering, assessments, planning, interventions, evaluation, and termination with multicultural family systems. Corequisite(s): S WK 313. Prerequisite(s): S WK 300. Restricted to: S WK majors.

**S WK 316 - Social Work Research (3 cr.)**

This undergraduate course is designed to prepare students to be effective consumers of research and to evaluate their own practice. Students will learn to read, critically evaluate and use the research of others to select interventions that are based on evidence of effectiveness. Students will demonstrate the knowledge, values and skills to be critical consumers of research for effective and ethical practice as well as possess the basic skills necessary to evaluate their own social work professional practice. May be repeated up to 3 credits. Prerequisite(s): STAT 251G, STAT 271G or A ST 251G. Restricted to: Restricted to Social Work majors.

**S WK 331V - Introduction to Social Policy: History (3 cr.)**

Historical overview of the economic, political, and cultural impact on social welfare policy, institutions, and professions with international content.

**S WK 402 - Generalist Social Work Practicum II (6 cr.)**

Supervised professional practice in a community social service agency, providing experiential instruction and learning; seminar required. Evaluation criteria for this course will include upholding social work practice standards for interpersonal and ethical conduct. Total of 240 hours in the field each semester is required - 6 credits. Graded: S/U. Corequisite(s): S WK 404, S WK 468. Prerequisite(s): S WK 401. Restricted to: S WK majors. S/U Grading (S/U, Audit).

**S WK 404 - Integrative Senior Seminar (3 cr.)**

Students will use their field experience as the backdrop for assessing their own progress toward entry level generalist social work practice; and to integrate coursework and field experience and develop their professional foundation. Corequisite(s): S WK 402. Prerequisite(s): S WK 414, S WK 415, S WK 352, S WK 416, S WK 302. Restricted to: S WK majors.

**S WK 405 - Service Learning (3 cr.)**

This course introduces students to field work as an essential component of social work education. Students are required to provide a minimum of 40 hours of

service to a human services agency. This course will focus on the connection between coursework, field work, the NASW Code of Ethics and skills needed to work with people. Prerequisite(s): S WK 301, S WK 313. Restricted to: S WK majors.

**S WK 412 - Generalist Social Work Practicum Block Placement (12 cr. (12P))**

Supervised professional practice in a community social service agency, providing experiential instruction and learning; seminar required. Evaluation criteria for this course will include upholding social work practice standards for interpersonal and ethical conduct. Total of 420 hours in the field is required. 12 credits. Grade: S/U. Corequisite(s): S WK 418. Prerequisite(s): S WK 405. Restricted to: S WK majors. S/U Grading (S/U, Audit).

**S WK 415 - Generalist Social Work Practice with Organizations and Communities (3 cr.)**

This course focuses on generalist social work values, knowledge and skills regarding practice with larger systems. Course content will include theories of community and organizational assessment and intervention. Strategies for advocacy and change, leadership for community and organizational change. Corequisite(s): S WK 416, S WK 417. Prerequisite(s): S WK 300, S WK 313, S WK 315.

**S WK 416 - Generalist Social Work Practice with Groups (3 cr.)**

Generalist social work practice skills with group client systems focusing on the planned change process and the empowerment of oppressed populations. Corequisite(s): S WK 415. Prerequisite(s): S WK 300, S WK 313, S WK 315. Restricted to: S WK majors.

**417 - Social Welfare Policy: Legislation (3 cr.)**

Policy practice related to the formation of current social welfare policies that promote social and economic justice. Emphasis is on the development and influences of social policy, policy analysis, and the policy change process. Consent of Instructor required. Prerequisite(s): S WK 331V or consent of instructor. Restricted to: S WK majors.

**S WK 418 - Professionalism in the Field of Social Work (3 cr.)**

This course is designed to prepare you to develop professional skills, knowledge, awareness and boundaries as a social worker as you get ready to enter the field practicum. Corequisite(s): S WK 412. Restricted to: S WK majors.

**S WK 443 - Family and Child Welfare Practice (3 cr.)**

Current issues and interventions in child protection, foster care, family preservation and support, family reunification, adoption and permanency planning. Cannot receive credit for S WK 443 and M SW 543.

**S WK 449 - Independent Study (1-6 cr.)**

Individual studies directed by consenting faculty with the prior approval of the department head. Prerequisite: majors or consent of instructor.

**S WK 463 - Social Work Practice with Hispanic Families (3 cr.)**

Theory and skills relating to social work practice with Hispanic families. Emphasis on strengthening and empowering Hispanic families to perform their caregiving roles in their own environment.

**S WK 465 - Practice with the Elderly (3 cr.)**

Concepts and skills needed for effective practice with older adults, their families, and others in their support systems. Attention to subgroups in an older population, including persons of color, health-impaired individuals, grandparent caregivers, and elderly gay men and women.

**S WK 490 - Family and Child Welfare Policy (3 cr.)**

This course is designed to provide students with an understanding of the history and evolution of child welfare policies, initiatives and factors that influence advocacy and practices within the child welfare system. Child welfare policies and services specific to the state of New Mexico are infused throughout the course. Taught with MSW 590. Students enrolled in S WK 490 will not receive credit MSW 590. Students enrolled in S WK 490 will not receive credit MSW 590.

**S WK 491 - Professional and Systems Responses to Child Maltreatment (3 cr.)**

Course examines the professionals and systems that respond to allegations of child abuse and neglect. Includes the differences between civil and criminal proceedings; components of a court-worthy child abuse and neglect investigation; basic child forensic interviewing; an overview of child sex offenders; current research and controversial issues affecting the field. Students majoring in social work, criminal justice, education, sociology, psychology, nursing, and other areas will enhance their capacity to strengthen the safety net that protects children. Crosslisted with: CAST 302.

**S WK 492 - Death and Dying (3 cr.)**

Course introduces students to issues and problems presented by death, dying, and grief. It is designed for social work majors and others in the helping professions, by examining attitudes and responses to death, perspectives of dying children and adults, euthanasia, abortion, suicide, capital punishment, funeral behavior, and the dynamics of grief.

**S WK 496 - International Social Work and Social Welfare (3 cr.)**

This course examines how people are affected by political, economic, educational, social conditions, and the policies designed to address those conditions. Comparative analysis of social policies and practices in the United States and the developing world will be emphasized. Taught with MSW 596. Cannot receive credit for S WK 496 and MSW 596. Consent of instructor required.

**S WK 497 - Special Topics (3 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be used as a mandatory practice elective. Prerequisite(s): Junior or above standing, majors or consent of instructor. Restricted to: S WK majors.

**SOC - SOCIOLOGY**

**SOC 101G - Introductory Sociology (3 cr.)**

Introduction to social theory, research, methods of analysis, contemporary issues in historical and cross-cultural contexts. Covers groups, deviance, inequality, family, gender, social change, and collective behavior.

**SOC 201G - Contemporary Social Problems (3 cr.)**

Introduction to the fundamentals of social analysis through the analysis of contemporary American social problems. Emphasis on methods of analysis and cross-national comparisons showing that the social problems studied are common to all societies. Covers racism, violence, poverty, crime, health care, and substance abuse.

**SOC 258 - Current Issues in Marriage and Family (3 cr.)**

Examination of contemporary American family life, including courtship, marriage, divorce, and child rearing. Community Colleges only.

**SOC 262 - Issues in Death and Dying (3 cr.)**

Major personal and social issues related to the process of dying in our culture. Community Colleges only.

**SOC 263 - Human Sexuality (3 cr.)**

Introduction to cultural and personal aspects of human intimacy, sexuality and the life cycle, sexual variation, and sexually transmitted diseases. Community Colleges only.

**SOC 269 - Sexualities and Society (3 cr.)**

Examines various sexualities from a sociological perspective. Topics include sexual identity, intimate relationships, sexual desire, sexual behavior, the sex industry, and the politics of sexuality. Discussion of selected topics is grounded in both macro and micro sociological viewpoints. Restricted to: Main campus only.

**SOC 273 - Sex and Gender (3 cr.)**

Analysis of changes, behaviors, and stereotypes of women and men in contemporary Western societies. Same as W S 273.

**SOC 330V - Introduction to Religious Studies (3 cr.)**

Provides an overview of old and new methods and theories for the study of religion. Exposure to the ways groups of people in diverse cultural systems



construct and change their religious traditions to serve practical and meaningful ends. Same as ANTH 330V and HIST 330V.

**SOC 336V - Sociology of Pop Culture (3 cr.)**

This course will provide students with a sociological look at creation, distribution, and effects of popular culture that have shaped, preserved, and conveyed distorted images of social class, race, gender and history to unwary consumers.

**SOC 348 - Special Topics (3 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits.

**SOC 350 - Sociological Foundations (3 cr.)**

Focus is on becoming a sociologist including career opportunities, thinking critically about society, and conducting sociological inquiry. Emphasis is on identifying and using resources available to sociologists, communication skills for sociologists and acquisition of basic analytic techniques. Prerequisite(s): SOC 101G or consent of instructor. Restricted to BA Sociology majors.

**SOC 351 - Sociological Theory (3 cr.)**

Analysis of the main historical themes underlying contemporary sociological theory. Prerequisite(s): SOC 101G and SOC 350. Restricted to BA Sociology majors.

**SOC 352 - Social Research: Methods (3 cr.)**

An introduction to research design and data collection strategies commonly employed in the social sciences. Topics include experiments, survey research and various other quantitative and qualitative methods. Prerequisite(s): SOC 101G and SOC 350. Restricted to BA Sociology majors.

**SOC 353 - Sociological Research: Analysis (3 cr.)**

Elementary data analysis class emphasizing descriptive and inferential statistical techniques commonly employed in the social sciences. Topics range from one variable analysis through regression and correlation analysis of two variables. Prerequisite(s): SOC 101G and SOC 350. Restricted to BA Sociology majors.

**SOC 355 - Contemporary Sexualities (3 cr.)**

Provides a forum for discussion and debate of contemporary sexualities within a sociological context. Topics include the relationship between historical context and sexualities, constructing sexualities, sexual political movements, sexual objectification and power and the intersection of race, class and gender with sexualities

**SOC 357 - Gender and Society (3 cr.)**

Overview of issues related to gender, including how gender is constructed and reproduced in our society. Gender is examined from social psychological and institutional perspectives. Same as W S 357.

**SOC 359 - Sociology of the Family (3 cr.)**

Family patterns, dynamics, and processes in North American and other contemporary families. Emphasis on diversity.

**SOC 360V - Introduction to Population Studies (3 cr.)**

Determinants and consequences of changes in fertility, mortality and migration patterns. Introduction to techniques of demographic analysis. Focus on U.S. and world population issues and their relation to social, cultural, and economic systems.

**SOC 361V - Social Issues in the Rural Americas (3 cr.)**

Same as ANTH 361V.

**SOC 362 - Urban Society in a Global World: Problems, Prospects, and Promises (3 cr.)**

Identification and analysis of the causes and consequences of social issues in urban environments including poverty, crime, terrorism, urban social policy, suburban flight, disinvestment, and deindustrialization. Special emphasis on global forces affecting global urban environments around the world.

**SOC 365 - Environmental Sociology (3 cr.)**

Societal responses to environmental problems including social adjustments to natural and technological hazards, socio-cultural aspects of technological risk and impact assessment, and emergence of environmental social movements.

**SOC 371 - Race and Ethnic Relations (3 cr.)**

Dynamics of racial prejudice and patterns of racial and ethnic interaction in the United States.

**SOC 372 - Sociology of Health and Medicine (3 cr.)**

Analysis of issues related to health, illness, and health related services and professions; the role of sociology in medicine.

**SOC 373 - Aging and Society (3 cr.)**

Myths and realities of growing older, including theories and research on roles and image, retirement, health, social activism, quality of life, and death and dying. Same as HL S 373.

**SOC 374V - Comparative Family Systems (3 cr.)**

A comparative analysis of family forms and characteristics in various societies. An examination of the diversity of family practices among ethnic and class groups in the United States. Same as W S 374G.

**SOC 375 - Social Inequality (3 cr.)**

Analysis of the social distinctions arising from sex, age, occupation, and ethnicity. Emphasis on indicators of social class and patterns of social mobility.

**SOC 376V - Social Change (3 cr.)**

Explanations of autonomous and directed social change as occurring at the individual, organizational, societal, and international levels. Case studies from around the world.

**SOC 381 - Individual and Society (3 cr.)**

Ways people influence each other and the mutual interaction of the individual and society. Topics include attitudes, attitude change, conformity, liking and friendship patterns.

**SOC 390 - Sociology of Childhood (3 cr.)**

This course examines theories, methods, and empirical research in several areas of the sociology of childhood. Major themes are: (1) how social structure constrains children's lives, (2) how children negotiate, share, and create culture, and (3) how children's experiences vary within and across societies.

**SOC 391 - Crime and Society (3 cr.)**

Analysis of crime at the interpersonal, organizational, and social structure levels in society. Exploration of contemporary images of crime in mass media. Examination of connections between race, class, gender, and crime in U.S. society.

**SOC 392 - Juvenile Delinquency (3 cr.)**

Nature, extent, and causes of juvenile delinquency; juvenile justice; modern methods of treatment; programs of prevention.

**SOC 393 - Youth and Society (3 cr.)**

Comparative historical analysis of social, economic and cultural forces affecting young people. Emphasis on organizational and institutional effects on the well being of children and young adults.

**SOC 394V - Sports and Society: A Global Perspective (3 cr.)**

A critical examination of sports in a global context, emphasizing the social and cultural factors that shape the world of sports and the consequences of sports for societies. Course examines issues of social inequality, violence, media and corporate influence, religion and sports, and the student-athlete experience.

**SOC 401 - Introduction to Sociological Practice (3 cr.)**

The application of sociological theory and research method. May be taught as service learning course. Prerequisite(s): SOC 101G, SOC 350, senior standing or consent of instructor. Restricted to BA Sociology majors.

**SOC 409 - Community Development (3 cr.)**

This is a holistic view of community development with an emphasis upon how economic development efforts can become more inclusive and sustainable. Topics include examining what 'community' means, community development versus economic development, and alternative economic activities. Prerequisite(s): SOC 101G.

**SOC 430 - Social Movement Theory (3 cr.)**

Overview of key theories in past and present social movement research. Includes a focus on rational or spontaneous choice theories, resource mobilization, and new social movement theories. Theoretical perspectives focus on analyses of case studies including women's movement, civil rights, and environmental movements.

**SOC 448 - Special Topics (3 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits.

**SOC 449 - Directed Readings (1-3 cr.)**

Individual readings or research for either majors or nonmajors. Prerequisite: consent of instructor. May be repeated for a maximum of 6 credits.

**SOC 451 - Advanced Quantitative Techniques (3 cr.)**

Advanced methods of sociological analysis are examined in detail. Prerequisite(s): SOC 353 or equivalent or permission of instructor. Restricted to Sociology BA or MA or permission of instructor majors.

**SOC 452 - Advanced Social Theory (3 cr.)**

Analysis of classical and contemporary theoretical perspectives within the discipline. Prerequisite(s): SOC 351. Restricted to BA Sociology MA Sociology majors.

**SOC 455 - Advanced Social Research: Evaluation (3 cr.)**

Logic, design and ethics of evaluations including theory driven and multi level models. Emphasis on individual, group and community level needs assessment, process and activities assessment and outcomes assessment including social impact assessment. Data collection techniques will include survey questionnaire construction, interviewing, focus groups and case studies. Measures of efficiency and effectiveness will be examined. Prerequisite: Research Methods Course.

**SOC 457 - Gender, Science, and Technology (3 cr.)**

How gender, science and technology are interrelated social constructions. Science and technology are examined as social institutions. Explanations for different rates of participation based on race, class and gender are explored. Same as: W S 467.

**SOC 458V - Comparative Global Family Systems (3)**

The study of families around the world. The comparison will include how capitalism and power differentials have affected the course of family history, gender relations, and family life today.

**SOC 459 - Advanced Issues in Sex and Gender (3 cr.)**

Comprehensive examination of current gender identity and gender stratification issues. Same as W S 459.

**SOC 460 - Sociology of Religion (3 cr.)**

Examination of religion in its social context to understand the intricate relations of religion, culture and U.S. society. Recommended preparatory courses: SOC 101G, SOC 273, SOC 376, ANTH 125G.

**SOC 461 - Population Trends and Analysis (3 cr.)**

Overview of past, present, and future population phenomena and introduction to techniques of demographic analysis.

**SOC 464 - Human Society and the Environment (3 cr.)**

This course explores the relationship between human societies and the natural environment, with an emphasis on both sustainable human and environmental relationships. Prerequisite(s): SOC 101G.

**SOC 465V - Environmental Sociology (3 cr.)**

Advanced examination of societal responses to environmental problems including social adjustments to natural and technological hazards, sociocultural aspects of technological risk and impact assessment, and emergence of environmental social movements.

**SOC 470 - Sociology of Latinos/as in the United States (3 cr.)**

In-depth examination and comparative analysis of political and economic issues affecting Latino/a culture and behavior. Includes the Chicano/a and larger

Latino/a movements, the border, immigration, language policies, education, religion, labor, and Latina women's issues. Recommended preparatory courses: SOC 101G, SOC 270, SOC 371, or HIST 367.

**SOC 471 - Advanced Race and Ethnic Relations (3 cr.)**

In-depth analysis of the dynamics of prejudice, discrimination, and patterns of intergroup interaction in the U.S.

**SOC 473 - International Migration (3 cr.)**

This course examines international migration as a social process, focusing on the American experience. Students will examine historical and comparative literature on immigration that puts contemporary questions about policy and immigrant assimilation into a broader sociological perspective. Prerequisite(s): SOC 101G.

**SOC 474 - Sociology of Organizations (3 cr.)**

Sociological models of formal organizations relevant to business, education, government, healthcare, military, and religion. Focus on internal organizational structure and dynamics plus the reciprocal relationship between organizations and their operating environment.

**SOC 477 - Sociology of Education (3 cr.)**

Socio-political and economic factors that shape the structure and operation of educational institutions in modern complex societies. Socio-historical development of the school as a microcosm of society, with examples from American and other school systems.

**SOC 478 - Sociology of Development and the World System (3 cr.)**

A sociological approach to development and global system. Theories of development and underdevelopment; world poverty/inequality; Latin America, Africa, and Asia in comparative perspectives; transnational borders/U.S.-Mexico border; current topics. Same as GOVT 477.

**SOC 479 - Sociology Perspectives on the U.S.-Mexico Border (3 cr.)**

Theoretical perspectives and current research on the U.S.-Mexico border region, including topics such as migration, identity, health, gender, and environment.

**SOC 480 - Diversity in Alternative Families (3 cr.)**

Cross-cultural examination of diversity among and within families: analysis of family diversity includes consideration of the theoretical frameworks, ideological commitments, personal experiences, and methodological approaches to examine family life.

**SOC 481 - Social Deviance (3 cr.)**

Theoretical approaches to the study of social deviance with emphasis on critical theories. Exploration of forms of deviance in society. Examination of social construction of deviance within mass media and systems of social control.

**SOC 482 - Advanced Individual and Society (3 cr.)**

Examines reciprocal relationship between individual and society. Topics include socialization, social influence and persuasion, group structure and performance, altruism, aggression, interpersonal attraction, group cohesion and conformity, and inter-group conflict.

**SOC 486 - Power and Politics in America (3 cr.)**

This course provides an introduction to the study of Political Sociology with a focus on the United States. Political Sociology studies the social bases of politics and political systems and facilitates the understanding of the processes and consequences of power distributions in the United States. Prerequisite(s): SOC 101G.

**SOC 489 - Globalization (3 cr.)**

Analysis of the globalization process. Covers theories of globalization, the global economy, political globalization, global culture, transnational social movements, transnational migration and world labor market, global cities, and local-global linkages. Same as GOVT 469.

**SOC 491 - Criminological Theory (3 cr.)**

Schools of thought, contrasting approaches, and contemporary efforts in theory construction relevant to adult and juvenile offenders.

**SOC 496 - Internship (1-6 cr.)**

Supervised participation in an appropriate community setting. Taught with SOC 596. May be repeated up to 9 credits. Consent of Instructor required. S/U Grading (S/U, Audit).

**SOIL - SOIL****SOIL 200 - Special Topics (1-4 cr.)**

Specific subjects and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester. No more than 9 credits toward a degree.

**SOIL 252 - Soils (3 cr.)**

Origin, classification, morphology, and physical, chemical, and biological properties of soils. Prerequisite: CHEM 111G and CHEM 112G.

**SOIL 252 L - Soils Laboratory (1 cr.)**

Morphological, chemical, physical and biological properties of soil in the laboratory and field. Corequisite: SOIL 252.

**SOIL 257 - Introduction to Weather Science (4 cr. (3+3P))**

Introduction to Earth's atmosphere and the dynamic world of weather as it happens. Working with current meteorological data delivered via the Internet and coordinated with learning investigations keyed to the current weather; and via study of select archives. Consent of instructor required. Crosslisted with: GEOG 257 and AGRO 257

**SOIL 300 - Special Topics (1-4 cr.)**

Specific subjects and credits announced in the Schedule of Classes. Maximum of 4 credits per semester. No more than 9 credits toward a degree.

**SOIL 312 - Soil Management and Fertility (3 cr.)**

Management, conservation, and fertility of soils; physical conditions affecting growth, nutrition, and plant production. Prerequisite: SOIL 252. Corequisite: SOIL 312L.

**SOIL 312 L - Soil Management and Fertility Lab (1 cr.)**

Hands-on experience. Includes field trips, videos, calculations, visiting lecturers and other lab activities as possible. Prerequisite: SOIL 252. Corequisite: SOIL 312.

**SOIL 350 - Soils and Land Use (3 cr. (2+2P))**

Relationship of soils to the limitations and potentials of land use. Emphasis on soil interpretations and soils as a resource in urban, rural, and recreational development. Same as PLAN 350.

**SOIL 357 - Climatology (3 cr.)**

Elements and controls of climate. Energy and hydrologic cycles, general circulation, climate classification, distribution of climate types, microscale effects, applications. Prerequisites: MATH 120. Same as AGRO/GEOG 357.

**SOIL 370 - Environmental Soil Science (3 cr.)**

Continuation of SOIL 252 that emphasizes soil properties and processes that directly relate to environmental pollution problems. Prerequisite: SOIL 252. Same as E S 370.

**SOIL 391 - Internship (1-6 cr.)**

Professional work experience under the joint supervision of the employer and a faculty member. A written report is required. No more than 6 credits toward a degree. Consent of Instructor required. S/U Grading (S/U, Audit).

**SOIL 424 - Soil Chemistry (3 cr.)**

Basic elements of soil chemistry including clay mineralogy, cation and anion exchange and the chemistry of problem (acid, saline and flooded) soils. Credit not given for both SOIL 424 and SOIL 479. Prerequisite(s): SOIL 252L or CHEM 111G and 112G.

**SOIL 447 - Seminar (1 cr.)**

Organization, preparation, and presentation of current topics in agronomy, horticulture, and soil science. Same as AGRO/HORT 447.

**SOIL 449 - Special Problems (1-3 cr.)**

Research problem, experience training, or other special study approved by a faculty adviser. Maximum of 3 credits per semester and a grand total of 6 credits.

**SOIL 450 - Special Topics (1-4 cr.)**

Specific subjects to be announced in the Schedule of Classes. Maximum of 4 credits per semester and a total of 9 credits towards a degree.

**SOIL 456 - Irrigation and Drainage (3 cr.)**

Principles and practices required for irrigation to exist as a permanent economy. Equipment and methods for measurement and control of water.

**SOIL 472 - Soil Morphology and Classification (4 cr. (2+2P))**

Terminology used to describe soils. Soil classification systems of the world with emphasis on systems used in the United States. Theory of classification and taxonomy as applied to soils. Prerequisite: SOIL 252. Same as GEOG 472.

**SOIL 476 - Soil Microbiology (3 cr.)**

Nature and physiology of soil microorganisms, how they affect plant growth and recycle nutrients. Land farming, bioremediation and other environmental problems as influenced by soil microorganisms. SOIL 252 and BIOL 311 recommended. Same as BIOL 476.

**SOIL 476 L - Soil Microbiology Laboratory (1(3P))**

Enumeration of soil microorganisms, their activities, and transformations they mediate. Prerequisites: SOIL 476 or concurrent enrollment. Same as BIOL 476L.

**SOIL 477 - Environmental Soil Physics (3 cr.)**

A description of the physical characteristics of porous media including soil. Examination of processes describing the transport of water, chemicals, heat and gases through porous media with application to environmental quality, waste management, and crop production.

**SOIL 477 L - Environmental Soil Physics Laboratory (1)**

Concurrent enrollment with SOIL 477 recommended. Hands on experience with techniques for characterizing soil physical properties such as particle size distribution, bulk density, water retention, hydraulic conductivity and solute transport. Demonstrations of field and laboratory techniques for measuring moisture content, soil water potential, gas/air flow and thermal conductivity. Prerequisite: SOIL 252.

**SOIL 479 - Environmental Soil Chemistry (3 cr.)**

Basic elements of soil chemistry including discussion of clay mineralogy, cation and anion exchange and the chemistry of problem (acid, saline and flooded) soils. Credit not given for both SOIL 424 and SOIL 479. Prerequisite(s): SOIL 252L or CHEM 111G and 112G.

**SOIL 485 - Materials from Biorenewable Resources (3 cr.)**

Types, sources, composition and properties of biomass. Production, processing, and applications of biomass materials with energy, water, cost, sustainability, and waste management considerations. Crosslisted with: AGRO 485, E S 485, CHME 485 and HORT 486. Prerequisite(s): CHEM 111G, CHEM 313; a course in plant science, soil science, food science, or biology.

**SP M - SPORTS MEDICINE****SP M 190 - Introduction to Athletic Training (3 cr.)**

Introduction to the principles of athletic training.

**SP M 191 - Medical Terminology (3 cr.)**

Study of the structure of medical language with emphasis on sports medicine-related terminology. To include analysis and interpretation of medical documentation. Restricted to: Las Cruces campus only.

**SP M 195 - Introduction to Sport Management (3 cr.)**

Designed for Kinesiology majors who are in the business track, the course introduces students to career opportunities in sport management, and introduces some basic business concepts.

**SP M 250 - Emergency Response in Sports Medicine (2 cr.)**

Designed to provide knowledge and experience in emergency care procedures, blood borne pathogens, and first aid. Students will receive certification in CPR/AED for the Professional Rescuer and in First Aid, upon successful completion of course. Restricted to Las Cruces campus only.

**SP M 271 - Anatomy & Physiology I (3 cr.)**

Detailed study of the structure and function of the human musculoskeletal, cardiovascular, respiratory, and peripheral nervous systems. Designed specifically for students interested in allied health professions. Restricted to Las Cruces campus only.

**SP M 271 L - Anatomy and Physiology Laboratory (1 cr.)**

Compliment to SP M 271. Students will engage in activities designed to enhance appreciation of the anatomical structures related to the content areas for SP M 271. Restricted to Las Cruces campus only.

**SP M 272 - Clinical Practicum I (2 cr.)**

Introduction to the clinical aspects of the athletic training education program. Must maintain at least 3.0 GPA. May be repeated up to 4 credits. Consent of Instructor required. Restricted to: SP M majors. Restricted to Las Cruces campus only.

**SP M 273 - Clinical Practicum II (3 cr.)**

Athletic training psycho-motor skills are enhanced and assessed by a preceptor during clinical rotations. Emphasis is on competencies and proficiencies previously instructed in didactic courses. Must maintain a 3.0 GPA. Consent of Instructor required. Restricted to: SP M majors. Restricted to Las Cruces campus only.

**SP M 275 L - Anatomy and Physiology Laboratory I for PE/Dance Majors (1 cr.)**

Practical laboratory involving the kinematic and kinesthetic aspects of Human Anatomy and Physiology as it applied to Physical Education and Dance. Prerequisite(s): SP M 271. Restricted to: Physical Education and Dance. Not acceptable for Kinesiology Majors majors. Restricted to Las Cruces campus only.

**SP M 303 - Health and Exercise Psychology (3 cr.)**

The course examines the reciprocal relationship among physical activity, exercise behavior, and psychological determinants associated with adopting and maintaining an exercise program. Topics include theories of behavioral change, exercise psychology interventions, the benefits/pitfalls of exercise, and psychological factors influencing patient rehabilitation. Prerequisite(s): GPA of 2.75.

**SP M 304 - Psychology of Sport (3 cr.)**

Development of coaching techniques to enhance sport performance based on understanding and use of psychological principles. Prerequisite(s): GPA of 2.75.

**SP M 305 - Applied Biomechanics (3 cr.)**

The application of anatomical, mechanical and electrical concepts to better understand the fundamental nature of human movement. Prerequisite(s): SP M 271 GPA of 2.5.

**SP M 305 L - Applied Biomechanics Laboratory (1 cr.)**

This course serves to provide an introduction to human movement and its analysis. The conceptual framework of the course will allow for the application of anatomical, mechanical, and electrical concepts in order to better understand the fundamental nature of movement. Prerequisite(s): SP M 271 Anatomy and Physiology I; GPA 3.0.

**SP M 307 - Pathophysiology and Human Function(s) (3 cr.)**

Students will discuss basic concepts of pathophysiology such as inflammation & repair, infectious diseases, neoplasms, and diseases of specific physiological systems. In addition, students will discuss a variety of case studies, and in so doing will be able to relate pathophysiologic conditions to symptoms, activity restrictions and disability. Prerequisite(s): SP M 271; SP M 271L; SP M 308, GPA 2.75. Restricted to: KIN majors.

**SP M 308 - Exercise Physiology (3 cr. (2+2P))**

Basic physiological principles as they apply to exercise and fitness programs. Laboratory experiences included. Prerequisite(s): SP M 271 or PE P 208. GPA of 2.5.

**SP M 309 - Neurophysiology and Human Function (3 cr.)**

Students will discuss neurological control of human movement. Topics will include central and peripheral nervous system functions, with particular

emphasis given to somatosensory afferent and motor efferent control. In addition, students will develop an understanding of the techniques employed to assess neurologic function in various patient populations. Prerequisite(s): SP M 271; SP M 271L; SP M 305; SP M 308; SP M 304 or SP M 303 and GPA of 2.75.

**SP M 310 - Orthopedic Examination, Evaluation and Diagnosis of Lower Extremity Injuries (4 cr.)**

Examines normal human anatomy, mechanisms of athletic injury, and deviation from normal anatomy following athletic injury to the lower extremity. Must maintain at least 3.0 GPA. Consent of Instructor required. Restricted to: SP M and KINES majors.

**SP M 320 L - Palpation and Anatomical Kinesiology Laboratory (3 cr.)**

Practical hands-on clinical laboratory introducing techniques necessary for physiological and functional kinematic evaluation of human function. Prerequisite(s): SP M 271, GPA 2.75.

**SP M 324 - Introduction to Exercise Science: Exercise Physiology and Biomechanics (3 cr.)**

This course serves to provide a broad introduction to both the physiology of exercise and the mechanics of human movement. The conceptual framework of the course will allow for the development of a broad knowledge base regarding these concepts and the latter portions of the course will focus on real world application of the concepts. Consent of Instructor required. Prerequisite(s): SP M 271 Anatomy and Physiology I.

**SP M 330 - Exercise Testing and Prescription (4 cr.)**

This combined lecture and lab class introduces students to the scientific basis for and principles of exercise testing and prescription. The focus is on basic approaches to exercise testing and prescription for healthy adults, while application to some special populations with chronic disease will be discussed. Prerequisite(s): SP M 271 and SP M 308 or consent of instructor. GPA of 2.75.

**SP M 341 - Motor Development (3 cr.)**

Covers development of motor skills from infancy through maturity. Focus on the principles of motor development, early motor behavior, stage theory, and assessment. Field experiences will augment lecture and readings.

**SP M 342 - Motor Learning (3 cr.)**

An examination of the theoretical foundations and related literature that underline the learning, performing, and retention of motor skills with implications for effective teaching and coaching. Prerequisite(s): GPA of 2.3.

**SP M 371 - Anatomy and Physiology II (3 cr.)**

Detailed study of the structure and function of the human endocrine, immune, digestive, reproductive, integumentary, central nervous and renal systems. Designed specifically for students interested in allied health professions. Prerequisite(s): SP M 271G or consent of instructor. GPA of 2.75.

**SP M 371 L - Anatomy and Physiology II Lab (1 cr.)**

The students will develop skills in palpating various bony landmarks as well as origins and insertions of major soft tissues. In addition, problem based learning scenarios will be used to complement the SP M 371 lecture material and thereby further students understanding of certain physiologic systems including neural, digestive, reproductive, endocrine, and integumentary. Prerequisite(s): SP M 271; SPM 271 L; GPA 2.75.

**SP M 372 - Clinical Practicum III (3 cr.)**

Athletic training psychomotor skills are enhanced and assessed by a preceptor during clinical rotations. Emphasis is on competencies and proficiencies previously instructed in didactic courses. Must maintain a 3.0 GPA. Consent of Instructor required. Restricted to: SP M and KINES majors.

**SP M 373 - Clinical Practicum IV (3 cr.)**

Athletic training psychomotor skills are enhanced and assessed by a preceptor during clinical rotations. Emphasis is on competencies and proficiencies previously instructed in didactic courses. Must maintain a 3.0 GPA. Consent of Instructor required. Restricted to: SP M majors.

**SP M 375 - Therapeutic Exercise (3 cr.)**

An introduction to principles of rehabilitation exercises for the physically active population. Must maintain a 3.0 GPA. Consent of Instructor required. Restricted to: SP M and KINES majors.

**SP M 395 - Sport Management II (3 cr.)**

Designed for Kinesiology majors who are in the business track, the course builds on foundational knowledge and skills developed in earlier coursework by providing a more applied setting for the development and implementation of business plans as they relate to careers in sport management. Prerequisite(s): P E 275; 6 hours towards business minor.

**SP M 409 - Clinical Biomechanics (3 cr.)**

The application biomechanical analysis of human movement as it relates to clinical proficiencies through the use of anatomical, mechanical and electrical concepts. Corequisite(s): SP M 409L. Prerequisite(s): SP M 271, GPA 2.75.

**SP M 409 L - Clinical Biomechanics Laboratory (1 cr.)**

Laboratory experiments and biomechanical analysis of human movement as they relate to clinical proficiencies through the use of anatomical, mechanical and electrical concepts. Corequisite(s): SP M 409. Prerequisite(s): SP M 271, SP M 409, GPA >2.75.

**SP M 410 - Orthopedic Examination, Evaluation and Diagnosis of Upper Extremity Injuries (4 cr.)**

Examines normal human anatomy, mechanisms of athletic injury, and deviation from normal anatom following athletic injury to the upper extremity. Must maintain a 3.0 GPA. Consent of Instructor required. Restricted to: SP M and KINES majors.

**SP M 411 - Pharmacology in Athletic Training (2 cr.)**

An introduction to general medical conditions and pharmacological applications in the athletic training setting. Emphasis on the laws governing the development and distribution, indications, contraindications, precautions, and interactions of prescription and over-the-counter medications. Must maintain a 3.0 GPA. Consent of Instructor required. Restricted to: SP M and KINES majors.

**SP M 412 - Inferential Statistics in Sport and Exercise Science (3 cr.)**

Statistical concepts and methods basic to experiential research to include normal distribution, z-tests, t-tests, analysis of variance and regression analysis. An understanding of sport and exercise science theory is required for students enrolling in this course Prerequisite(s): GPA of 2.75; or consent of instructor. Restricted to: KIN, SP M majors.

**SP M 413 - Statistical Application in Sports and Exercise Science (3 cr.)**

An introduction to descriptive statistics and the interpretation of data in the solution of problems in sport and exercise related research. Prerequisite(s): Junior or senior standing. GPA 2.75.

**SP M 415 - Therapeutic Modalities (4 cr.)**

The physiological effects, indications, contraindications, dosage, and maintenance of therapeutic modalities related to the treatment of athletic or activity-related injuries. Must maintain a 3.0 GPA. Consent of Instructor required. Restricted to: SP M and KINES majors.

**SP M 420 - Orthopedic Examination, Evaluation and Diagnosis of Core, Spine and Head Injuries (3 cr.)**

Advanced clinical assessment techniques and applications. Must maintain at least a 3.0 GPA. Consent of Instructor required. Restricted to: SP M majors.

**SP M 422 - Clinical Practicum V (3 cr.)**

Athletic training psychomotor skills are enhanced and assessed by a preceptor during clinical rotations. Emphasis is on competencies and proficiencies previously instructed in didactic courses. Must maintain a 3.0 GPA. Consent of Instructor required. Restricted to: ATEP, SP M majors.

**SP M 423 - Clinical Practicum VI (3 cr.)**

Athletic training psycho-motor skills are enhanced and assessed by a preceptor during clinical rotations. Emphasis is on competencies and proficiencies previously instructed in didactic courses. Students might complete a general

medical rotation with this course Consent of Instructor required. Restricted to: SP M majors.

**SP M 424 - Clinical Practicum VII (3 cr.)**

Athletic training psychomotor skills are enhanced and assessed by a preceptor during clinical rotations. Emphasis is on competencies and proficiencies previously instructed in didactic courses. Students might complete a general medical rotation with this course. Must maintain 2.8 GPA. Consent of Instructor required. Restricted to: ATEP, SP M majors.

**SP M 425 - Organization and Administration in Athletic Training (3 cr.)**

An introduction to management, leadership, financial strategies, professional development and legal issues related to the athletic training setting. Must maintain 3.0 GPA. Consent of Instructor required. Restricted to: SP M majors.

**SP M 445 - Internship (6 or 12 cr.(6 or 12P))**

A full-time internship in an approved wellness, fitness, athletic or recreation program with experience in all phases of management and operation. Field instructor supervision. This internship may require relocation to a site outside of the Las Cruces area. May be repeated up to 12 credits. Consent of Instructor required. Prerequisite(s): Senior standing, GPA of 2.75, completion of all major courses. Restricted to: Kinesiology Majors majors. S/U Grading (S/U, Audit).

**SP M 451 - Advanced Exercise Physiology (3 cr.)**

Detailed study of the integrated response of neuromuscular, cardiovascular, and respiratory systems to acute and chronic exercise, nutrition, and environmental conditions with a strong emphasis on laboratory experiences. Prerequisite(s): SP M 271 and SP M 308 or consent of instructor. GPA of 2.75.

**SP M 456 - Exercise for Special Populations (3 cr.)**

Fundamentals of kinesiology adapted for adults with various diseases and disabilities. Focus will be on the application of exercise assessment and prescription for selected conditions. Prerequisite(s): SP M 308 and SP M 330 or SP M 460. GPA of 2.75.

**SP M 458 - Physical Dimensions of Aging (3 cr.)**

This course introduces students to physical, physiological, social, mental, and emotional aspects of human aging. Age-related changes in human function are discussed the context of applied healthcare settings, and the implications for appropriate physical activity and functional independence. Prerequisite(s): SP M 308. GPA of 2.75.

**SP M 460 - Principles of Strength and Conditioning (3 cr.)**

Application of research, theory, and methods of high-intensity, resistive overload training. Performance-specific topics include management, nutrition. Prerequisite(s): SP M 308. GPA of 2.75.

**SP M 460 L - Principles of Strength and Conditioning Laboratory (1 cr. (2P))**

An applied examination of the theory, principles, rules and regulations associated with various strength and conditioning exercises to include but not limited to Olympic lifting, powerlifting, bodybuilding, plyometrics, speed, agility and speed-endurance development. Lab required for Kinesiology majors. Prerequisite(s): SP M 308. GPA of 2.75.

**SP M 465 - Ethics and Legal Issues in Athletic Training (3 cr.)**

Examination of the legal and ethical issues associated with the practice of athletic training and other health care fields. Must maintain a 3.0 GPA. May be repeated up to 3 credits. Consent of Instructor required. Restricted to: SP M majors.

**SP M 498 - Advanced Athletic Training I (1-3 cr.)**

Advanced clinical experiences and education in athletic training. Assessment of Athletic Training Program clinical proficiencies as described by the National Athletic Trainer's Association Education Council. Consent of Instructor required.

**SP M 499 - Advanced Athletic Training I (1-3 cr.)**

Problems in athletic training and independent work in their solutions. Consent of Instructor required. Prerequisite(s): Junior or Senior status; Consent of ATEP director.

**SPAN - SPANISH****SPAN 101 - Beginning Spanish Conversation (3 cr.)**

Beginning conversation and intensive oral practice for non-degree seeking students, and SPAN 111 and SPAN 112 students who desire additional conversational practice. This course does not count toward the NMSU second language requirement and is not open to native Spanish speakers without permission of instructor. Restricted to: Community colleges.

**SPAN 111 - Elementary Spanish I (4 cr.)**

Spanish for beginners. Not open to Spanish-speaking students except by consent of instructor. Prerequisite: language placement and assessment by departmental examination.

**SPAN 112 - Elementary Spanish II (4 cr.)**

Spanish for beginners. Not open to Spanish-speaking students except by consent of instructor. Prerequisite: language placement and assessment by departmental examination or C or better in SPAN 111.

**SPAN 113 - Spanish for Heritage Learners I (3 cr.)**

Emphasis on development of heritage Spanish language skills learned at home and/or in the community. Covers listening comprehension, development of vocabulary and cultural activities to help strengthen heritage language and culture. Students who have previously earned a C or better in SPAN 111 or SPAN 112 may not receive credit for this course.

**SPAN 115 - Elementary Spanish I for Hotel, Restaurant and Tourism Managers (4 cr.)**

Beginning Spanish for HRTM majors only. Will count towards HRTM degree language requirement. Does not count towards language requirement for other majors. Restricted to: Main campus only. Restricted to HRTM majors.

**SPAN 211 - Intermediate Spanish I (3 cr.)**

Speaking, reading and writing. Not open to Spanish-speaking students except by consent of instructor. Prerequisite: language placement and assessment by departmental examination or C or better in SPAN 112.

**SPAN 212 - Intermediate Spanish II (3 cr.)**

Speaking, reading and writing. Not open to Spanish-speaking students except by consent of instructor. Prerequisite: language placement and assessment by departmental examination or C or better in SPAN 211.

**SPAN 213 - Spanish for Heritage Learners II (3 cr.)**

Emphasis on development of heritage language skills learned at home and/or in the community. Covers spoken Spanish, reading activities and grammar skills to build on existing knowledge of the language.

**SPAN 214 - Spanish for Heritage Learners III (3 cr.)**

Continued development of heritage Spanish language skills learned at home and/or in the community. Emphasis on reading, writing and critical thinking skills. Review of grammar points will also be stressed in preparation for upper level courses.

**SPAN 305 - Topics in Hispanic Civilization (3 cr.)**

Group study of selected topics focusing on Hispanic culture and civilization. Topics announced in the Schedule of Classes. May be repeated for a maximum of 6 credits. Prerequisite: SPAN 212 or SPAN 214 or consent of instructor.

**SPAN 306 - Special Topics (3 cr.)**

Group study of Spanish for specialized purposes (e.g. court interpreting, professional language for bilingual teachers, technical writing for the business community). Course subtitled in the Schedule of Classes. Prerequisite: SPAN 212 or SPAN 214 or consent of instructor. May be repeated for a maximum of 12 credits.

**SPAN 312 - Grammar for Heritage/Native Speakers of Spanish (3 cr.)**

For students who have been exposed to Spanish at home or in the community. Review of grammatical concepts and analysis of both spoken and written Spanish. Students cannot receive credit for both SPAN 312 and SPAN 313. Prerequisite(s): SPAN 214 or consent of instructor.

**SPAN 313 - Spanish Grammar (3 cr.)**

A review of the rules of Spanish grammar. Students cannot receive credit for both SPAN 312 and SPAN 313. Prerequisite: SPAN 212 or SPAN 214 or consent of instructor.

**SPAN 314 - Spanish Composition (3 cr.)**

Development of written Spanish skills. Students cannot receive credit for both SPAN 312 and SPAN 315. Prerequisite: SPAN 312 or SPAN 313.

**SPAN 315 - Composition for Heritage/Native Speakers of Spanish (3 cr.)**

Discussions of history, and current political and cultural topics pertaining to the Hispanic world. Emphasis on development of writing skills in formal Spanish. Students cannot receive credit for both SPAN 314 and SPAN 315. Fulfills departmental requirement for SPAN 314. Prerequisite(s): SPAN 312 or SPAN 313.

**SPAN 325 - Advanced Conversation (3 cr.)**

Intensive oral practice. Not open to heritage/native speakers of Spanish. Prerequisite(s): SPAN 212 or consent of instructor.

**SPAN 327 - Spanish in the Community (3 cr.)**

Emphasis on use of Spanish outside the classroom in the local communities. Activities include but are not limited to oral histories, language mentoring in schools, assisting with cultural activities and language research. Prerequisite(s): Basic communicative fluency in Spanish as determined by departmental advisor.

**SPAN 340 - Introduction to Spanish Linguistics (3 cr.)**

General aspects of Spanish linguistics: traditional, descriptive, historical and dialectal. Prerequisite(s): SPAN 312 or SPAN 313.

**SPAN 350 - Introduction to Chicano Studies (3 cr.)**

Covers Mexican-American life including language, history, education, politics and literature. Prerequisite: SPAN 312 or SPAN 313.

**SPAN 352 - Spanish in Social Contexts (3 cr.)**

The study of Spanish in the contexts of the societies in which it is spoken. Prerequisite: SPAN 312 or SPAN 313.

**SPAN 353 - Spanglish (3 cr.)**

Covers lexical borrowing, code choice, language loss and maintenance, and bilingual cognition. Prerequisite(s): SPAN 312 or SPAN 313.

**SPAN 361 - US-Mexico Border Culture- Literature and /or Culture (3 cr.)**

Study of major authors and/or cultural trends in the U.S.-Mexico border. Selected subject to be identified by subtitle in the Schedule of Classes. May be repeated up to 6 credits. Prerequisite(s): SPAN 312 or SPAN 313.

**SPAN 363 - US-Hispanic Culture (3 cr.)**

Study of major artistic and cultural trends among US-Hispanics. Selected topics to be identified by subtitle in the Schedule of Classes. May be repeated for a total of 6 credits under a different subtitle. Prerequisite(s): SPAN 312 or SPAN 313.

**SPAN 364V - Culture and Civilization of Mexico (3 cr.)**

Familiarization with culture, civilization and regions of Mexico. History, geography, art, literature, folklore, customs, economics and politics of each region. Impact of Mexican culture and civilization on the Southwest United States. Taught in English. Does not satisfy Arts and Sciences second language requirement.

**SPAN 365V - Culture and Civilization of Spanish America (3 cr.)**

Familiarization with culture, civilization and regions of Spanish America. Study of history, geography, art, literature, folklore, customs, economics and politics of each region. Impact of Spanish American culture and civilization on the Southwest United States. Taught in English. Does not satisfy College of Arts and Sciences second language requirement.

**SPAN 380 - Introduction to Hispanic Literature (3 cr.)**

Works in Spanish, all genres and periods. How to read literature in all forms. Prerequisite: SPAN 312 or SPAN 313.

**SPAN 385 - Introduction to Chicano/US-Mexican Literature (3 cr.)**

Introduction to the study of major works by Chicano/US-Mexican authors. Prerequisite: SPAN 312 or SPAN 313.

**SPAN 388 - Contemporary Hispanic Literature (3 cr.)**

Study of Peninsular and Spanish-American literature from the 20th century to the present. Prerequisite(s): SPAN 312 or SPAN 313.

**SPAN 393 - Introduction to Translation and Interpretation (3 cr.)**

General aspects of translation and interpretation from English to Spanish and Spanish to English. Selected subject to be identified by subtitle in the Schedule of Classes. May be repeated up to 6 credits. Prerequisite(s): SPAN 312 or SPAN 313.

**SPAN 399 - Independent Studies in Literature, Language, or Culture (1-3 cr.)**

Individualized, self-paced projects for advanced students. Students must present formal proposal of study. Prerequisite: SPAN 312 and SPAN 313. May be repeated for a maximum of 6 credits.

**SPAN 410 - Mitos y Leyendas Indigenas (3 cr.)**

Survey in Spanish language of indigenous poetry, myths and legends from Pre-Columbian times to present. Prerequisite(s): SPAN 312 or SPAN 313.

**SPAN 411 - Creative Writing (3 cr.)**

Creative writing in Spanish. Prerequisite(s): SPAN 314 or SPAN 315 and SPAN 380.

**SPAN 412 - Spanish-American Poetry (3 cr.)**

Study of major works by Spanish-American poets. Prerequisite: SPAN 312 or SPAN 313.

**SPAN 413 - Mexican Literature (3 cr.)**

Study of major works by Mexican authors. Prerequisite: SPAN 312 or SPAN 313.

**SPAN 415 - Spanish-American Women Writers (3 cr.)**

All genres of Spanish-American literature written by women. Prerequisite: SPAN 312 or SPAN 313.

**SPAN 416 - Nineteenth Century Spanish-American Literature (3 cr.)**

Study of major works by Spanish-American authors of the 19th century. Prerequisite: SPAN 312 or SPAN 313.

**SPAN 417 - Spanish-American Essay (3 cr.)**

Study of major works by Spanish-American essayists. Prerequisite: SPAN 312 or SPAN 313.

**SPAN 418 - Spanish-American Short Story (3 cr.)**

Study of major short stories by Spanish-American authors. Prerequisite: SPAN 312 or SPAN 313.

**SPAN 419 - Spanish American Drama (3 cr.)**

Study of major works by Spanish-American dramatists. Prerequisite(s): SPAN 312 or SPAN 313.

**SPAN 420 - Hispanic Micro Fiction (3 cr.)**

Study of micro fiction works by Hispanic Authors and creative writing workshop related to micro fiction. Prerequisite(s): SPAN 314 or SPAN 315 and SPAN 380.

**SPAN 421 - Culture and Literature of New Mexico (3 cr.)**

The study of the development and flourishing of New Mexican culture and literature. Prerequisite(s): SPAN 312 or SPAN 313.

**SPAN 422 - Literature of the Mexican Revolution (3 cr.)**

Study of Mexican authors dealing with the Mexican Revolution. Prerequisite: SPAN 312 or SPAN 313.

**SPAN 424 - Post-Modern Hispanic Literature (3 cr.)**

The study of Post-Modern experimental literary genres, from Post-boom to the present. Prerequisite(s): SPAN 314 or SPAN 315.

**SPAN 425 - Conquest, Colonial and Indigenous Literatures (3 cr.)**

The study of literary and cultural works of the Spaniard Conquest and Latin American Indigenous cultures. Prerequisite(s): SPAN 314 or SPAN 315.

**SPAN 426 - Spanish-American Novel (3 cr.)**

Study of major works by Spanish-American novelists. Prerequisite: SPAN 312 or SPAN 313.

**SPAN 427 - Chicano Literature (3 cr.)**

Study of Chicano/US-Mexican authors. Prerequisite(s): SPAN 312 or SPAN 313.

**SPAN 428 - U.S. Latino Culture and Literature (3 cr.)**

The study of major works by Latino writers in the U.S. Prerequisite(s): SPAN 312 or SPAN 313.

**SPAN 439 - Topics in Applied Spanish Linguistics (3 cr.)**

Group study of selected topics to be identified by subtitle in the Schedule of Classes. Prerequisite: SPAN 340. May be repeated once under different subtitle for a maximum of 6 credits.

**SPAN 445 - Dialectos del Espanol (3 cr.)**

In-depth exploration of Spanish dialects including their formal characteristics, historical formation and regional variation. Prerequisite(s): SPAN 340 or SPAN 461.

**SPAN 447 - Hispanic Film (3 cr.)**

Study of major films from Spain and Spanish-America. Restricted to: Main campus only.

**SPAN 448 - U.S.-Hispanic Film (3 cr.)**

Study of major films about and/or by Hispanics of the U.S. Restricted to: Main campus only.

**SPAN 449 - Special Problems (1-3 cr.)**

Directed reading for graduate students in their specific fields to satisfy language requirement for master's or doctoral programs. May be repeated for a maximum of 6 credits.

**SPAN 450 - Mexican Cultures (3 cr.)**

Different aspects of Mexican Culture. Selected topic to be identified by subtitle in the Schedule of Classes. May be repeated for a total of 6 credits under a different subtitle. Prerequisite(s): SPAN 312 or SPAN 313.

**SPAN 451 - Hispanic Cultures (3 cr.)**

Issues in Hispanic cultures of the U.S., Spanish-America and Spain. Also focuses on U.S.-Mexico border culture. Selected topics to be identified by subtitle in the Schedule of Classes. May be repeated up to 6 credits. Prerequisite(s): SPAN 314 or SPAN 315.

**SPAN 453 - Independent Studies in Hispanic Linguistics (1-3 cr.)**

Individualized, self-paced projects for advanced students. Prerequisites: consent of instructor. May be repeated for a maximum of 6 credits.

**SPAN 457 - Strategies for Teaching Spanish for Heritage/Native Speakers (3 cr.)**

Overview of the main theories, research, pedagogical approaches, assessment and practice concerning the teaching of Spanish to heritage learners and native speakers. Taught with SPAN 597. Prerequisite(s): SPAN 314 or SPAN 315.

**SPAN 460 - Spanish Language Acquisition (3 cr.)**

Research and theories of acquisition of Spanish as a first or second language. Prerequisite: LING 200 or SPAN 340, or consent of instructor.

**SPAN 461 - Introduction to Spanish Phonetics (3 cr.)**

An introduction to Spanish phonetics including basic dialectal variation and comparison with English. Prerequisite: SPAN 340.

**SPAN 462 - Spanish Phonology (3)**

An in-depth examination of the sound system of Spanish including formal characterization, dialectal variation and laboratory data. Prerequisite: SPAN 461 or SPAN 492.

**SPAN 470 - Methods for Teaching Literature to Spanish Heritage Learners (3 cr.)**

Current methods for teaching literature to Spanish for Heritage Learners (SHL). Prerequisite(s): SPAN 314 or SPAN 315 and SPAN 380.

**SPAN 490 - Special Topics (3 cr.)**

Selected topic to be identified by subtitle in the Schedule of Classes. May be repeated up to 6 credits. Prerequisite(s): SPAN 312 or SPAN 313.

**SPAN 491 - History of the Spanish Language (3 cr.)**

The development of Spanish from its origins. Prerequisite(s): SPAN 340.

**SPAN 492 - Structure of Spanish (3 cr.)**

Topics in Spanish linguistics including phonology, morphology, syntax and semantics. Prerequisite(s): SPAN 314 or SPAN 315 or SPAN 340.

**SPAN 493 - Studies in U.S. Spanish (3 cr.)**

Linguistic issues and studies of U.S. Spanish-speaking communities. Taught with SPAN 593. Prerequisite(s): SPAN 340.

**SPCD - ENGLISH AS A SECOND LANGUAGE****SPCD 108 - Intermediate ESL Listening and Speaking (3 cr.)**

Development of listening and speaking skills with attention to pronunciation. Emphasis on conversation and oral practice appropriate to an academic setting. Prerequisites: placement based on English language screening test, and either a minimum TOEFL score of 500 or consent of instructor. Graded S/U.

**SPCD 110 - Intermediate ESL Composition and Grammar Review (3 cr.)**

Development of fluent academic writing skills, with an emphasis on grammar review for editing purposes. Prerequisite(s): Placement based on English language screening test, and either a minimum TOEFL score of 500 or consent of instructor.

**SPCD 111G - Advanced ESL Composition (4 cr.)**

Academic writing, including library research papers and the issue of plagiarism, for students with nonnative English. (SPCD 111G is substituted for ENGL 111G for international students whose native language is not English.). Prerequisite(s): Placement based on English language screening test, and either a minimum TOEFL score of 500 or consent of instructor; or successful completion of SPCD 110. Restricted to: Main campus only.

**SPCD 458 - Advanced Speaking and Listening for International Graduate Students (3 cr.)**

Advanced speaking and listening skills for active participation at the graduate level. Emphasis on pronunciation and individual goal setting. Includes a theoretical component involving library research or preparation and presentation of a teaching unit. Prerequisites: placement and 530 TOEFL or consent of instructor. Graded S/U, RR.

**SPCD 470 - Scholarly Writing for International Graduate Students (3 cr.)**

Instruction and practice in writing major academic genres, including experimental, descriptive, and problem-solution research reports, proposals, and library referenced papers. Prerequisites: placement based on English language screening test or successful completion of SPCD 110; a minimum TOEFL score of 500 or consent of instructor; and successful completion of SPCD 108/490 where indicated by placement. Main campus only. Graded S/U.

**SPCD 490 - Seminar Skills for Foreign Students (3 cr.)**

Advanced skills required for active participation in academic discussions and oral presentations. Includes extensive video-taping which is replayed for evaluation. Prerequisite: placement based on English language screening test, and a minimum TOEFL score of 500 or consent of instructor. Main campus only.

**SPED - SPECIAL EDUCATION****SPED 201 - Topics (3 cr.)**

Offered under various subtitles that indicate the subject matter to be covered. May be repeated 3 times for a maximum of 9 credits.

**SPED 202 - Culture, Learning and Academic Achievement in a Diverse Society (3 cr.)**

Development of culturally responsive learning strategies, skills and utilization of support services, to enhance academic achievement. Restricted to: Main campus only.

**SPED 210 - Introduction to Special Education (3 cr.)**

For paraprofessional students who will be working with a teacher in a Special Education classroom. This class will provide an overview of characteristics of children with special needs, legal issues, framework of effective instruction and a variety of practical teaching and learning strategies that are relevant to the tasks and academic demands required in inclusive classrooms.

**SPED 350 - Introduction to Special Education in a Diverse Society (3 cr.)**

Characteristics, identification, and educational needs of exceptional learners. Attention is given to the various types of programs serving exceptional learners. Designed for all professional personnel who work with exceptional learners.

**SPED 355 - Introduction to Bilingual/Multicultural Special Education (3 cr.)**

Introduction to issues related to the provision of services to culturally and linguistically diverse students with exceptionalities. Same as BIL 355.

**SPED 360 - Elementary Curriculum, Methods, and Materials for Special Education in a Diverse Society (3 cr.)**

Curriculum theory and development for special education programs. Various teaching methods utilized with elementary exceptional learners and techniques involved in identifying, adapting, and developing materials will be addressed.

**SPED 406 - High Incidence Disabilities in a Diverse Society (3 cr.)**

Examines those areas of disability that most frequently occur in the special education population, including mental retardation, learning disabilities, communication disorders, and behavioral and emotional disorders.

**SPED 407 - Low Incidence Disabilities in a Diverse Society (3 cr.)**

Examines those disabilities that occur less frequently in the special education population, including hearing loss, visual disorders, autism, and other severe manifestations.

**SPED 409 - Reading for Elementary Exceptional Learners in a Diverse Society, K-6 (3 cr.)**

Emphasizes reading diagnosis and materials for students with special developmental and learning problems. Taught with SPED 509.

**SPED 411 - Reading for Elementary Exceptional Learners in a Diverse Society, 7-12 (3 cr.)**

Extends information covered in SPED 509, which covers grades K 6. Strategies and materials are addressed.

**SPED 415 - Working with Families of Exceptional Learners in a Diverse Society (3 cr.)**

Methods and techniques for educators and other professionals in parent/professional relationships.

**SPED 424 - Foundations of Education for Deaf and Hard of Hearing Students (3 cr.)**

An examination of historic and current developments in the education of the deaf and hard of hearing including: sound sensation/perception, cognition/intelligence, language/literacy, memory, psychosocial development, counseling, culture, and assessment. Taught with SPED 524 and SPED 622 with differentiated assignments.

**SPED 425 - Language Development for Deaf & Hard of Hearing Students (3 cr.)**

Developmental approach to language learning for individuals with hearing impairments including linguistic and cognitive potential, assessment and intervention strategies, and reading language. Taught with SPED 525 and SPED 623 with differentiated assignments.



**SPED 426 - Teaching Content Subjects to Preschool-Twelfth Grade for Deaf and Hard of Hearing Students (3 cr.)**

Curriculum and instructional procedures common to education of hearing impaired including reading, adaptations to regular curriculum, methods for planning, implementing, and translating diagnostic information into programming. Taught with SPED 526 and SPED 626 with differentiated assignments.

**SPED 428 - Deafness: Psychological Theories, Assessments and Accommodations (3 cr.)**

Developmental psychological and cognitive theories related to deafness. Assessment issues and accommodations for assessment of deaf and hard-of-hearing children. Taught with SPED 528 and SPED 628 with differentiated assignments.

**SPED 429 - Literacy and Deafness (3 cr.)**

Covers literacy development framework. Methods for teaching reading and writing and for assessment of reading and writing skills in deaf and hard-of-hearing children. Taught with SPED 529 and 629

**SPED 450 - Working with Young Children with Special Needs, Ages 3-8 (3 cr.)**

Addresses competencies for working with young children with exceptionalities, ages three-eight, and their families. Public school, private school, Head Start and other models are included. Taught with SPED 550. Prerequisite(s): SPED 350 or equivalent.

**SPED 451 - Assessment of Young Children, Birth-Eight (3 cr.)**

Covers instruments and procedures for assessing young children and their families in order to determine atypical development. Screening, diagnosis, program planning, placement and evaluation issues are covered. Prerequisite: SPED 450. Same as SPED 551.

**SPED 452 - Foundations of Visual Impairment (3 cr.)**

This course provides an overview of the history and theory of teaching students with visual impairments, including those with additional disabilities. The impact of educational, legislative, and societal trends on the psychosocial adjustment, quality of life, and post-school outcomes of individuals with visual impairments is explored. Taught with SPED 532 and SPED 632. Consent of Instructor required.

**SPED 453 - Functional Implications of Low Vision (3 cr.)**

This course examines the structure and function of the visual system in relation to associated diseases and syndromes with an emphasis on measuring functional vision and determining appropriate educational adaptations. Taught with SPED 533 and SPED 633.

**SPED 454 - Strategies for Teaching Students with Visual and Multiple Impairments (3 cr.)**

This course defines the roles and responsibilities of the teacher of students with visual impairments as part of the transdisciplinary team that serves students with visual impairments and additional disabilities. Emphasis is on assessment, curricula (both academic and functional), communication, behavior management, assistive technologies, inclusion, transition, and independent living. Taught with SPED 534 and SPED 634. Prerequisite(s): SPED 453.

**SPED 455 - Braille I: Literacy for Students with Visual Impairments (3 cr.)**

This course facilitates an in-depth study of the Uncontracted and Contracted Literary Braille codes as well as methods of teaching pre-braille, braille reading, and braille writing skills to tactual learners. Taught with SPED 536 and SPED 636.

**SPED 457 - Braille II: Literacy Skills for Students with Visual Impairments (3 cr.)**

This course facilitates an indepth study of the Nemeth Braille Code for Mathematics and Science Notation as well as instructional strategies for using the abacus and developing numeracy. Specialized braille codes for computers, music, and foreign languages will be introduced. Taught with SPED 538 and SPED 638. Prerequisite(s): SPED 455 or SPED 536 or SPED 636 or Consent of Instructor.

**SPED 458 - Intellectual Disabilities in a Diverse Society: An Introduction (3 cr.)**

Dealing with history, philosophy, goals and objectives, classification, and characteristics of intellectual disabilities. Taught with SPED 558 and SPED 658 with differentiated assignments. Consent of instructor required. Prerequisite(s): SPED 350 or SPED 500 or consent of instructor. Restricted to SPED majors.

**SPED 459 - Classroom Management for Diverse Learners (3 cr.)**

Behavior-change strategies for exceptional learners.

**SPED 460 - Strategies for Teaching Students with Visual Impairments (3 cr.)**

This course covers individualized educational programming in both the core and expanded core curriculums for children and youth with visual impairments with an emphasis on assessment, curricular adaptations, IFSP/IEP/ITP planning, and evidence-based practices. Taught with SPED 539 and SPED 639. Consent of Instructor required. Prerequisite(s): SPED 453, SPED 455, SPED 457 or Consent of Instructor. Restricted to: SPED majors.

**SPED 463 - Introduction to Assessment of Diverse Exceptional Learners (3 cr.)**

Theory and use of norm and criterion-referenced instruments and learning theories in the classroom; planning of prescriptive instructional programs.

**SPED 464 - Working with Young Children with Special Needs, Ages Birth-2 (3 cr.)**

Provides competencies for working with infants and toddlers (birth-2) with exceptionalities and their families. Neo-natal, home-based, and community-based programs and issues are included. Same as ECED 465 and SPED 564.

**SPED 466 - The Learning Disabled Student in a Diverse Society (3 cr.)**

Current definitions, conceptualizations, and techniques. Taught with SPED 566 SPED 666 with differentiated assignments. Prerequisite(s): SPED 350 or 500 or consent of instructor. Restricted to SPED majors.

**SPED 467 - Behavior Disorders in a Diverse Society (3 cr.)**

An in-depth study of the classification, characteristics, educational needs, and professional literature regarding individuals with behavior disorders. Taught with SPED 567 and SPED 667 with differentiated assignments. Prerequisite(s): SPED 350 or SPED 500 or consent of instructor. Restricted to SPED majors.

**SPED 469 - Experiential Learning in Career/Technical Education for Exceptional in a Diverse Society (3 cr.)**

Addresses the planning, delivering and evaluation of experiential learning activities for students with special needs. Specific strategies for working with students with special needs in a shop or laboratory setting within the Career and Technical Education environment will be included. Taught with AXED 569 and SPED 569. Prerequisite(s): SPED 350. Crosslisted with: AXED 469

**SPED 470 - Life Span Development and Transition in a Diverse Society (3 cr.)**

Special problems associated with transitions over the life span, with emphasis on adolescent and adult needs. Attention to service approaches for public schools, sheltered workshops, residential hospitals, and group homes.

**SPED 480 - Secondary Curriculum, Methods and Materials for Special Education in a Diverse Society (3 cr.)**

Curriculum theory and development for elementary special education programs. Various teaching methods utilized with secondary exceptional learners and techniques for identifying, adapting, and developing materials will be addressed. Taught with SPED 580.

**SPED 481 - Practicum in Education, Equity and Cultural Diversity (2-6 cr.)**

Supervised experience in special education settings. One semester (2 credits) required. Prerequisite(s): SPED 350 and SPED 360 or consent of instructor.

**SPED 482 - Student Teaching SPED (1-12 cr.)**

Supervised teaching in a special education classroom and participation in a required seminar. Prerequisite: SPED 481 and admission to student teaching. May

be repeated for a maximum of 6 credits. Restricted to special education majors. Same as SPED 582.

**SPED 483 - Early Childhood SPED Student Teaching (6 cr.)**

A student teaching experience designed for students studying early childhood special education. Prerequisites: SPED 281 and admission to student teaching. Restricted to majors. Same as SPED 583.

**SPED 485 - Introduction to Autism (3 cr.)**

This course will provide an overview of autism spectrum disorders as a triad of impairments, including historical and theoretical perspectives, assessment issues, characteristics of autism, intervention programs, and family issues. Taught with SPED 585 and SPED 685.

**SPED 486 - Behavior and Autism (3 cr.)**

This course will cover the first of the triad of impairments. Students will gain an understanding of the behaviors of children with autism. Students will examine several behavior management philosophies and research based interventions and how they can be applied in the educational setting. Attention will also be given to play skills. The family perspective and participation in the proactive behavior management process will be incorporated throughout the course. Taught with SPED 586 and SPED 686 with differentiated assignments. Prerequisite(s)/Corequisite(s): SPED 485 or SPED 585 or SPED 685.

**SPED 487 - Social Skills and Autism (3 cr.)**

This course will cover the second of the triad of impairments. As a blend of researched based models and evidenced based practical applications, students will gain an understanding of the social skill deficits often associated with autism spectrum disorders. Review a variety of social cognition theories and explore effective social skill interventions for children functioning at a variety of levels along the autism spectrum. Taught with SPED 587 and SPED 687 with differentiated assignments. Prerequisite(s)/Corequisite(s): SPED 485 or SPED 585 or SPED 685.

**SPED 488 - Communication and Autism (3 cr.)**

This course will cover the third of the triad of impairments. Students will gain an overview of communication characteristics and difficulties often associated with autism spectrum disorders. Review current tools and strategies used to assess speech, language, and interaction skills. Use assessment results to identify needs and implement appropriate interventions. Explore a variety of intervention strategies aimed at building receptive, expressive, and pragmatic language of children functioning at a variety of levels along the autism spectrum. Taught with SPED 588 and SPED 688 with differentiated assignments. Prerequisite(s): SPED485 or SPED585 or SPED685.

**SPED 489 - Topics (3 cr.)**

Offered under various subtitles which indicate the subject matter to be covered. May be repeated 3 times for a maximum of 9 credits.

**SPED 495 - Directed Study courses in Special Education (1-3 cr.)**

Each course shall be identified by a qualifying subtitle. A maximum of 3 credits per semester and a grand total of 9 credits.

**SPED 495 H - Directed Study Courses in Special Education. (1-3)**

Designed for students in the honors program. Each course will be identified by a qualifying subtitle. A maximum of 3 credits in any one semester and a grand total of 6 credits.

**STAT - STATISTICS**

**STAT 251G - Statistics for Business and the Behavioral Sciences (3 cr.)**

Techniques for describing and analyzing data; estimation, hypothesis testing, regression and correlation; basic concepts of statistical inference. Crosslisted with: A ST 251G. Prerequisite(s): C- or better in MATH 120.

**STAT 271G - Statistics for Psychological Sciences (3 cr.)**

Techniques for describing and analyzing data; basic concepts of statistical inference; estimation, hypothesis testing, correlation, and analysis of variance. Prerequisite(s): C- or better in MATH 120.

**STAT 371 - Statistics for Engineers and Scientists I (3 cr.)**

Modern probability and statistics with applications to the engineering sciences. Prerequisite(s): C- or better in MATH 192.

**STAT 400 - Undergraduate Research (1-3 cr.)**

Arrangements must be made with supervising professor before registration. May be repeated for a maximum of 6 credits.

**STAT 470 - Probability: Theory and Applications (3 cr.)**

Basic probability distributions including binomial, normal; random variables, expectation; laws of large numbers; central limit theorem. Prerequisite(s): C- or better in MATH 291 and C- or better in at least one-300 level Math course.

**STAT 480 - Statistics: Theory and Applications (3 cr.)**

Point and interval estimation; sufficiency; hypothesis testing; regression; analysis of variance; chi-square tests. Prerequisite(s): C- or better in STAT 470.

**SUR - SURVEYING**

**SUR 101 - Introduction to Surveying Engineering (1 cr.)**

Review and discussion of career paths open to surveying engineers. Restricted to: Main campus only.

**SUR 201 - GPS and Spatial Data Applications (3 cr.)**

Overview of spatial data applications based on GPS observations. Emphasis on positioning and navigation using code-phase techniques with handheld receivers. Use of coordinate systems. Students encouraged to have their own GPS handheld unit.

**SUR 222 - Plane Surveying (3 cr. (2+3P))**

Surveying theory and practice as applied to plane surveying, in these areas: error propagation, linear measurements, angle measurements, area determination, differential and trigonometric leveling, and topographic mapping. Prerequisite(s): MATH 190G.

**SUR 264 - Introduction to LIS (3 cr. (2+3P))**

Introduction to land information systems. Land tenure systems, coordinate systems, computer methods. Pre/Corequisite(s): DRFT 109.

**SUR 285 - Photogrammetry (3 cr. (2+3P))**

Introduction to the techniques and uses of photogrammetry in surveying and mapping. The geometry of stereo models. Flight planning. Prerequisite(s): MATH 190G.

**SUR 292 - Public Land Survey System Boundaries (3 cr. (2+3P))**

Detailed study of the U.S. Public Land Survey System Instructions with special emphasis on New Mexico. Sectionalized land subdivision, corner restoration, and field surveys. Field trips required. Prerequisite: SUR 222.

**SUR 312 - Legal Principles of Boundary Surveying (3 cr.)**

Legal principles of property boundary retracement, land descriptions, and rights-of-way. Systems of law and legal research. Requires a legal research paper. Prerequisite: SUR 292.

**SUR 328 - Principles and Practices of Construction Surveying (3 cr. (2+3P))**

Surveying principles and practice as they are applied to construction surveys. Horizontal, vertical and spiral curves, slope staking, area and volume computations. Prerequisites: SUR 222 and either MATH 191G or MATH 235.

**SUR 330 - Computer Applications of Surveying (3 cr. (2+3P))**

Advanced application of concepts and tools used in the manipulation of geospatial data in a computer environment. Topics include the use of surveying-specific software applications for problem solving, analysis and generation of spatial data products. Advanced programming skills in a high level language are presented and applied. Prerequisite(s): DRFT 109 AND SUR 222, and ( MATH 191G or MATH 235) and (C S 187 or E T 262 or E E 161).

**SUR 351 - Introductory Survey Measurements, Analysis, and Adjustments (3 cr.)**

Applications of mathematics in surveying. Conventional topics of error ellipses and theory of observations. Emphasis on computer applications for adjustments and analysis. Prerequisite(s): SUR 222 and (MATH 192G or MATH 236).

**SUR 361 - Introduction to Geodesy (3 cr. (2+3P))**

The ellipsoid of revolution, computations on the ellipsoid, coordinate systems, gravity, and leveling. Prerequisites: SUR 222 and either MATH 191G or MATH 235.

**SUR 370 - Control Surveying (3 cr. (2+3P))**

Design and use of survey control networks. Includes Horizontal, Vertical and 3D networks. Use of standards in control surveying. History of control surveying. Prerequisite(s): SUR 222 and (MATH 191G or MATH 235G).

**SUR 384 - Surveying Practicum (1-3 cr.)**

Surveying practice under the direction of a licensed, professional land surveyor requiring 45 hours per credit as per a plan worked out between the student and the surveyor and approved by the Surveying Engineering faculty. Work must be certified by the licensed, professional land surveyor. Requires a written report by the student. Prerequisites: SUR 222 and junior standing.

**SUR 401 - Ethics and Professionalism in Surveying and Mapping (3 cr.)**

Ethics as applied to the surveying profession. Includes case studies and problems. Prerequisites: SUR 312, SUR 328, and senior standing.

**SUR 410 - Advanced Topics in Mapping Sciences (3 cr. (2+3P))**

Development of map projections as the basis for state plane and other coordinate systems. Organization, management, and use of digital spatial data in terms of conventional and evolving three-dimensional models. Spatial data accuracy. Pre/Corequisite(s): SUR 330, SUR 361.

**SUR 412 - Advanced Topics in Boundary Surveying (3 cr. (2+3P))**

Advanced land boundary topics including water boundaries, mineral claims, Spanish and Mexican land grants, state and national boundaries. Prerequisite: SUR 312.

**SUR 450 - Senior Project (1 cr.)**

Research project prepared by student. Includes class presentation. Students will learn how to research after the end of their formal education. Prerequisite(s): Senior Standing.

**SUR 451 - Advanced Survey Measurements, Analysis, and Adjustments (3 cr. (2+3P))**

Rigorous analysis of theory of observations as applied to surveying. Conventional topics of error ellipses, least squares, and survey pre-analysis, etc., to be addressed. Emphasis on computer applications for adjustments and analysis. Prerequisite(s): SUR 330, SUR 351, (MATH 280 or MATH 480). Pre/Corequisite(s): STAT 371.

**SUR 452 - Land Development Design (3 cr. (2+3P))**

Covers different phases of land development process. Study of New Mexico subdivision and condominium laws. Site evaluation includes boundary, control topographic surveys, and environmental and cultural considerations. Students design lot and building arrangements and streets. Prerequisite(s): SUR 312, SUR 328. Pre/Corequisite(s): DRFT 153.

**SUR 461 - Introduction to Satellite Geodesy (3 cr. (2+3P))**

Overview of astronomy concepts, summary of celestial mechanics, history of satellite positioning, modern positioning techniques, impact of gravity, review of geodetic standards and specifications, logistics of GPS data collection. GPS data processing, network adjustments, and evaluation of spatial data accuracy. Prerequisite(s): SUR 361 and (MATH 280 or MATH 480).

**SUR 464 - Land Information Systems Applications (3 cr. (2+3P))**

Concepts of real property, land tenure and ethics, and land registration systems; the function and design of multipurpose cadastre and land information systems. Consent of Instructor required. Prerequisite(s): SUR 264.

**SUR 498 - Special Topics (1-3 cr.)**

Directed studies into current topics. Subject to be agreed upon between student and instructor. Prerequisite: Consent of instructor

**THTR - THEATRE****THTR 101G - The World of Theatre (3 cr.)**

An appreciation class introducing the non-major to all aspects of theatre, including its history, literature and professionals. Students attend and report on stage productions.

**THTR 105 - Acting for Non-Majors (3 cr.)**

An introduction to basic performance techniques for non-majors.

**THTR 110 - Beginning Acting (3 cr.)**

Basic understanding of self-expression through a variety of physical exercises, improvisation, and character study, culminating in scene or monologue work. Restricted to THTR majors.

**THTR 120 - Stage Movement (3)**

Physical techniques for the actor to develop kinesthetic awareness and skills in characterization, archetypes, and stage combat. Restricted to: THTR majors.

**THTR 130 - The Art of Theatre (3 cr.)**

Basic elements of theatrical artistry and theory including overviews of periods in theatre history, artistic roles and functions, and dramatic literature.

**THTR 141 - Introduction to Stagecraft (3 cr.)**

Basic techniques used in the construction of scenery, props, and sound. Lab required. Pre/Corequisite(s): THTR 141L.

**THTR 141 L - Stagecraft Laboratory (1 cr.)**

Class members will assist with construction for productions in a studio environment. Pre/Corequisite(s): THTR 141.

**THTR 142 - Introduction to Costume Crafts (3 cr.)**

Common costume production techniques, including basic stitching, use of equipment, knowledge of available materials, dyeing, and 3-D. Prerequisite(s)/Corequisite(s): THTR 142L. Restricted to: THTR majors.

**THTR 142 L - Costume Craft Lab (1 cr.)**

Class members will assist in construction for productions in a studio environment. Pre/Corequisite(s): THTR 142.

**THTR 149 - Running Crew I (2 cr. (1+2P))**

Students learn about backstage and front of house production positions and work on a technical aspect of a production in a rehearsal and performance environment.

**THTR 203 - Theatre History I (3 cr.)**

History of theatre and drama from ancient Greece to the English Renaissance.

**THTR 204 - Theatre History II (3 cr.)**

History of theatre and drama from the Restoration to the 20th century.

**THTR 205 - Vocal Production for the Actor (3 cr.)**

Exploration and development of the actor's vocal instrument, including relaxation, projection, diction and articulation.

**THTR 210 - Acting II (3 cr.)**

Monologues and scene work, using character and script analysis. Prerequisite(s): THTR 110. Pre/Corequisite(s): THTR 205.

**THTR 222 - Theatre Topics (1-3 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated for a maximum of 9 credits.

**THTR 249 - Running Crew II (1 cr.)**

Students work on a technical aspect of a production in a rehearsal and performance environment.

**THTR 250 - Introduction to Design (3 cr.)**

Basic construction techniques for scenery and properties. Class members will work on construction of current productions in a lab situation as well as working on running crew.

**THTR 252 - Theatre Sound (3 cr.)**

Sound, audio, and electricity lectures combined with projects involving working with sound equipment.

**THTR 305 - Advanced Vocal Production (3 cr.)**

Advanced exploration and development of the actor's vocal instrument. Prerequisite(s): THTR 205.

**THTR 306 - Screenwriting I (3 cr.)**

Same as CMI 309, ENGL 309. Consent of instructor required. Prerequisite(s): ENGL/CMI 235. Crosslisted with: CMI 309 and ENGL 309

**THTR 307V - Society in Style: Fashion, History and Culture (3 cr.)**

History of clothing for theatrical purposes, origins and evolution of period clothing in relation to social, political, and aesthetic factors of different periods.

**THTR 308 - Creative Writing: Playwriting (3 cr.)**

Technique of one-act playwriting, and analysis of dramatic structure. Prerequisite(s): ENGL 111G. Crosslisted with: ENGL 308

**THTR 309 - Advanced Creative Writing: Playwriting Workshop (3 cr.)**

Technique of full-length playwriting and analysis of dramatic structure. Consent of instructor required. Prerequisite(s): THTR 308 or ENGL 308. Crosslisted with: ENGL 415

**THTR 310 - Styles in Acting (3 cr.)**

Analysis of differing styles of acting through scene work representing various time periods and genres. Prerequisite(s): THTR 210.

**THTR 312 - Acting Shakespeare (3 cr.)**

Acting Shakespeare's tragedies and comedies, including text work, scansion, movement, scene work, and monologues. Prerequisite(s): THTR 210.

**THTR 313 - Improvisation (3 cr.)**

Long and/or short form improvisation techniques in addition to a variety of exercises exploring terminology, character work and the elements of comedy. Prerequisite(s): THTR 105 or THTR 110.

**THTR 314 - Scene Study (3 cr.)**

Studio class focusing on scene work and acting processes. Prerequisite(s): THTR 210.

**THTR 317 - Musical Theatre (3 cr.)**

Acting class focused on developing and refining skills necessary for performing in musicals. Pre/ May be repeated up to 9 credits. Prerequisite(s)/Corequisite(s): THTR 210.

**THTR 320 - Auditioning and Marketing (3 cr.)**

Techniques for choosing and preparing effective monologues, cold and prepared readings, head shots and resumes, and interview skills. Prerequisite(s): THTR 210.

**THTR 321V - Modern European Drama (3 cr.)**

Masterworks of European drama from the 19th century to the present. Crosslisted with: ENGL321V.

**THTR 322 - Dramatic Character (3 cr.)**

How characters have been created for the stage from the beginning of theatrical performances in ancient Greece to the present day. Exploring characterization related to dramatic structure, style, and genre, and how dramatic characters differ from those in literary fiction.

**THTR 323 - American Drama (3 cr.)**

Masterworks of American drama from the 20th century to the present. Crosslisted with: ENGL323.

**THTR 329 - Studies in Drama (3 cr.)**

Subtitles vary. Study of a group of related works of drama, theory, or theatre practice. Crosslisted with: ENGL329 and CMI329.

**THTR 334 - Introduction to Stage Makeup (3 cr.)**

Basic principles of stage makeup: straight, character, and specialty. Includes study of various products, methods of application, and the effects of lighting on makeup.

**THTR 335 - Advanced Stage Makeup (3 cr.)**

Special problems in styles and character makeup, work with advanced materials, ventilating, and prosthetics. Prerequisite(s): THTR 334.

**THTR 337 - Independent Study (1-3 cr.)**

Students propose and design their own course not covered through regular course offerings under the guidance of faculty. May be repeated up to 6 credits. Consent of Instructor required.

**THTR 341 - Scene Painting (3 cr.)**

Use of historical painting techniques in a project-driven classroom. Projects include 2-D and 3-D work, color mixing and theory, painting scenery, and the use of paint for effects. Prerequisite(s): THTR 141.

**THTR 343 - Costume Patterning (3 cr.)**

Basic techniques in the production of flat patterns for modern and period silhouettes including some draping techniques. Consent of Instructor required.

**THTR 345 - Costume Practicum (1 cr.)**

A practical course intended to provide students additional experience and greater responsibility within the workings of the Costume Shop.

Pre/Corequisite(s): THTR 142.

**THTR 346 - Scenic Practicum (1 cr.)**

A practical course intended to provide students additional experience and greater responsibility within the workings of the Scene Shop. Pre/Corequisite(s): THTR 141.

**THTR 347 - Lighting Practicum (1 cr.)**

A practical course intended to provide students hands-on experience executing theatrical lighting.

**THTR 348 - Running Crew III (1 cr.)**

Students will work on a technical aspect of a production in a rehearsal and performance environment. Prerequisite(s): THTR 149.

**THTR 349 - Running Crew IV (1 cr.)**

Students will work on a technical aspect of a production in a rehearsal and performance environment. Prerequisite(s): THTR 149.

**THTR 351 - Advanced Scene Painting (3 cr.)**

Advanced scene painting techniques including drops, translucent scenery and 3-dimensional work. Prerequisite(s): THTR 341.

**THTR 352 - Costume Design (3 cr.)**

Basic principles of costume design, including script analysis, principles of design, drawing and painting.

**THTR 353 - Scene Design (3 cr.)**

Design for the performing arts. Basic design skills and projects to exercise those skills, history of design in the theatre and the designer's role in the production process. Final project includes a finished scene design. Prerequisite: THTR 141 or consent of instructor.

**THTR 354 - Sound Design (3 cr.)**

Hands-on training in theatrical sound design and implementation.

**THTR 355 - Lighting Design (3 cr.)**

Basic aspects of theatre lighting, including electricity, color theory, history, and types of lighting instruments.

**THTR 356 - Theatre Production (1-3 cr.)**

Participation in the production of theatrical performances by stage managing, acting, designing, dramaturgy, or directing. May be repeated for a maximum of 6 credits. Graded S/U.

**THTR 357 - Computer Scenographics (3 cr.)**

Project-oriented course teaching basic computer modeling skills. Projects focus on the creation of communication tools designers use in the theatrical process. Students will develop portfolios of completed projects. Consent of instructor required. Prerequisite(s): THTR 352, THTR 353, or THTR 355.

**THTR 360 - Creative Drama (3 cr. (2+2P))**

Methods of developing original dramatizations. Emphasis on curriculum problems and teaching techniques in elementary and secondary schools.

**THTR 366 - Summer Theatre (1-3 cr.)**

Experience in professional or academic summer theatre. May be repeated for a maximum of 3 credits. Graded: S/U. Prerequisite(s): Consent of department head. Restricted to THTR majors.

**THTR 384 - Stage Management (3 cr.)**

Study of stage management techniques and their application to play production. A working knowledge of union rules, and the procedure to facilitate these through proper communication skills.

**THTR 395 - Directing I (3 cr.)**

Study and application of basic stage directing techniques. Prerequisite(s): THTR 105 or THTR 110.

**THTR 396 - Theatre Management (3 cr.)**

Study of issues related to managing a theatre company and producing plays.

**THTR 408 - Shakespeare I (3 cr.)**

Same as ENGL 408.

**THTR 409 - Shakespeare II (3 cr.)**

Same as ENGL 409.

**THTR 414 - Collaborative Theatre-Making (3 cr.)**

This course introduces students to the techniques, skills and practice of the collaborative creation of new theatrical material. Prerequisite(s): THTR 110.

**THTR 430 - Special Topics (1-3 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated for a maximum of 9 credits.

**THTR 435 - Directed Reading (1-3 cr.)**

Directed individualized studies. May be repeated for a maximum of 3 credits.

**THTR 439 - Senior Seminar (2 cr.)**

Course preparing students for professions in and related to the theatre. Restricted to THTR majors.

**THTR 440 - Senior Seminar Practicum (1 cr.)**

Capstone course preparing students to apply knowledge of theatre arts toward advanced training or career objectives in the discipline. Consent of instructor required. Pre/Corequisite(s): THTR 439. Restricted to THTR majors.

**THTR 457 - Advanced Computer Scenographics (3 cr.)**

Project-oriented course for the advanced modeler. Projects focus on the creation of complex models, custom texturing and shading, virtual lighting, postproduction image work, and animation techniques. Students will develop digital portfolios. Prerequisite: THTR 357 and consent of instructor.

**THTR 495 - Directing II (3 cr.)**

Advanced study of directing, with focus on theory, style, and concept. Prerequisite(s): THTR 395.

**TOX - TOXICOLOGY****TOX 361 - Basic Toxicology (3 cr.)**

Introduction to the principles of toxicology, discussion of toxic agents, environmental problems, testing procedures, and regulations. Prior course work in biology and chemistry recommended. Prerequisites: CHEM 112G, CHEM 114 or CHEM 110G. BIOL 111G or BIOL 211G recommended. Same as E S 361.

**TOX 423 - Environmental Toxicology (3 cr.)**

Toxicological tests required by the EPA to determine human and environmental safety of pesticides and industrial pollutants; discussion of environmental fate of major pesticide classes and industrial pollutants. Prerequisite: TOX 361 or TOX 461.

**TOX 461 - Toxicology I (3 cr.)**

Introduction to principles of toxicology. Prerequisite(s): BIOL 111G or BIOL 211G, and CHEM 345. Restricted to: Main campus only. Crosslisted with: ANSC 461

**UNIV - UNIVERSITY STUDIES****UNIV 101 - Tutorial (1-3 cr.)**

Development of specific skills required for college courses, such as note-taking, listening, and test-taking. To be taken in conjunction with a regular designated college course. May be repeated for a maximum of 3 credits. Graded S/U.

**UNIV 110 - Personal Learning Skills I (1-3 cr.)**

Individualized programs for self-improvement in skill areas necessary for academic success in the university environment. Each course to bear an appropriate subtitle. May be repeated up to 3 credits. Graded S/U.

**UNIV 111 - Personal Learning Skills II (1-3 cr.)**

Individualized programs for self-improvement in skill areas necessary for academic success in the university environment. Each course to bear an appropriate subtitle. Prerequisite: UNIV 110. May be repeated for a maximum of 3 credits. Graded S/U.

**UNIV 112 - Academic and Personal Effectiveness (2 cr.)**

Learn academic self-analysis skills through the application of study and learning techniques to current course demands. Exposure to a variety of topics which enhance university and life-long learning.

**UNIV 113 - Speed Reading (1 cr.)**

Introduction to strategies and techniques for increasing reading rate and comprehension related to academic areas.

**UNIV 114 - Financial Literacy Money Matters (2 cr.)**

This course will cover a variety of financial literacy topics ranging from budgeting to student loan repayment. This course is designed to assist students in becoming more financially literate. Restricted to Las Cruces campus only.

**UNIV 115 - Transition from Military to University (2 cr.)**

Making a positive transition from military to civilian life is key to success. This course will cover a variety of topics ranging from time management to critical thinking. This course is designed to assist military and veteran students in becoming more effective learners through self-awareness, effectiveness study learning strategies, and interpersonal skills. Skills and techniques for managing military to civilian readjustment transition issues are discussed and examined. Restricted to Las Cruces campus only.

**UNIV 116 - Preparing for Cooperative Education & Internship (1 cr.)**

The Cooperative Education Course provides students with a comprehensive overview of career-related topics designed to assist with securing Cooperative Education and Internship employment. Students learn about philosophies and approaches to resumes, cover letters, interviewing, job searching, networking, and professionalism. A primary focus of the course is on experiential learning where students have opportunities to practice and implement course concepts including interviewing, networking, job searching, and document creation. In addition to exploring topics related to Cooperative Education and Internship, the course is designed to provide students with tools and strategies for successfully navigating the transition from student to employee. S/U Grading (S/U, Audit). Restricted to Las Cruces campus only.

**UNIV 117 - Diversity at the University (1 cr.)**

In this course students will engage in discussions about diversity at the university, what it means in today's society and local community, and build on its complexity at NMSU. S/U Grading (S/U, Audit). Restricted to Las Cruces campus only.

**UNIV 118 - Career Explorations and Planning (1 cr.)**

This course is designed to increase the likelihood that individuals will successfully navigate the challenges they face when making college major and related career choices. Restricted to Las Cruces campus only.

**UNIV 150 - The Freshman Year Experience (3 cr.)**

An introduction to the university and its resources; emphasis on development of academic and personal skills that enable freshmen to become successful learners. Prerequisite(s): Freshman Standing Only. Restricted to: Main campus only.

**UNIV 161 - NMSU Gospel Choir (1 cr.)**

Students will gain performance experience and exposure to urban contemporary gospel music. Open to all majors. May be taken for unlimited credit. Restricted to: Main campus only.

**UNIV 300 - Preparing for the Graduate Record Examination (1 cr.)**

Preparation for taking the Graduate Record Examination including review, test taking strategies and practice for the verbal, quantitative and analytical sections. Graded S/U.

**UNIV 350 - Peer Education (3 cr.)**

Overview of college student development theory and its application to college student learning and peer education. Supervised experience as a peer educator with training in structured group facilitation. Prerequisite: consent of instructor.

**UNIV 361 - NMSU Gospel Choir (1 cr.)**

Students will gain performance experience and exposure to urban contemporary gospel music. Open to all majors. May be taken for unlimited credit.

**UNIV 395 - Independent Study (1-3 cr.)**

Individualized projects related to the field of learning assistance. May be repeated for a maximum of 3 credits.

**UNIV 495 - Independent Study (1-3 cr.)**

Individualized projects related to the field of learning assistance. Taught with UNIV 395.

**W-S-WOMEN'S-STUDIES****W S 201G - Introduction to Women s Studies (3 cr.)**

Analysis of the status of women in society today and history and consequences of gender stratification and inequality from the perspectives of sociology, anthropology, psychology, political science, and other sciences.

**W S 202G - Representing Women Across Cultures (3 cr.)**

Historical and critical examination of women's contributions to the humanities, with emphasis on the issues of representation that have contributed to exclusion and marginalization of women and their achievements. Crosslisted with: HON 218

**W S 273 - Sex and Gender (3 cr.)**

Same as SOC 273.

**W S 316 - History of Women in the American West (3 cr.)**

Experiences and interactions among Native American, Spanish/Mexican, immigrant, and Anglo-American women in the American West from 1500 to the present. Same as HIST 316.

**W S 325 - Topics in Feminist Philosophy (3 cr.)**

Same as PHIL 325.

**W S 345 - Victimology (3 cr.)**

Same as C J 345.

**W S 350 - Special Topics (3 cr.)**

The topic of course will vary and will be indicated by subtitle. May be cross-listed with relevant courses at the 300-level from any specific department. May be repeated under different subtitle(s).

**W S 356 - Women and Politics (3 cr.)**

Political socialization of children; women's past and present participation in the public sphere; gender-related public policy issues.

**W S 357 - Gender and Society (3 cr.)**

Overview of issues related to gender including how gender is constructed and reproduced in our society. Gender is examined from social psychological and institutional perspectives. Same as SOC 357.

**W S 359 - Psychology of Women (3 cr.)**

Same as PSY 359.

**W S 374V - Comparative Family Systems (3 cr.)**

Same as SOC 374V.

**W S 380V - WomenWriters (3 cr.)**

Same as ENGL 380V.

**W S 381V - Women s Health Issues (3 cr.)**

Same as PHLS 380V.

**W S 382 - Women in Mass Media (3 cr.)**

Same as JOUR 380.

**W S 388 - Women and Europe I (3 cr.)**

Same as HIST 388.

**W S 389 - Women in Europe II (3 cr.)**

The history of women and gender in modern Europe, 1550-Present. Examines how conceptions of gender and sexuality both shaped and were shaped by political and social transformations in European history. Restricted to: Main campus only. Crosslisted with: HIST 389

**W S 397 - Law and Sex (3 cr.)**

Sex-based discrimination and the impact of constitutional and statutory provisions and their judicial interpretations and executive orders and implementations. Same as GOVT 397.

**W S 401 - Women & Immigration (3 cr.)**

Exploration of experiences of women immigrants as gender, race and class became increasingly important aspects of US immigration policies in the early 19th century. Explores role of gender in today's immigration experience.

**W S 402 - Transnational Feminisms (3 cr.)**

Explores dimensions of gender, race, class, and sexuality in conjunction with nationalisms, anti-capitalist struggles, religious fundamentalism, militarism, globalization, eco-critique, and the politics of resistance and social movements.

**W S 403 - Gender & Horror (3 cr.)**

Explores cultural anxieties and crises through the genre of horror as they relate to issues of gender, sexuality, feminism, and race. Traces ways horror films represent and reconfigure notions of sexuality and gender and ways they reinforce and/or challenge social norms.

**W S 404 - Arab-Muslim Feminisms (3 cr.)**

Develops a historical understanding of arab-muslim feminisms and homosexuality in Islam. Explores and uses critical feminist theories, language, and methods to counter interlocking discourses of Islamophobia, gendering, and homophobia affecting arab-muslim women.

**W S 405 - Alternative Genders and Sexualities (3 cr.)**

Introduces students to cultural study in the academic fields of Gay, Lesbian, Bisexual, Transgender (GLBT) and Queer Studies. Examines academic texts as well as literature and film from different historical moments and social/ global sites.

**W S 420 - Girls, Women and Crime (3 cr.)**

Critical social science analysis of concepts of violence and justice as experienced by women impacted by the criminal justice system. Restricted to C J, W S majors. Crosslisted with: C J 420

**W S 422 - Advanced Study in a Literary Form or Genre (3 cr.)**

Same as ENGL 422. May be repeated for a maximum of 6 credits.

**W S 433 - Women, Gender, and Culture (3 cr.)**

Same as ANTH 433.

**W S 450 - Special Topics (3 cr.)**

The topic of course will vary and will be indicated by subtitle. May be cross-listed with relevant courses at the 400-level from any specific department. May be repeated under different subtitle(s).

**W S 451 - Women's Studies Practicum (3 cr.)**

Supervised field work in community setting relating to women. Prerequisite: consent of instructor. May be repeated for a maximum of 6 credits.

**W S 453 - Women and Politics (3 cr.)**

Crosslisted with: GOVT 353

**W S 454 - Women Crossing Borders (3 cr.)**

Experiences of women who cross class, race, cultural, national, or sexual borders including theories regarding women's Interactions across borders. Emphasis will vary with professor and discipline.

**W S 455 - Feminist Research Methods (3 cr.)**

Feminist research practices and methodologies utilized in various disciplines. Definitions of research, what constitutes valid inquiry, how research can be feminist, and what it means to do interdisciplinary work.

**W S 459 - Advanced Issues in Sex and Gender (3 cr.)**

Same as SOC 459.

**W S 461 - Women s Studies: Independent Study (3 cr.)**

Individual study of selected topic and writing of research paper. Prerequisite: consent of instructor. May be repeated for a maximum of 6 credits.

**W S 463 - Communication and Gender (3 cr.)**

Same as COMM 463.

**W S 465 - Sex, Gender and the Body (3 cr.)**

Examines forces at work in defining and differentiating gender, race, sexuality. How ideas about what is 'natural' and 'normal' for men and women shifted over time. Considers different discourses shaping embodied experiences and categories of identity. Prerequisite(s): None.

**W S 468 - Global Sexualities (3 cr.)**

Generates a global context to focus on sexual identity and orientation, sexual identity politics, romantic relationships, patterns of sexual behavior, sexual regulation and the impact of different cultures on individual sexualities. Taught with W S 568. Crosslisted with: SOC 468

**W S 469 - Gender and Sexuality in Hispanic Film (3 cr.)**

The study of gender and sexual orientation issues in relation to identity as portrayed in Hispanic cinema. Taught in Spanish but assignments accepted in English. Crosslisted with: SPAN 469

**W S 471 - Seminar in Feminist Theory (3 cr.)**

Current feminist theory. Topic changes by semester. Course subtitled in the Schedule of Classes. Prerequisite: None

**W S 474 - Gender in East Asian History (3 cr.)**

Same as HIST 474.

**W S 481 - Hate Crimes and Hate Groups (3 cr.)**

Explores the phenomenon of hate-motivated violence. Examines the hate crime laws, organized hate groups and social theories attempting to explain violent hate.

**W S 482 - Gender and Popular Culture (3 cr.)**

Intensive study of the representations of gender in popular culture. Examines the historical, aesthetic, and cultural contexts of these representation and the various critical and theoretical lenses we use to understand them.Repeatable under different subtitles. Crosslisted with: ENGL 482

**W S 484 - Women's Literature (3 cr.)**

Intensive study of literature by women, in particular historical, aesthetic, cultural, or intellectual contexts. Repeatable under different subtitles. Crosslisted with: ENGL 481

**WERC - A CONSORTIUM FOR ENVIRONMENTAL EDUCATION AND TECHNOLOGY DEVELOPMENT****WERC 300 - Introduction to Pollution Prevention and Its Application (3 cr.)**

Investigates various approaches to industrial and domestic pollution prevention, waste minimization, and energy efficiency with emphasis on applications in the Southwest. Topics include: industrial case studies, energy conservation, environmental risk analysis, evaluating environmental performance, pollution prevention program development, training and education programs, funding sources, and economic impact.

**WERC 312 - Emergency Response to Hazardous Material Incidents (2 cr.)**

Same as E S 312, E T 312.

**WERC 330 - Environmental Management Seminar I (1 cr.)**

Survey of practical and new developments in environmental management field, hazardous and radioactive, waste management, energy, water, and related health issues, provided through a series of guest lectures and reports about on-going research. Restricted to: Main campus only. Crosslisted with: C E 330, CHME 330, E E 330, E S 330, E T 330, I E 330 and M E 330

**WERC 381 - Renewable Energy Technologies (3 cr. (2+3P))**

Renewable energy systems, including topics in thermal-solar, photovoltaic, wind, geothermal systems, and other current topics. Theory, practical applications, safety considerations and the economics of alternative renewable energy systems compared to conventional systems. Prerequisite(s): MATH 121G. Crosslisted with: E T 381

**WERC 382 - Solar Energy Technologies (3 cr. (2+3P))**

Solar energy technologies, including topics in passive, solar thermal, and photovoltaic systems. Theory, practical applications, safety considerations and the economics of solar renewable energy systems compared to conventional systems. Prerequisite(s): MATH 121G. Crosslisted with: E T 382

**WERC 384 - Wind and Water Energy Technologies (3 cr.)**

Wind and Water energy technologies, including topics in small and large scale systems. Theory, practical applications, safety considerations and the economics of wind and water renewable energy systems compared to conventional systems. Same as E T 384. Prerequisite: MATH 121G.

**WERC 386 - Sustainable Construction and Green Building Design (3 cr.)**

Sustainable Building materials, methods, and techniques including green architect and design, codes, standards and Specifications. Same as E T 386. Prerequisite: MATH 121G.

**WERC 430 - Environmental Management Seminar II (1 cr.)**

Survey of practical and new developments in environmental management fields, hazardous and radioactive waste management, energy, water and related health issues, provided through a series of guest lectures and reports about ongoing research. Restricted to: Main campus only. Crosslisted with: C E 430, CHME 430, E E 430, E S 430, E T 430, I E 430 and M E 430

**WERC 466 - Fuel Cell and Hydrogen Technology (3 cr.)**

Same as CHME 466. Prerequisites: CHEM 111G and PHYS 215G

**WSAM-WATER-SCIENCE-MGT****WSAM 452 - Geohydrology (4 cr.)**

Origin, occurrence, and movement of fluids in porous media and assessment of aquifer characteristics. This course will also develop a thorough understanding of groundwater hydrogeology through the lecture and laboratory, which will include experimental methods as well as analytical and numerical models. The focus will be on the application of hydrogeology for water resources. It will cover groundwater resource assessment, impact analysis, aquifer test analysis, monitoring/characterization, dewatering, aquifer storage and recovery, and resource management. Additionally, case studies will illustrate the use of groundwater flow models for various hydrogeologic applications, and the course will cover the most widely used modeling software packages. Crosslisted with: E S 452, GEOL 452 and C E 452.

**WSAM 470 - Environmental Impacts of Land Use and Contaminant Remediation (3 cr.)**

The course will cover the integrated assessment of soil erosion, contaminant transport in soil and water, and contaminant remediation from site scale to watershed scales. Understanding of the controlling factors for each type land use impact will be gained through the use of risk assessment, case studies, and computer modeling. Case studies will illustrate the processes under various environmental applications. This course will also cover the application of solute transport principles and methods for the remediation of contaminated soil and groundwater. It will also discuss the contaminated site characterization, monitoring, and remediation design. Discussions of innovative methodologies will be supported with case studies. Crosslisted with: E S 470.



# COMMUNITY COLLEGE COURSE DESCRIPTIONS

NMSU Community Colleges (p. 177)

## OE- Occupational Education Courses

Students enrolling in any O prefix courses will be advised that they are not intended to replace or substitute for any approved courses which are part of baccalaureate degree programs at New Mexico State University without approval of the appropriate dean and that any request for substitution may be denied. Requests for substitution must be considered on an individual basis by the dean of the college if a student elects to pursue a bachelor's degree.

## AERT - AEROSPACE TECHNOLOGY

### AERT 105 - Aerospace Engineering PLTW (4 cr. (2+4P))

Introduce the student to Aerospace Engineering (AE) concepts and history. Studied topics include History of Flight, Aerodynamics, Rocket Science, Orbital Physics, Systems Engineering and Life Support/Environmental Systems. Restricted to: Community Colleges only.

### AERT 111 - Basic Electricity and Electronics (3 cr. (2+2P))

Fundamentals of electricity and electronics, basic circuit devices, meters, transistors, integrated fiber optics, and industrial application topics. Minimum math proficiency of CCDM 103 or CCDM 104 required or math placement into CCDM 114 or higher. Restricted to: Community Colleges only. Crosslisted with: ELT 105

### AERT 112 - Introduction to Manufacturing (3 cr. (2+2P))

Introduction to manufacturing evolution from basic assembly process to modern automated processes. Covers history, employability, soft skills, quality measurements, teamwork concept, production requirements, and considerations in plan layout and design. Minimum math proficiency of CCDM 114 required or math placement into MATH 120 or higher. Crosslisted with: MAT 105. Prerequisite(s)/Corequisite(s): MAT 110.

### AERT 113 - Print Reading for Industry (3 cr. (2+2P))

Reading, interpretation and revisions of industrial technical drawings common to aerospace. Interpretation of aerospace drawings and related shop calculations. Crosslisted with: MAT 102.

### AERT 114 - Applied Manufacturing Practices (3 cr. (2+2P))

Course will illustrate how various products are manufactured along with associated manufacturing processes. Crosslisted with: MAT 106. Prerequisite(s)/Corequisite(s): MAT 102 or AERT 115 or MAT 110.

### AERT 115 - Machine Operation and Safety (3 cr. (2+2P))

Introduce the students to the operation and safety aspects of various types of machinery and equipment including both mechanical and electrical. Course will also include maintenance and safety operation of industrial equipment. Restricted to: Community Colleges only. Crosslisted with: MAT 110

### AERT 121 - Introduction to the Aerospace Workplace (4 cr. (2+4P))

The course covers space history, regulations, controls, aerospace industry terminology and acronyms as well as hands-on activities related to tools, procedures, and standard practices. Restricted to: Community Colleges only.

### AERT 122 - Aerospace Safety and Quality (3 cr. (2+2P))

Covers identification of hazards, personal protective equipment, safe practices, and protection of personnel, property, and equipment in the aerospace environment. Basic principles of quality assurance engineering and quality control relating to work processes will be discussed. Restricted to: Community Colleges only.

### AERT 123 - Electronics I (4 cr. (2+4P))

Fundamentals of electronics including: components, schematics, Ohm's Law, Thevenin's and Norton's theorems, and series/parallel circuits incorporating passive, active, and magnetic elements. Introduction to AC circuits. Crosslisted with: ELT 110. Prerequisite(s)/Corequisite(s): ELT 120 or MATH 120.

### AERT 124 - Mathematics for Electronics (4 cr. (2+4P))

Includes fundamental mathematics, algebra, sine cosine, and other elementary functions as they specifically apply to the operation, manipulation, and evaluation of direct current (DC) and alternating current (AC) circuits. Minimum math proficiency of CCDM 114 required or math placement into MATH 120 or higher. Restricted to: Community Colleges only. Crosslisted with: ELT 120

### AERT 211 - Electromechanical Devices (4 cr. (2+4P))

Theory and application of electromechanical devices and digital control circuits. Includes AD and DA converters, pneumatics, hydraulics, programmable logic controllers, DC, AC and stepper motors, and servomechanisms. Crosslisted with: MAT 240. Prerequisite(s): ELT 160.

### AERT 212 - Materials and Processes (Basic Metallurgy) (3 cr. (2+2P))

Basic Metallurgy: Aluminum and its alloys (Alclad), hardening, tempering, annealing, anodizing, magnetism, titanium, copper, stainless steel, surgical steel, safety wire, iron rust. Metallurgical Processes: Welding and soldering. Inspection Fundamentals: Eddy currents, magnetic particles (ferrous and non-ferrous metals), ultrasonic, x-ray, visual, corrosion and corrosion control, and vacuum bagging. Restricted to: Community Colleges only.

### AERT 213 - Aerospace Fluid Systems (3 cr. (2+2P))

This course includes a familiarization of fluid system components, characteristics, and applications. Cryogenic and hypergolic materials and high pressure systems are also covered. Restricted to: Community Colleges only.

### AERT 214 - Aerospace Systems (3 cr. (2+2P))

This course provides an introduction to expendable and reusable spacecraft systems including hydraulic, pneumatic, electrical, propulsion, mechanical, HVAC, and ECLSS (Environmental Control and Life Support System). How systems interact with computer and data acquisition systems is also covered. Restricted to: Community Colleges only.

### AERT 221 - Inspection Requirements and Planning Metrology (3 cr. (2+2P))

Course teaches the benefits of inspection, quality control, material conditions. Also covers measurements, including temperature, ultrasonic, vibration and more. Restricted to: Community Colleges only.

### AERT 222 - Electromechanical Systems (3 cr. (2+2P))

Principles and applications of preventive and corrective maintenance procedures on industrial production machines using systems technical and maintenance manuals to develop troubleshooting procedures using systems block and schematic diagrams. Pre/ Crosslisted with: MAT 245. Prerequisite(s)/Corequisite(s): AERT 221 or MAT 240. Prerequisite(s): ELT 160.

### AERT 224 - Aerospace Tests and Measurements (3 cr. (2+2P))

This course covers electrical and mechanical testing procedures (primarily non-destructive testing), equipment, measurements, and instrumentation involved in aerospace systems. Verification of tool and equipment calibration is also covered. Pre/Corequisite(s): AERT 221. Restricted to: Community Colleges only.

### AERT 225 - Cooperative Experience (1-3 cr.)

Supervised cooperative work program. Student is employed in an approved occupation and supervised and rated by the employer and instructor. Consent of instructor required. Graded: S/U. Restricted to: Community Colleges only.

**AERT 255 - Special Topics (1-4 cr.)**

Specific topics to be announced in the Schedule of Classes. Restricted to: Community Colleges only.

**AERT 290 - Independent Study (1-3 cr.)**

Individual studies in areas directly related to aerospace. Consent of instructor required. Restricted to: Community Colleges only.

**AHS - ALLIED HEALTH SCIENCE****AHS 100 - Applied Human Biology (3 cr. (2+2P))**

Designed for pre-allied health students to explore the fundamentals of human biology, physiology functions.

**AHS 101 - Communication for Health Care (3 cr.)**

Oral, written, and affective communication skills for individuals interested in pursuing a career in health care. Restricted to: Community Colleges only.

**AHS 102 - Careers in the Health Fields (1-3 cr.)**

This course will provide students with a broad understanding of health careers as well as emerging issues in health. This will also include the study of the functional roles of practice, education, administration, and research in health fields. May be repeated up to 3 credits. Restricted to Community Colleges campuses only.

**AHS 108 - Disabilities Support Services (4 cr. (3+2P))**

Beginning level preservice preparation for providing in-home care for individuals with disabilities. Restricted to: Community Colleges only. Crosslisted with: NA 108

**AHS 295 - Introduction to Allied Health (1 cr.)**

An introductory course that covers a multidisciplinary focus needed for success in the allied health care environment. Topics include health care delivery systems and allied health careers, history of health care, law and ethics pertaining to health care, personal qualities of health care workers, confidentiality and reportable incidents. This course will also cover an orientation into safety and infection control, core measures and quality assurance, perspective payment system, customer service, current trends in health care and communication, skills to be a patient/client educator and a member of the Health Care team. Open to all students wanting to explore the allied health care industry. Restricted to Community Colleges campuses only.

**AHS 115 - Dietary Guidelines & Meal Planning (4 cr.)**

A combination of the science of nutrition and the current Dietary Guidelines for Americans with practical application to meal planning and preparation. Strategies and techniques used to plan and prepare healthful and appetizing meals are explored. Evidenced-based dietary guidelines are provided to meet the needs of individuals and groups with chronic diseases. Menu development, modification and analysis are reviewed. Restricted to Community Colleges campuses only.

**AHS 116 - Math for Health Occupations (3 cr.)**

Principles of math and pharmacology necessary for administration of medications. Prerequisite(s): CCDM 114N or equivalent. Restricted to: Community Colleges only.

**AHS 120 - Medical Terminology (3 cr.)**

Study of medical terminology as it relates to understanding diseases, their causes and effects, and the terminology used by the medical specialties. Stress is placed on medical terms, their use, spelling, English translation, and pronunciation. Same as NURS 150 and BOT 150.

**AHS 140 - Essentials of Anatomy and Physiology (4 cr. (3+3P))**

Essentials of anatomy and physiology for those considering a career in health as well as those interested in understanding their own body and the basics of health.

**AHS 153 - Introduction to Anatomy and Physiology I (4 cr. (3+3P))**

Survey of human anatomy and physiology. Prerequisite: high school biology or high school chemistry, or CHEM 110G, or consent of instructor.

**AHS 154 - Introduction to Anatomy and Physiology II (4 cr. (3+3P))**

Continuation of OEHO 153. Prerequisites: CHEM 110G and OEHO 153, or consent of instructor.

**AHS 155 - Special Topics (1-6 cr.)**

Topics to be announced in the Schedule of Classes. May be repeated for a maximum of 6 credits.

**AHS 165 - Foundations to Allied Health Science (3 cr. (1+4P))**

A foundational course which will cover a multidisciplinary focus on success in the Allied Health care environment. Topics included, but not limited to: the health care system, personal and professional qualities of a health care worker, legal and ethical responsibilities, cultural diversity, nutrition and diets, medical math, infection control, preparing for the world of work, core measures and quality assurance, the prospective payment system, customer service, current trends in health care and communication, and promotion of safety. Laboratory time will cover library and library resource use, promotion of safety, vital sign, CPR AED use, job interviewing practice, and 16 hours of job shadowing participation located in a healthcare facility. Open to all students seeking to pursue an Allied Health or Healthcare career pathway. Restricted to Community Colleges campuses only.

**AHS 175 - Health Careers Survey I (5 cr.)**

An introductory overview class for students interested in the medical field. Information regarding education course requirements in preparation for post-secondary schooling and presentations by guest speakers from a variety of health positions in the community will be featured. Topics include history of medicine, safety, universal precautions and medical ethics; beginning knowledge of communication skills; basic elements of medical terminology and medical abbreviations; procedures for vital sign assessment.

**AHS 176 - Health Careers Survey II (5 cr.)**

Builds upon Health Careers Survey I. In depth view of medical terminology and abbreviations and communication techniques; current health care issues and health education. Confidentiality and medical ethics are stressed. Guest speakers from the community will share their experiences in the medical field. Student must have a current TB test. Prerequisites: a C or better in OEHO 175, or consent of instructor.

**AHS 177 - Health Careers Coop I (6 cr. (4+4P))**

Introduction to Certified Nursing Assistant (CNA) nursing and a variety of other medical opportunities. CNA skills and simple assessment; practice of the skills provided in a laboratory setting and may include on-site clinicals. Written and verbal communication skills are emphasized. The legal and ethical aspects of nurse aide practice are also included. Medical terminology will be used throughout the course. Student must have a current TB test. Prerequisites: C- or better in OECS 175 and OECS 176 or consent of instructor.

**AHS 178 - Health Careers Coop II (6 cr. (4+4P))**

Builds on Health Careers Survey I, II and Health Careers Coop I. CNA skills and assessments will continue to be practiced and refined in the laboratory setting as well as on site clinicals. Some job shadowing may be included. Legal and ethical standards will be a primary focus. Written and verbal communication skills will be expanded. Confidentiality will be stressed. Medical terminology will be used throughout the course. Student must have a current TB test. Prerequisites: OEHO 175, OEHO 176 and OEHO 177 or consent of instructor.

**AHS 200 - Independent Study (1-4 cr.)**

Individual studies directed by a consenting faculty member. Prior approval of the department head required. Prerequisite: consent of instructor. May be repeated for a maximum of 10 credits. Restricted to majors.

**AHS 202 - Legal and Ethical Issues in Health Care (3 cr.)**

Consideration of legal and ethical issues in modern health care delivery.

**AHS 220 - Essentials of Counseling (3 cr.)**

Provides students interested in human services professions with theoretical and practical tools and strategies to establish and develop a helping relationship with clients in a diversity of helping settings. Class covers emotional, cognitive, socio-cultural, and spiritual aspects of the human being, that help clients identify and

deal with issues that affect their functioning and development. Restricted to Community Colleges only.

**AHS 225 - Nutrition for Health Occupations (3 cr.)**

Principles of normal and clinical nutrition for health professions. Prerequisites: high school biology and high school chemistry and CHEM 110G and OEHO 153 or equivalent or consent of instructor. Corequisite: OEHO 154 or consent of instructor.

**AHS 250 - SPANISH FOR HEALTH PROFESSIONALS (3 cr.)**

Spanish for Health Professionals is a 3 credit course geared toward individuals working or majoring in health related areas. The course focus is on conversation and vocabulary needed for the workplace and task based practical skills. Restricted to: Community Colleges only.

**AHS 253 - Microbiology for Health Occupations (4 cr. (3+3P))**

Study of the relationship between pathogenic organisms and disease processes. Prerequisites: high school biology and high school chemistry, CHEM 110G, and OEHO 153 or equivalent or consent of instructor. Corequisite: OEHO 154 or equivalent.

**AHS 255 - Special Topics (1-6 cr.)**

Topics to be announced in the Schedule of Classes. May be repeated for a maximum of 6 credits.

**AHS 296 - A Success Plan for Allied Health I (1)**

The first course in a three course sequence designed to provide students with critical thinking activities, evidence based practice, and concept-based content related to integrated medicine for allied health careers. These activities will include but are not limited to a system approach to allied health (acute and chronic care scenarios, pathophysiology-link to lab values and nutritional needs, test taking techniques, medication calculations, prioritization, and documentation). Prerequisite(s)/Corequisite(s): NA 101. Restricted to Community Colleges campuses only.

**AHS 297 - A Success Plan for Allied Health II (1)**

The second course in a three course sequence designed to provide students with critical thinking activities, evidence based practice, and concept-based content related to integrated medicine for allied health careers. These activities will include but are not limited to a system approach to allied health (acute and chronic care scenarios, pathophysiology-link to lab values and nutritional needs, test taking techniques, medication calculations, prioritization, and documentation.) Prerequisite(s): AHS 296. Restricted to Community Colleges campuses only.

**AHS 298 - A Success Plan for Allied Health III (1)**

The third course in a three course sequence designed to provide students with critical thinking activities, evidence based practice, and concept-based content related to integrated medicine for allied health careers. These activities will include but are not limited to a system approach to allied health (acute and chronic care scenarios, pathophysiology-link to lab values and nutritional needs, test taking techniques, medication calculations, prioritization, and documentation.) Prerequisite(s): AHS 297. Restricted to Community Colleges campuses only.

**AHS 299 - Allied Health Capstone (3(9P))**

This course serves as a capstone for Allied Health Pre-Nursing curriculum. The capstone integrates the academic and the practical knowledge acquired during the curriculum to further develop the student's application of the nursing process and critical thinking in health promotion, risk reduction, direct and indirect care of clients, families, and aggregates in various healthcare settings. Students are placed in selected specialty healthcare settings supervised by experienced preceptors and are exposed to activities that focus on development of critical thinking, evidence based practice, effective communication, and national trends. The course is designed to be taken at the end of the program. Prerequisite(s): AHS 298. Restricted to Community Colleges campuses only.

**ARCT - ARCHITECTURE**

**ARCT 101 - Introduction to Architecture (3 cr. (2+2P))**

This course provides students the tools and vocabulary to analyze, interpret, and discuss the built environment from the social, historical, perceptual, and technical determinants. Lectures and assignments will introduce students to the elements of current and likely future directions of architecture from experiential, aesthetic, structural, functional, and historical perspectives. The course will provide students with knowledge about the people and processes involved with professional issues of architectural practice. Students will be required to participate in individual and group presentations and projects, as well as compile a portfolio of their work completed in the course.

**ARCT 104 - Introduction to Architectural Drawing (4 cr. (2+4P))**

This course is designed as an introduction to architectural drawing and design for students without prior experience in the fine arts. Students are guided through a series of spatial and analytical exercises that focus attention on not only how architects draw, but also the reasoning and processes embedded within the technique. Direct linkages with the Introduction to Architecture course provide exposure to a wide range of interconnected architectural concepts.

**ARCT 111 - Architecture World History I (3 cr. (2+2P))**

A survey of the development of world architecture from the ancient era to the advent of the enlightenment in Europe. Major emphasis is on the visual, intellectual, cultural and technological aspects of the ancient and indigenous cultures of the classical and pre-modern world. Community Colleges only. Restricted to Alamogordo, Dona Ana and Grants campuses.

**ARCT 124 - Global Issues and Sustainability (3 cr.)**

This is a 'critical thinking' course. This course introduces students to global environmental issues (historic, present, and future), and the impact on tomorrow's design and construction professions. Issues will include, but shall not be limited to global warming, energy consumption, population, natural resource consumption, air and water quality, waste management, facilities operation management, politics, and facilities design construction. Through extensive readings, research, dialogue, and debates, students will establish a personal position (opinion) on each of the topics covered. Guest speakers will also be invited. Students will develop reports and presentations on various related issues, as well as develop ideas for solutions to problems related to environmental issues. The impact on the design and construction industry, including 'Green Building' and 'LEED Accreditation and Certification/Criteria' will also be addressed on each issue. Restricted to Community Colleges only.

**ARCT 150 - Orientation and Mentoring in Architecture-Construction-Engineering (ACE) (1-6 cr.)**

This course is intended for high school dual credit students and college/university students wishing to explore careers in Architecture, Construction, and Engineering(ACE), which includes the specific fields of Architectural, Civil, Mechanical, Structural, Interior, Landscape, Sustainability, Environmental. Course is co-taught by a college instructor in conjunction with mentors who are local professionals in the fields of ACE. Students receive one-on-one mentoring, lectures, demonstrations, and attend field trips to construction sites, offices of Architects, Engineers and Designers, etc. Students also engage in hands-on activities such as Design (Architectural, Civil, Mechanical, Structural, Interior, Landscape, Environmental), analysis, model building, software, and research topics related to the ACE fields, as well as Sustainability, Interior Design, Landscape Design, Construction Materials and Fabrication processes. May be repeated up to 6 credits. Restricted to Community Colleges campuses only.

**ARCT 170 - Computers in Architecture (3 cr. (2+2P))**

Explore various software and photography techniques widely used in the architectural field. In addition to using industry standard CAD program as primary 2-d drafting tool, focus is to produce digital architectural models and renderings, presentation boards, and animations. Digital images will be produced and enhanced through basic techniques in photography and integration of various software. Both individual and group work will be required.

**ARCT 204 - Architectural Design Studio I (5 cr. (1+8P))**

Enhancement of general graphic communication skills and introduction to fundamental design including exploration, development and defense of design

concepts; structural order; 2D and 3D processes in manual and digital architectural graphic expression; model building; general communication and presentation techniques; and development of course portfolio. Course is Studio/critique-based with considerable amount of work/hours required. This course is designed to be taken during student's last year in the Pre-Architecture program at DACC. Consent of Instructor required. Prerequisite(s): Grade of B- or better in both ARCT 101 and ARCT 104. Restricted to Community Colleges only.

**ARCT 210 - Architectural Delineation I (3 cr. (2+2P))**

Introduction to visual literacy, architectural graphic communication, basic analytical skills. Architectural concepts primarily explored through the application of technical drawing, descriptive geometry, & material manipulation; primarily black white media.

**ARCT 211 - Architectural World History II (3 cr. (2+2P))**

A survey of the development of world architecture from the enlightenment in Europe to the present. Community Colleges only. Prerequisite(s): ARCT 111 or consent of instructor. Restricted to Alamogordo, Dona Ana and Grants campuses.

**ARCT 224 - Sustainable Design in Architecture (3 cr.)**

This course provides students with hands-on opportunity to increase their awareness in, and respond to the issues of responsible environmentally friendly building design by engaging in an integrated design process combining 'Traditional Design Process' with 'Sustainable Environmental Design' strategies. Students will expand their awareness of global environmental impacts due to design and construction, and gain knowledge in the industry's leading design 'tool' LEED (Leadership in Energy and Environmental Design) green building design rating system. LEED strategies will be utilized in the design of individual projects apply LEED in practical, individual design development, and develop an integrated building model utilizing the concept of BIM (Building Information Modeling). Such project development will require learning a basic design process and specific sequence including conceptual design, schematic design, design development and BIM (utilizing a BIM software such as REVIT, or AutoCad Architecture). Prerequisite(s): DRFT 109 or DRFT 165 or consent of instructor. Restricted to Community Colleges only.

**ARCT 250 - Construction Documents (3 cr. (2+2P))**

Basic use of CAD to produce residential, commercial, and industrial architectural working drawings, including floor plans, sections, foundation plans and details, exterior and interior elevations, framing plans, and site plans. Use and application of building and zoning codes, typical construction methods and materials, and accessibility requirements. Basic 3-D modeling, AIA layering standards, sheet layout, and construction document coordination. Pre/Corequisite(s): DRFT 109. Restricted to: Community Colleges only.

**ARCT 254 - Architectural Design Studio II (5 cr. (1+8P))**

Advanced graphic communication, design, and 3D physical model representation. Focus on site analysis, programming and fundamental design issues of context, environment, program development and space planning, 2D and 3D design and presentation techniques. Course is 'Studio/critique-based' with considerable amount of outside work/hours required. This course is designed to be taken during student's last year in the Pre-Architecture program at DACC. Prerequisite(s): Grade of C- or better in ARCT 204. Restricted to Alamogordo, Dona Ana and Grants campuses.

**ARCT 255 - Special Problems (1-6 cr.)**

Instructor-approved projects in architecture or related topics specific to student's areas of interest and relevant to pre-architecture curriculum. Prerequisite: consent of instructor. May be repeated for a maximum of 12 credits.

**ARCT 260 - Architectural Delineation (3 cr. (2+2P))**

Continuation of ARCT 210 with an emphasis in color media. Prerequisites: ARCT 210.

**ARCT 264 - Portfolio Design in Architecture (3 cr.)**

This course is intended for Pre-Architecture students in their last semester of the program. Students develop a comprehensive portfolio that compiles, organizes, and showcases their most accomplished coursework produced in Architecture courses at DACC, in preparation for application to a 4 yr. Architecture program. Skills and techniques in architectural photography, scanning, and design layout

using graphic software. Corequisite(s): ARCT 254 or consent of instructor. Restricted to Community Colleges only.

**ARCT 274 - LEED Accreditation Exam Prep (3 cr.)**

This course is intended for anyone in the construction or architectural design fields who is interested in learning more about green building and the LEED (Leadership in Energy and Environmental Design) strategies, and are also interested in learning about how to become LEED accredited. Overview of the LEED rating systems utilized in the design and operation of buildings, the various LEED building certifications, and accreditation requirements for professionals. Highlights include interpretation of the LEED Reference Guides, accepted strategies for meeting LEED certification, sample practice exams, integrated project delivery methods, and a practical approach to problem solving through the use of design problems. Restricted to Community Colleges only.

**ARCT 290 - Special Topics (1-6 cr.)**

Topics subtitled in the Schedule of Classes. Prerequisite: consent of instructor. May be repeated for a maximum of 12 credits.

**ARCT 291 - Cooperative Experience (1-6 cr.)**

Supervised cooperative work program. Student employed in approved occupation; supervised and evaluated by employer and instructor. Student meets weekly with instructor. Prerequisite: consent of instructor. Graded S/U.

**ARCT 295 - Professional Development and Leadership-AIAS (1-3 cr.)**

As members and/or officers of student professional organizations, architecture students gain experience through undertaking leadership roles, participating in team building, and becoming involved in service to the community. Students can also gain actual work experience involving skills related to their field of study. Graded S/U.

**AUTO - AUTOMOTIVE TECHNOLOGY**

**AUTO 100 - General Mechanics (3 cr. (1+4P))**

Use of hand tools; shop machinery; measuring devices, fasteners, couplings; application of fuels; lubricants; bearings; V-belt, gear and chain drives. Shop safety.

**AUTO 101 - Introduction to Automotive Technology (1 cr.)**

An overview and history of modern automotive technology. Career specializations including career options and description of career fields. Related math, communication skills, and DC electronics.

**AUTO 102 - Electrical Measuring Instruments (2 cr. (1+2P))**

Selection, operation, and care of electrical measuring instruments.

**AUTO 103 - Auto Mechanics Fundamentals (4 cr. (2+4P))**

Theory and operation of all areas of auto mechanics. Basic repair and maintenance operations.

**AUTO 104 - Introduction to Auto Body Repair (4 cr. (2+4P))**

Basics of automotive body repair, including safety, preparation of surfaces for painting, metal straightening, brazing, heat shrinking, use of plastic body fillers, and refinishing of repaired areas.

**AUTO 105 - Welding (4 cr. (2+4P))**

Set-up and adjustment of oxyacetylene and arc welding equipment, identification of metals and rod application. Skill development in laying weld beads and different weld positions.

**AUTO 107 - Automotive Reference/Schematic Reading (2 cr. (1+2P))**

Reading, understanding, and use of automotive references/schematics.

**AUTO 110 - Basic Electricity/Electronics (5 cr. (3+4P))**

Same as OEET 110.

**AUTO 111 - Automotive Mechanics Basics (4 cr.)**

Basic maintenance procedures of the major components of the automobile using service repair manuals, hand and power tools, precision measurement equipment, fasteners and chemicals. Restricted to: Community Colleges only.

**AUTO 112 - Basic Gasoline Engines (5 cr. (2+6P))**

Principles of gasoline engine operation. Identification, design, function of engine components; engine disassembly and reassembly; trouble shooting, and rebuilding heads.

**AUTO 113 - Automotive Electricity and Electronics PT I (4 cr. (2+4P))**

Topics include mastery of DC electricity, use of digital multimeters, troubleshooting electrical problems in starting, charging and accessory systems. Restricted to Community Colleges only.

**AUTO 114 - Automotive Electricity and Electronics PT II (4 cr. (2+4P))**

Advanced AC and DC automotive electronic circuits. Troubleshooting electronically controlled components including supplemental restraint systems and convenience accessories. Restricted to Community Colleges only.

**AUTO 115 - Automotive Engine Repair (5 cr. (2+6P))**

Principles of gasoline engine operation. Identification of engine parts, operation, and function. Disassembly and reassembly. Engine problem diagnoses (cooling system, lubrication system, engine noises). Restricted to Community Colleges only.

**AUTO 117 - Electronic Analysis and Tune-Up of Gasoline Engines (5 cr. (2+6P))**

Theory and operation of ignition and emission control systems and fuel system. Use of troubleshooting equipment and diagnostic equipment. Prerequisite: AUTO 120 or consent of instructor.

**AUTO 118 - Technical Math for Mechanics (3 cr. (2+3P))**

Mathematical applications for the automotive trade.

**AUTO 119 - Manual Transmission/Clutch (5 cr. (2+6P))**

Manual transmission, transfer cases, and clutch operating principles. Students will diagnose problems, remove and replace, disassemble, repair, and assemble units.

**AUTO 120 - Electrical Systems (4 cr. (2+4P))**

Troubleshooting and repair of starters, alternators, and associated circuits. Reading electrical diagrams, diagnosis and repair of electrical accessories. Prerequisite: consent of instructor.

**AUTO 121 - Differentials/Drivelines (4 cr. (2+4P))**

Differential, driveline, drive axles, CV joint operating principles. Students will diagnose problems, remove and replace, disassemble, repair, and assemble units.

**AUTO 122 - Automotive Brakes (4 cr. (2+4P))**

Focus is on theory, diagnosis, and service of drum, disc, and anti-lock braking systems, brake component machining, hydraulic component reconditioning, friction and hardware replacement. Restricted to Community Colleges only.

**AUTO 124 - Automotive Heating and Air Conditioning (4 cr. (2+4P))**

R12 and R134A air conditioning systems maintenance diagnosis and repair. R12 to R134A conversion procedures. Troubleshooting automatic temperature controls and leak detection. Restricted to Community Colleges only.

**AUTO 125 - Brakes (5 cr. (2+6P))**

Theory of operation, diagnosis, repair, and maintenance of disc and drum brakes; safety and use of special tools.

**AUTO 126 - Suspension, Steering, and Alignment (5 cr. (2+6P))**

Types of steering systems, suspension maintenance and repair, four-wheel alignment procedures.

**AUTO 127 - Basic Automatic Transmission (4 cr. (2+4P))**

Theory and operation of the automatic transmission; maintenance, troubleshooting, diagnosis, and repair of components.

**AUTO 128 - Advanced Automatic Transmission (4 cr. (2+4P))**

Overhaul procedures and component repair of automatic transmission and transaxles.

**AUTO 129 - Automotive Steering and Suspension (4 cr. (2+4P))**

Diagnosis/service of suspension components including shocks, springs, ball joints, manual and power steering systems and four wheel alignment are some areas covered. Restricted to Community Colleges only.

**AUTO 130 - Introduction to Transportation Industry (3 cr.)**

State and national traffic statutes that relate to the trucking industry. A Commercial Driver's License Learner's Permit will be obtained through successful completion of the course. Prerequisites: Must be 18 years of age, have a current driver's license and consent of instructor.

**AUTO 131 - Class A CDL (3 cr. (1+4P))**

Instruction in how to perform proper pre-trip inspection; hands-on training with a tractor-trailer unit on the backing range and street driving to develop skills necessary to pass Class A DCL exam. Prerequisite(s): Class A CDL restricted license (permit) and either restriction of D.O.T. Restricted to Community Colleges campuses only.

**AUTO 132 - Automotive Air-Conditioning and Heating Systems (4 cr. (2+4P))**

Theory and operation, reading schematic diagrams, troubleshooting, repair, and replacement operations performed.

**AUTO 137 - Fuel Systems and Emission Controls (4 cr. (2+4P))**

Covers theory and operation of fuel system and emission control. Troubleshooting, vacuum diagrams, overhaul, repair and adjustment of carburetion and fuel injection. Prerequisites: AUTO 117 or consent of instructor.

**AUTO 139 - Automotive Computer Controls (4 cr. (2+4P))**

Same as OEPM 139.

**AUTO 140 - Principles of Automotive Computer Controls (2 cr.)**

Theory and operation of common sensors and control systems. Use of proper diagnostic and service procedures.

**AUTO 141 - Principles of Automotive Fuel Injection (2 cr.)**

Theory and operation of the most commonly used fuel injection systems. Proper diagnostic and service procedures. Prerequisite: consent of instructor.

**AUTO 142 - Automotive Scope Analysis (4 cr. (2+4P))**

Troubleshooting and complete analysis of the automobile using diagnostic scope equipment. Prerequisite: AUTO 117 or consent of instructor.

**AUTO 145 - Shop Management (3 cr.)**

Covers principles of shop safety, regulations, layout, and operation management.

**AUTO 151 - Auto Parts Counter Techniques (3 cr. (2+2P))**

Overview of auto parts sales and warehousing techniques, including the use of catalogues, microfiche, and computers.

**AUTO 155 - Bio-Diesel Fuels (5 cr. (2+6P))**

Covers theory and operation of Bio-Diesel fuel powered vehicles. Blends of bio-diesel and conventional hydrocarbon-based diesel products most commonly distributed for use in the retail diesel fuel marketplace will be discussed. Production, installation, services, and repair will be discussed in detail. Prerequisite(s): AUTO 107, AUTO 112, and AUTO 139. Pre/Corequisite(s): AUTO 117 and AUTO 119. Restricted to: Community colleges.

**AUTO 160 - Hybrid Electric Vehicles (4 cr. (2+4P))**

Covers theory and operation of electrically powered vehicles. Troubleshooting, reading and interpretation of electrical diagrams will be discussed in full detail. Repair and operation procedures will also be covered. Prerequisite(s): AUTO 107, AUTO 112, and AUTO 139. Pre/Corequisite(s): AUTO 117 AUTO 119. Restricted to: Community colleges.

**AUTO 161 - Non-Structural Repair (4 cr. (2+4P))**

This basic auto body course is designed to develop the students understanding of general shop safety using hand tools, pneumatic tools and power tools. This course will also cover straightening fundamentals, plastic and composite repair, panel replacement, and adjustments. Prerequisite(s): AUTO 190.

**AUTO 162 - Advanced Non-Structural Repair I (4 cr. (2+4P))**

This course will involve the students in all phases of minor non-structural collision damage repairs. It will encompass sheet metal repair, advanced panel replacement and alignment. Prerequisite(s): AUTO 161.

**AUTO 163 - Advanced Non-Structural Repair II (4 cr. (2+4P))**

This course is a continuation of AUTO 162 with emphasis in all phases of minor non-structural damage repair. The student will be instructed in sheet metal repair and panel alignment as well as the RI of automotive glass and related components. Prerequisite(s): AUTO 162.

**AUTO 164 - Automotive Industry Collision Repair I (4 cr. (2+4P))**

This advanced course is a continuation of AUTO 161, 162, and 163. This course will incorporate all areas of major non-structural collision damage repair. Through practical application the student will learn how to effectively repair all heavy collision damage using current I-CAR repair standards and procedures. Prerequisite(s): AUTO 163.

**AUTO 165 - Automotive Industry Collision Repair II (4 cr. (2+4P))**

This advanced course is a continuation of AUTO 164 with emphasis on time efficiency. This course will involve the student in all areas of major collision damage repair. The student will be exposed to all applicable I-CAR industry procedures and standards involved in sheet metal and composite panel repair. Prerequisite(s): AUTO 164.

**AUTO 172 - Introduction to Automotive Refinishing (4 cr. (2+4P))**

This course is designed to incorporate all aspects of surface preparation, paint safety, refinishing materials, and refinishing fundamentals. Students will receive instructions for the application of acrylic enamel and base coat/clear coat refinishing systems.

**AUTO 174 - Intermediate Automotive Refinishing (4 cr. (2+4P))**

This course encompasses all areas of surface preparation, damage repair and refinishing procedures that are necessary for achieving a proper spot repair. Students will also be exposed to safe work habits in the refinishing area and correct automotive detailing procedures. Prerequisite(s): AUTO 172.

**AUTO 176 - Automotive Color Adjustment & Blending (4 cr. (2+4P))**

This course will help develop the skills needed to match any type of paint. It will expose the student to color theory, color evaluation, color matching, and other color adjustment factors. The student will be instructed in multiple panel paint blending techniques as well. Prerequisite(s): AUTO 174.

**AUTO 178 - Automotive Overall Refinishing (4 cr. (2+4P))**

This course encompasses all areas of automotive refinishing. This advanced course is a continuation of AUTO 176 with emphasis in achieving industry refinishing times and standards consistent with that of I-CAR. The student will be exposed to surface preparation and refinishing techniques involved with overall coat/clear coat refinishing system. Prerequisite(s): AUTO 176.

**AUTO 181 - Frame and Structural Repair (4 cr. (2+4P))**

This course will involve the student in all areas of frame and structural damage repairs. Through theory and practical application, the student will learn how to diagnose and repair various types of damage include: mash, twist, sag, and side sway. This course will expose the students to safe work habits while using measuring and straightening equipment. Prerequisite(s): AUTO 165.

**AUTO 182 - Structural Panel Replacement (4 cr. (2+4P))**

This course is a continuation of AUTO 181 with infancies in structural panel replacement. The student will be exposed to frame and unibody measuring equipment and their proper use in sectioning procedures. Through theory and practical application the student will learn how to ID structural components, properly separate spot welds, position and weld new body panels in place. Prerequisite(s): AUTO 181.

**AUTO 190 - Sheet Metal Welding (3 cr. (2+2P))**

This course is designed to introduce students to MIG welding procedures, set up and terminology used in sheet metal welding. The students will be exposed to all areas of MIG, oxy acetylene, and plasma torch industry safety. This course will provide the students with the basic knowledge and hands on experience to

successfully demonstrate proper sheet metal welds in a variety of joints and welding positions.

**AUTO 201 - Engine Performance I (4 cr. (2+4P))**

Theory, function, service and analysis of engine related subsystems including ignition, fuel, starting, and charging systems. Emphasis is placed on diagnosis and operation of electronic engine control management systems. Restricted to Community Colleges only.

**AUTO 203 - Engine Performance II (4 cr. (2+4P))**

Study of engine management systems and emission control systems, their function and relationship to vehicle performance and air pollution. Emphasis is placed on the analysis and repair of non-compliant vehicles. Restricted to Community Colleges only.

**AUTO 204 - Engine Performance III (4 cr. (2+4P))**

Study of advanced level diagnostic test procedures and the equipment used to analyze OBD-II emission and drivability concerns. Use of Digital Storage Oscilloscopes, current ramping, Scan Tool analysis of 4 and 5 gas analyzers is mastered. Hybrid vehicles and the latest engine control systems are introduced. Restricted to Community Colleges only.

**AUTO 205 - Manual Drive Train and Axles (4 cr. (2+4P))**

Operation, diagnosis, maintenance, repair or replacement of manual transmissions, clutch assemblies, differentials, drivelines, axles, and manual transaxles. Restricted to Community Colleges only.

**AUTO 206 - Automatic Transmissions (5 cr. (2+6P))**

Operation, diagnosis, maintenance, and repair of automatic transmissions including rear wheel drive, front wheel drive, and electronically controlled transmissions and transaxles. Restricted to Community Colleges only.

**AUTO 207 - Power Train Removal and Replacement (4 cr.)**

Course reviews the removal and installation of major automotive components including the engine assembly, transmission assembly, differential and four wheel drive units. Restricted to: Community Colleges only.

**AUTO 208 - Introduction to Alternative Fueled Vehicles (3 cr.)**

Course will familiarize student with conditions that are resulting in the alternative fueled vehicle movement as well as the design and safety precautions unique to each alternative fuel. Propulsion systems covered include electric vehicles, bio-fueled vehicles, hybrid-electric vehicles and hydrogen powered vehicles, along with other emerging technologies as appropriate. Prerequisite(s): AUTO 113 and AUTO 114. Restricted to: Community Colleges only.

**AUTO 209 - Hybrid Vehicle Service Techniques (3 cr.)**

Designed for experienced automotive technicians, this course will cover safety procedures, design, operational overview and service techniques as well as minor diagnosis and repair of all classifications of hybrid-electric vehicles. Each student must possess legal Class '0' high voltage gloves and liners to attend this class. Prerequisite(s): AUTO 113 and AUTO 114. Restricted to: Community Colleges only.

**AUTO 221 - Cooperative Experience I (1-6 cr.)**

Supervised cooperative work program. Student is employed in an approved occupation and supervised and rated by the employer and instructor. Student will meet in a weekly class. Graded S/U. Prerequisite: consent of instructor.

**AUTO 255 - Special Problems in Automotive Technology (1-5 cr.)**

Individual studies in areas directly related to automotive technologies. Prerequisite: consent of instructor. May be repeated for a maximum of 12 credits.

**AUTO 295 - Special Topics (1-6 cr.)**

Topics to be announced in the Schedule of Classes.

**BCT - BUILDING CONSTRUCTION TECHNOLOGY****BCT 100 - Building Trades I (8 cr. (2+12P))**

Equipment and general safety. Human relations, building construction surveying, footings, foundation form work, framing, sheathing, insulation. Basic electrical wiring and plumbing. Classroom instruction, on-the-job training, and problem solving.

**BCT 101 - Introduction to Construction I (2 cr. (2+1P))**

Basic safety, including personal protective equipment, how to perform basic construction tasks safely, and what to do if an accident occurs. Includes basic construction methods. Restricted to: Community Colleges only.

**BCT 102 - Introduction to Construction II (2 cr. (2+1P))**

Introduction to power and hand tools, blueprints, and basic rigging hardware and techniques. Restricted to: Community Colleges only.

**BCT 103 - Introduction to Construction Laboratory (3 cr.)**

Provides students the opportunity to practice skills they have acquired in BCT 101 and BCT 102. It includes task-oriented projects in which students can apply many of the skills and knowledge that have been presented throughout the National Center for Construction and Education Research (NCCER) Carpentry Program. Corequisite(s): BCT 101 or BCT 102. Restricted to: Community Colleges only.

**BCT 104 - Woodworking Skills I (3 cr. (1+4P))**

Use and care of hand tools and elementary power tools, safety procedures, and supervised project construction.

**BCT 105 - Woodworking Skills II (3 cr. (1+4P))**

Advanced woodworking skills to include use of advanced power tools, power tool safety, and supervised construction. Prerequisite: BCT 104 or consent of instructor.

**BCT 106 - Woodworking Theory and Practice (3 cr. (2+2P))**

History of wood manufacturing, industrial techniques, wood characteristics, stains and finishes. Design and construction of minor wood projects.

**BCT 107 - Painting I (4 cr. (2+4P))**

Types and applications of paints and clear coatings. Use of fasteners, caulks, and sealants. Restricted to: Community Colleges only.

**BCT 108 - Painting Level II (4 cr. (2+4P))**

Continuation of BCT 107: Painting failures and remedies, preparation, drywall patching and wood finishing. Prerequisite(s): BCT 107. Restricted to: Community Colleges only.

**BCT 110 - Blueprint Reading for Building Trades (4 cr. (2+4P))**

Same as DRFT 151, OEET 101, OEPB 110.

**BCT 111 - Small Equipment Maintenance and Repair (4 cr. (2+4P))**

Covers small engine theory, troubleshooting and repair, auto maintenance, hydraulic theory and repair lubricants, batteries and scheduled tool maintenance. Restricted to: Community Colleges only.

**BCT 112 - Basic Masonry (4 cr. (2+4P))**

Covers use of brick and concrete blocks; basic techniques for mixing mortar and laying masonry units; describes the hand and power tools used in masonry, including safety; includes mathematics used to perform calculations related to masonry units; explains the types and properties of mortar and the materials used in mixtures. Restricted to: Community Colleges only.

**BCT 113 - Masonry Level I (4 cr. (2+4P))**

Covers all types of concrete and clay masonry units and their applications; covers ties and reinforcing materials; includes layout, set-up, spreading mortar, cutting brick and block, laying to the line, making corners, tooling joints, patches and cleanup. Restricted to: Community Colleges only.

**BCT 114 - Basic Carpentry (3 cr. (1+4P))**

Covers orientation to the trade; wood building materials, fasteners, and adhesives; detailed description and explanations of hand-operated and power tools, including safety; framing basics including laying out and constructing of wood floors, walls and ceilings and includes roughing in of door and window openings. Restricted to: Community Colleges only.

**BCT 115 - Carpentry Level I (3 cr. (1+4P))**

Describes the various kinds of roofs and provides instructions for lay out of the different roofing systems. Describes the various types of windows, skylights, and exterior doors and provides instruction for installation. Restricted to: Community Colleges only.

**BCT 116 - Basic Carpentry Lab (2 cr.)**

Provides students the opportunity to practice skills they have acquired in BCT 114 and BCT 115. It includes task-oriented projects in which students can apply many of the skills and knowledge that have been presented throughout the National Center for Construction and Education Research (NCCER) Carpentry Program. Pre/Corequisite(s): BCT 114 or BCT 115. Restricted to: Community Colleges only.

**BCT 118 - Math for Building Trades (3 cr.)**

Geometry, algebra, arithmetic, and basic trigonometry pertaining to mathematical applications in the building trades field. Prerequisite: CCDM 103N. Same as OEET 118, DRFT 118, OEPB 118.

**BCT 120 - Building Materials I (4 cr. (2+4P))**

Covers various types of building materials and their uses in the construction industry.

**BCT 121 - Construction Law (3 cr.)**

Using the New Mexico Contractors Reference manual, this course covers licensing requirements and regulations, business, law and other important aspects of owning and running a construction business. Restricted to: Community Colleges only.

**BCT 130 - Professional Development and Leadership (1 cr.)**

As members and/or officers of various student professional organizations, students gain experience in leadership, team building, and community service. Students competing or participating in Skills USA are required to register for the course. May be repeated up to 6 credits. Consent of Instructor required. Restricted to: BCT majors. S/U Grading (S/U, Audit). Restricted to: Community Colleges only.

**BCT 200 - Building Trades II (8 cr. (2+12P))**

Continuation of BCT 100: roofing; exterior and interior finish; masonry; door, window, and cabinet installation.

**BCT 206 - Advanced Cabinetmaking (3 cr. (1+3P))**

Advanced cabinetmaking skills, to include expert use of hand and power tools, professional construction and finishing techniques. Prerequisites: BCT 105, BCT 106, or consent of instructor.

**BCT 211 - Small Equipment Maintenance & Repair II (4 cr. (2+4P))**

Advanced, hands on work experience. Students will work on small engines, explore the various aspects of advanced 4 stroke engine and 2 stroke engine techniques and apply skills and theory taught in the classroom and shop. Along with tours and various shop technicians. Prerequisite(s): BCT 111. Restricted to: Community Colleges only.

**BCT 214 - Intermediate Carpentry I (3 cr.)**

Describes the properties, characteristics, procedures and uses of cement, aggregates, and other materials that, when mixed together, form different types of concrete. Covers procedures for estimating concrete volume and testing freshly mixed concrete, different types of reinforcing materials. Prepares students for working in and around excavations, preparing building foundations, capacities of soils; procedures used in shoring, sloping, and shielding trenches and excavations; trenching safety requirements, recognition of unsafe conditions; and mitigation of groundwater and rock when excavating foundations. Prerequisite(s): BCT 101, 102, 103, 114, 115 116. Corequisite(s): BCT 216. Restricted to: Community Colleges only.

**BCT 215 - Intermediate Carpentry II (3 cr.)**

Covers site layout tools and methods. Layout and construction of deep and shallow foundations, forming of slabs-on-grade, curbing and paving. The module also provides an overview of the assembly, erection, and stripping of gang forms. This module covers the types of elevated decks and the formwork systems and methods used in their construction. Advanced systems: flat slab systems, flying forms, shoring and re-shoring systems, how tilt-up concrete construction is used, how tilt-up panels are formed, erected, and braced, installation of rebar and the types of embedments used to lift and brace the panels. Prerequisite(s): BCT 214. Corequisite(s): BCT 216. Restricted to: Community Colleges only.

**BCT 216 - Intermediate Carpentry Laboratory (2 cr.)**

Provides students the opportunity to practice skills they have acquired in BCT 214 and BCT 215. It includes task-oriented projects in which students can apply many of the skills and knowledge that have been presented throughout the National Center for Construction and Education Research (NCCER) Carpentry Program. Pre/Corequisite(s): BCT 214 or BCT 215. Restricted to: Community Colleges only.

**BCT 217 - Building and the Environment (3 cr.)**

Introduction to LEED's, and Green Building Fundamentals, sustainability, sustainable design and green building evaluating cost implication of green building. Describes site development; managing site water runoff, improving a project's water use efficiency. Discusses renewable energy sources, and introduces student to generating power on-site using renewable energy sources, improving a building's indoor environment quality, improving the building industries' environmental performance and environmental aspects of building maintenance, re-use and conservation. Restricted to: Community Colleges only.

**BCT 220 - Building Materials II (4 cr. (2+4P))**

Choice of types of materials for specific jobs; determination of sizes and amounts.

**BCT 221 - Cooperative Experience I (1-4 cr.)**

Supervised cooperative work program. Student is employed in an approved occupation and is supervised and rated by the employer and instructor. Student will meet in a weekly class. Graded S/U. Prerequisite: consent of instructor.

**BCT 222 - Alternative Building (3 cr. (2+2P))**

Exploration of different types of building techniques and materials other than the traditional wood framed structures. Materials and techniques will include adobe, straw bale, insulated concrete forms, rammed earth and structural insulated panels with an emphasis on green building methods. Restricted to: Community Colleges only.

**BCT 224 - Advanced Carpentry I (3 cr.)**

Covers the equipment, principles, and methods used to perform distance measurement and leveling. In addition to layout for surveyors, field engineers, and carpenters; interpretation and use of site/plot plan drawings; and methods used for on-site communication. Covers the principles, equipment, and methods used to perform site layout. Covers commercial Construction: roofing materials and structures and describes the procedures for installing commercial. Covers installation of a variety of finishing materials, including paneling, and wainscoting. Also covers installation of curtain walls and fire-rated commercial construction. Also covers a variety of stair systems used in commercial construction.

**BCT 226 - Advanced Carpentry Laboratory (2 cr.)**

Provides practical task-oriented hands-on experience in which the student applies the skills and knowledge presented in the BCT 225 and BCT 226. Completion of BCT 225/226/227 will lead towards Certification under the National Center for Construction Education and Research (NCCER) Carpentry Program. Pre/Corequisite(s): BCT 224 or BCT 225. Restricted to: Community Colleges only.

**BCT 250 - Building Trades III (6 cr. (3+6P))**

Continuation of BCT 200.

**BCT 255 - Special Topics (1-6 cr.)**

Topics to be announced in the Schedule of Classes. May be repeated up to 6 credits. Consent of Instructor required. Restricted to: Community Colleges only.

**BCT 290 - Special Problems in Building Technology (1-4 cr.)**

Individual studies in areas directly related to building technologies. Prerequisite: consent of instructor.

**BMGT - BUSINESS MANAGEMENT****BMGT 110 - Introduction to Business (3 cr.)**

Terminology and concepts of the business field. Role of accounting, computers, business management, finance, labor, and international business in our society. Restricted to: Community Colleges only.

**BMGT 112 - Principles of Banking (3 cr.)**

Banking in today's economy: language and documents of banking, check processing, teller functions, deposit function, trust services, bank bookkeeping, loans, and investments. Restricted to: Community Colleges only.

**BMGT 126 - Retail Management (3 cr.)**

Phases of retailing, including types of retail outlets and basic problems of organizing and operating a retail store. Restricted to: Community Colleges only.

**BMGT 132 - Principles of Selling (3 cr.)**

Analysis of customer behavior, persuasive communication, process of the sales interview. Restricted to: Community Colleges only.

**BMGT 136 - Fundamentals of Buying and Merchandising (3 cr.)**

Covers operational aspects of procuring and selling merchandise for the retail store. Procedures covered are buying, receiving, pricing strategies, sales promotions and operational controls. Restricted to: Community Colleges only.

**BMGT 138 - Advertising (3 cr.)**

Psychological approach to non-personal consumer persuasion; applied techniques in media selection, layout mechanics, production methods, and campaign structures. Restricted to: Community Colleges only.

**BMGT 140 - Principles of Supervision I (3 cr.)**

Principles of supervision emphasizing planning, organization, rating of employees and procedures to develop good morale. Introduction to interpretation of case studies. Restricted to: Community Colleges only.

**BMGT 150 - Income Taxation (3 cr.)**

Federal income taxation of individuals, sole proprietorships, partnerships, corporations, trusts, and estates with particular reference to CLU, life insurance and annuities. Restricted to: Community Colleges only.

**BMGT 155 - Special Topics I (1-3 cr.)**

Introductory special topics of lower division level work that provides a variety of timely subjects and content material. May be repeated up to 9 credits. Restricted to: Community Colleges only.

**BMGT 160 - Self-Presentation and Etiquette (3 cr.)**

Introduction to business etiquette based on tradition, social expectations, and professional behavior standards. Restricted to: Community Colleges only.

**BMGT 175 - Introduction to Business Finance (3 cr.)**

Understanding financial systems and the methods businesses use to acquire and use resources is an important tool for the managers. This course provides an overview of the financial inner workings of businesses and corporations. Restricted to: Community Colleges only.

**BMGT 191 - ENACTUS (Students in Free Enterprise) (1 cr.)**

ENACTUS is an international organization promoting and teaching business entrepreneurship. Students learn teamwork, leadership, and networking skills by participating in regional and national business competitions and community service projects. May be repeated up to 6 credits. Restricted to: BMGT or Pre-Business majors. Restricted to Community Colleges only.

**BMGT 201 - Work Readiness and Preparation (2 cr.)**

Instruction in methods of selection, seeking, acquiring and retaining employment. Addresses work success skills, business etiquette, employer expectation and workplace norms. Restricted to: Community Colleges only.

**BMGT 205 - Customer Service in Business (3 cr.)**

Establishes concepts of service quality in relationship to business success and maximization of returns to the organization. Explores techniques for delivering quality and service in a variety of business settings. Restricted to: Community Colleges only.

**BMGT 208 - Business Ethics (3 cr.)**

The course examines the underlying dimensions of ethics in business, investigating ethics in relationship to the organization, the stakeholders, and society. Exploration of ethical issues from a historical context, analyzing actual events through the lens of business decision making, including legal/political,



sociocultural, economic, and environmental considerations will be undertaken. Restricted to Community Colleges campuses only.

**BMGT 210 - Marketing (3 cr.)**

Role of marketing in economy, types of markets, product development, distribution channels, pricing, promotion of goods, market research, consumer motivation, and management of marketing process. Prerequisite(s): BMGT 110. Restricted to: Community Colleges only.

**BMGT 212 - Supervisory and Leadership Trends (3 cr.)**

Current trends in marketing, merchandising, sales promotion and management; in manufacturing, merchandising and service types of businesses. Extensive use of practical student project. Prerequisite(s): BMGT 110 or BUSA 111. Restricted to Community Colleges only.

**BMGT 213 - Consumer Lending (3 cr.)**

Principles of credit evaluation, types of credit, marketing, collections, legal aspects, installment lending, leasing management, insurance, and rate structure and yields. Prerequisite(s): BMGT 112. Restricted to: Community Colleges only.

**BMGT 215 - Banks and the Money Supply (3 cr.)**

Practical application of the economics of money and banking. Required of all students electing the banking option. Restricted to: Community Colleges only.

**BMGT 216 - Business Math (3 cr.)**

Application of basic mathematical procedures to business situations, including percentage formula applications, markup, statement analysis, simple and compound interest, and annuities. Prerequisite(s): CCDM 103N or satisfactory math score on ACT. Restricted to: Community Colleges only.

**BMGT 221 - Internship I (1-3 cr.)**

Work experience that directly relates to a student's major field of study that provides the student an opportunity to explore career paths and apply knowledge and theory learned in the classroom. Internships may be paid or unpaid. Students are supervised/evaluated by both the employer and instructor. May be repeated up to 3 credits. Consent of Instructor required. Restricted to: BMGT majors. S/U Grading (S/U, Audit). Restricted to Community Colleges campuses only.

**BMGT 223 - Supervision and Labor Relations (3 cr.)**

Federal acts affecting business and industry, supervisor's responsibility for effective labor relations, union contracts, grievance procedures, and job and safety instruction. Restricted to: Community Colleges only.

**BMGT 225 - Introduction to Commercial Lending (3 cr.)**

Commercial lending overview, the lending process, portfolio management, and regulation and business development. Prerequisite(s): BMGT 112. Restricted to: Community Colleges only.

**BMGT 228 - Small Business Finance, Regulations and Operations (3 cr.)**

Business start-ups are often unaware of the intricacies of financing, governmental regulations and operational details. This course prepares the student to seek and utilize the most opportune financing available and ensure that pertinent governmental and tax regulations are followed. Restricted to: Community Colleges only.

**BMGT 229 - Small Business Marketing for Success (3 cr.)**

This course teaches students the essentials of real world marketing as a means of ensuring the success of their business. Marketing plans, research and customer identification are covered as well as advertising methods that work to create sales. Restricted to: Community Colleges only.

**BMGT 231 - Legal Issues in Business (3 cr.)**

Application of fundamental legal principles to business transactions. Sources, functions, and objectives of law, including federal and New Mexico court systems and procedures, criminal law, torts, contracts, and sales, and Uniform Commercial Code. Restricted to: Community Colleges only.

**BMGT 232 - Personal Finance (3 cr.)**

Budgeting, saving, credit, installment buying, insurance, buying vs. renting a home, income tax statement preparation, investment, and estate disposal through will and trust. Restricted to: Community Colleges only.

**BMGT 233 - Law and Banking (3 cr.)**

Basic commercial law as it relates to banking and bank transactions. Prerequisite(s): BMGT 112. Restricted to: Community Colleges only.

**BMGT 235 - Credit Administration (3 cr.)**

Covers factors influencing and determining loan policy: methods of credit investigation and analysis, credit techniques, credit problems, and types of loans. Prerequisite(s): BMGT 112. Restricted to: Community Colleges only.

**BMGT 239 - Visual Marketing Techniques (3 cr.)**

Provides a basic understanding of visual marketing and merchandising techniques. The importance of effective presentation of a store and its merchandise is covered, as is line, balance and artistic display. Restricted to: Community Colleges only.

**BMGT 240 - Human Relations (3 cr.)**

Human interactions in business and industrial settings. Motivation and learning experiences as related to problems of the worker and supervisor. Practical applications of human behavior. Prerequisite(s): CCDE 110N or BOT 105 or higher. Restricted to Community Colleges campuses only.

**BMGT 242 - Stock Market Fundamentals (3 cr.)**

Understanding the stock market and other financial markets is important for success as an individual investor. This course teaches the fundamentals of the stock market and how financial instruments are bought and sold. Restricted to: Community Colleges only.

**BMGT 244 - Personal Stock Portfolio Analysis (3 cr.)**

Analyzing stock portfolios to determine value, potential growth and worth is an important skill for entrepreneurs and investors. Various techniques are taught that assist in evaluating stock value and determining which meet individual investment goals. Restricted to: Community Colleges only.

**BMGT 245 - Bank Investments (3 cr.)**

Covers nature of bank investments, relationship of investment management to other functional areas of the bank, and factors that affect investment strategies and decisions. Prerequisite(s): BMGT 112 or consent of instructor. Restricted to: Community Colleges only.

**BMGT 248 - Introduction to Quality Management (3 cr.)**

Introductory practices of total quality management practices aimed at all levels of an organization to continually improve performance to include competitiveness in today's business world. Restricted to: Community Colleges only.

**BMGT 250 - Diversity in the Workplace (3 cr.)**

Concepts of culture, diversity, prejudice, and discrimination within the domestic workforce/society. Prerequisite(s): BMGT 110 or BUSA 111. Restricted to Community Colleges campuses only.

**BMGT 252 - Current Issues in Leadership (3 cr.)**

The course examines current issues in leadership from global and national perspectives, and examines the role of leadership in current business organizations. Prerequisite(s): BMGT 110 or BUSA 111. Restricted to Community Colleges campuses only.

**BMGT 255 - Special Topics II (1-3 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits. Restricted to: Community Colleges only.

**BMGT 258 - Cash, Inventory, and Credit Control (3 cr.)**

Cash and inventory control and management; credit management. Restricted to: Community Colleges only.

**BMGT 259 - Budget and Cost Control (3 cr.)**

Standard costs, variable costing, absorption costing, formal budgeting process, responsibility accounting for cost and profit centers, inventory management techniques, risk adjusted capital budgeting, cash management, credit management, internal checks. Consent of instructor required. Prerequisite(s): Consent of instructor. Restricted to: Community Colleges only.

**BMGT 260 - Real Estate Practice (3 cr.)**

This course is a requirement for licensure in real estate for the state of New Mexico. Topics covered include: real estate finance, settlement, foreclosure, federal taxation, valuation and appraisal, land descriptions and math skills. These topics are requirements of the New Mexico Real Estate Commission. Restricted to: Community Colleges only.

**BMGT 261 - Real Estate Appraisal (3 cr.)**

Principles and techniques of residential real estate appraisal. Not designed to train individuals as independent fee appraisers. Restricted to: Community Colleges only.

**BMGT 262 - Commercial Property Management (3 cr.)**

Managing commercial property requires knowledge of marketing, advertising, regulatory controls, financial arrangements, and legal issues. This course addresses all aspects of managing commercial properties. Consent of instructor required. Restricted to: Community Colleges only.

**BMGT 263 - Real Estate Sales Techniques (3 cr.)**

Improvement of sales techniques; the selling process, negotiation skills, objection handling and closing, business planning, goal setting, and effective application of marketing techniques. Restricted to: Community Colleges only.

**BMGT 264 - Real Estate Law (3 cr.)**

This course is a requirement for licensure in real estate for the state of New Mexico. Topics covered include: ownership of real estate, real estate brokerage relationships, contracts, environmental concerns and federal laws that affect real estate. These topics are requirements of the New Mexico Real Estate Commission. Restricted to: Community Colleges only. Crosslisted with: PL S 264

**BMGT 265 - Real Estate Finance (3 cr.)**

Financing real property, the money market, sources and cost determinants of mortgage money, financial leverage, value of existing mortgages in relation to the current market, and purchaser qualification. Restricted to: Community Colleges only.

**BMGT 266 - Commercial and Industrial Development (3 cr.)**

Managing commercial property requires knowledge of marketing, advertising, regulatory controls, financial arrangements, and legal issues. This course addresses all aspects of managing commercial properties. Consent of instructor required. Restricted to: Community Colleges only.

**BMGT 267 - Commercial Property Appraisal and Evaluation (3 cr.)**

Evaluation and financial appraisal of commercial real property preparatory to the sales process is an important skill for real estate developers and managers. Information concerning land and building evaluation will be covered. Standard Techniques for valuation and commercial sites will be presented. Consent of instructor required. Restricted to: Community Colleges only.

**BMGT 268 - Real Estate Broker's Basic Course (3 cr.)**

State of New Mexico specific criteria that apply to real estate licensure: purchase agreements, listing agreements, New Mexico Rules and Regulations, and landlord tenant legislation. Prerequisite(s): BMGT 260 BMGT 264. Restricted to: Community Colleges only.

**BMGT 269 - Financial Lending Practices for Development Projects (3 cr.)**

This course describes the functions of the global financial marketplace emphasizing their interactions and interconnectedness. Lending practices and their impact on development and growth are discussed. Consent of instructor required. Restricted to: Community Colleges only.

**BMGT 273 - International Hotel and Tourism Management (3 cr.)**

Managing hotel properties in the international arena. Developing and operating tourist venues and facilities catering to internal and external visitors. Challenges of property development in an international setting. Consent of instructor required. Restricted to: Community Colleges only.

**BMGT 274 - Small Business Planning and Development (3 cr.)**

Teaches the skills to effectively conceive, plan and open a business. Initial course in a series aimed at preparing individuals to start and run their own business. Restricted to: Community Colleges only.

**BMGT 275 - Small Business Planning (3-4 cr.)**

How to start a small business based on a formal business plan. Includes feasibility study and legal requirements. Restricted to: Community Colleges only.

**BMGT 276 - Small Business Advanced Business Plan Development (3 cr.)**

Preparing a detailed business plan as the first step in creating a successful business. Restricted to: Community Colleges only.

**BMGT 277 - Small Business Management (3 cr.)**

Study of the principles, advantages, and problems of owning or operating a small business. Location, capital, marketing, control, and sales promotion. Prerequisite(s): BMGT 110 or BUSA 111. Restricted to Community Colleges campuses only.

**BMGT 278 - Sustainable Real Estate Development (3 cr.)**

The awareness of environmental and economic sustainability in project development and planning is an important aspect of the developer's role in the 21st century. The ability to design projects that consider multiple stakeholders and address environmental concerns is addressed in this course. Restricted to: Dona Ana campus only.

**BMGT 280 - Introduction to Human Resources (3 cr.)**

Personnel functions encompassing job analysis, recruitment, selection, training, appraisals, discipline, and terminations. Prerequisite(s): BMGT 110 or BUSA 111 or B A 104. Restricted to Community Colleges campuses only.

**BMGT 282 - Introduction to International Business Management (3 cr.)**

Overview of the social, economic and cultural environment of international business transactions. Prerequisite(s): BMGT 110 or BUSA 111. Restricted to Community Colleges only.

**BMGT 285 - Introduction to Manufacturing Operations (3 cr.)**

Introduction to issues related to manufacturing, including an overview of the production function, product design and development, location, layout, forecasting, planning, purchasing, materials/inventory, and quality management. Prerequisite(s): (BMGT 110 or BUSA 111) and (BMGT 140 or MGT 201). Restricted to Community Colleges campuses only.

**BMGT 286 - Introduction to Logistics (3 cr.)**

Overview on the planning, organizing, and controlling of transportation, inventory maintenance, order processing, purchasing, warehousing, materials, handling, packaging, customer service standards, and product scheduling. Restricted to: Community Colleges only.

**BMGT 287 - Introduction to Export/Import (3 cr.)**

Procedures and documentation for exporting and importing products. Emphasis on NAFTA regulations and other U.S. border operations crossings. Prerequisite(s): BMGT 110 or BUSA 111. Restricted to Community Colleges only.

**BMGT 290 - Applied Business Capstone (3 cr.)**

Refines skills and validates courses taken in BMGT program. Business simulations, case studies and projects used to test and improve business practices. Student must be within 25 credits of graduation. Prerequisite(s): (BMGT 110 or BUSA 111), and (BMGT 140 or MGT 201), and (BMGT 240 or SOC 101 or PSY 201). Restricted to Community Colleges campuses only.

**BMGT 298 - Independent Study (1-3 cr.)**

Individual studies directed by consenting faculty with prior approval of department chair. Maximum of 6 credits may be earned. Prerequisite(s): Sophomore standing with 3.0 GPA. Restricted to: Community Colleges only.

**BOT - BUSINESS OFFICE TECHNOLOGY****BOT 101 - Keyboarding Basics (3 cr. (2+2P))**

Covers correct fingering and mastery of the keyboard to develop skillful operation. Formatting basic business letters, memos, and manuscripts.

**BOT 102 - Keyboarding: Document Formatting (3 cr. (2+2P))**

Designed to improve keyboarding speed and accuracy; introduce formats of letters, tables and reports. A speed and accuracy competency requirement must be met. Prerequisite: BOT 101 or consent of instructor.

**BOT 105 - Business English I (3 cr.)**

Training and application of the fundamentals of basic grammar, capitalization and sentence structure (syntax).

**BOT 106 - Business Mathematics (3 cr. (2+2P))**

Mathematical applications for business, including training in the touch method of the 10-key calculator. Prerequisite: CCDM 103N or adequate score on math placement exam.

**BOT 109 - Business English II (3 cr.)**

Training and application of the fundamentals of punctuation, numbers, basic writing and editing skills. Prerequisite: C- or better in BOT 105.

**BOT 110 - Records Management (3 cr.)**

Principles, methods and procedures for the selection, operation and control of manual and automated records systems.

**BOT 120 - Accounting Procedures I (3 cr. (2+2P))**

Business accounting principles and procedures. Use of special journals, cash control, and merchandising concepts. Reports for sole proprietorships.

**BOT 121 - Accounting Procedures II (3 cr. (2+2P))**

Continuation of BOT 120, emphasizing accounting principles and procedures for notes and interest, depreciation, partnerships and corporations, cash flow and financial statement analysis. Prerequisite: BOT 120.

**BOT 135 - Keyboarding Technique Review (3 cr.)**

Emphasis on improving keyboarding speed and accuracy. Prerequisite: BOT 101 or equivalent.

**BOT 140 - Payroll Accounting (3 cr. (2+2P))**

Payroll procedures including payroll tax forms and deposits. Prerequisite(s): ACCT 221 or BOT 120 or consent of instructor. Restricted to Community Colleges campuses only.

**BOT 150 - Medical Terminology (3 cr.)**

Understanding of the basic elements of medical words. Use of medical abbreviations. Same as NURS 150 and OEHO 120.

**BOT 158 - Advanced Medical Office Terminology (3 cr. (2+2P))**

Builds upon the concepts introduced in Medical Terminology providing greater understanding of how to properly use and apply medical terminology in various health fields. Emphasis will be on terminology used in medical records and procedures, medical coding, and medical transcription. Current medical practice, technological changes in medicine, creating medical documents, and pharmacology will also be covered. Prerequisites: OHED 120 or NURS 150 or BOT 150.

**BOT 169 - Spanish Grammar for Business Administration (3 cr.)**

Introductory course in Spanish grammar and practical business terms required for the proper application of fundamental oral and written business communication skills for Spanish speakers in the field of business administration. Prerequisite(s): Spanish-speaking ability and computer keyboarding ability. Restricted to Community Colleges campuses only.

**BOT 170 - Office Communications in Spanish I (3 cr.)**

Develop oral and written communications skills of native or near-native speakers of Spanish. The student will learn basic letter writing skills, customer service techniques, and telephone etiquette in Spanish. Prerequisite(s): BOT 169, Spanish-speaking ability, and computer keyboarding ability. Restricted to Community Colleges campuses only.

**BOT 171 - Office Communications in Spanish II (3 cr.)**

Develop oral and written communications skills of native or near-native speakers of Spanish. Emphasis placed on learning the office assistant's role within the office environment. Compose complex business correspondence and learn to make international travel arrangements. Prerequisite: BOT 101 or BOT 170.

**BOT 191 - Taking Minutes & Proofreading (3 cr.)**

Preparation and practice producing minutes suited for different meeting types and purposes. Provides strategies to prepare for meetings, to record proceedings, and to transcribe minutes while incorporating proofreading skills

practice. Topics include legal requirements, meeting types, minute formats, and duties/expectations of the minute taker and the meeting chair. Graded: S/U. Prerequisite(s): BOT 109 or consent of instructor. Restricted to Community Colleges campuses only.

**BOT 202 - Keyboarding Document Production (3 cr. (2+2P))**

Further development of keyboarding speed and accuracy. Production of complex letters, memos, tables, reports and business forms. A speed and accuracy competency requirement must be met. Prerequisites: BOT 102 and BOT 109, or consent of instructor.

**BOT 203 - Office Equipment and Procedures I (3 cr. (2+2P))**

Office organization, telephone techniques, equipment and supplies, handling meetings, human relations, mail procedures, and travel. Prerequisites: BOT 213 or C S 110G or consent of instructor.

**BOT 205 - Microcomputer Accounting I (3 cr. (2+2P))**

Introduction to automated accounting systems on microcomputers. Prerequisite: working knowledge of computers and accounting or consent of instructor.

**BOT 206 - Microcomputer Accounting II (3 cr. (2+2P))**

Microcomputer accounting applications, integrating spreadsheets, word processing, graphics, and database. Prerequisites: BOT 121 and OECS 215, or consent of instructor.

**BOT 207 - Machine Transcription (3 cr. (2+2P))**

Creating office documents using transcribing equipment and microcomputer software. Emphasis on proofreading, editing and grammar. Prerequisites: minimum keyboarding of 45 wpm and C or better in BOT 105 or BOT 109 or equivalent and BOT 211 or BOT 213.

**BOT 208 - Medical Office Procedures (3 cr. (2+2P))**

Current computerized and traditional administrative medical office procedures will be introduced. Practical knowledge on managing required record keeping in a medical office environment will be emphasized. Prerequisite(s): BOT 109 or ENGL 111G, HIT 150 or AHS 120, and computer keyboarding ability or consent of instructor. Restricted to Community Colleges campuses only.

**BOT 209 - Business and Technical Communications (3 cr.)**

Effective written communication skills and techniques for career success in the work place. Composition of letters, memos, short reports, forms, and proposals, and technical descriptions and directions. Prerequisites: ENGL 111G and computer keyboarding ability or consent of instructor.

**BOT 211 - Information Processing I (3 cr. (2+2P))**

Defining and applying fundamental information processing concepts and techniques using the current version of leading software. Prerequisite(s): BOT 101 or consent of instructor. Restricted to Community Colleges only.

**BOT 213 - Word Processing I (3 cr. (2+2P))**

Operation and function of a word processor. Specific equipment to be announced in the Schedule of Classes. Prerequisite: BOT 101 or keyboarding proficiency as demonstrated through completion of BOT 122, BOT 123, and BOT 124 or equivalent.

**BOT 214 - Word Processing II (3 cr. (2+2P))**

Advanced operation and functions of a word processor. Specific equipment to be announced in the Schedule of Classes. Prerequisite: BOT 213 or consent of instructor.

**BOT 215 - Spreadsheet Applications (1-3 cr.)**

Use of spreadsheets to include graphics and business applications. Same as OECS 215. May be repeated under different subtitles listed in the Schedule of Classes.

**BOT 217 - Powerpoint Presentation (3 cr.)**

Comprehensive, hands-on approach to learning and applying basic and advanced features of PowerPoint. These include text enhancements, objects, fills, colors, animation, charts, sound, video, and hyperlinks. Students demonstrate appropriate audience and communication tools to deliver presentations. Prerequisites: BOT 211 or ability to demonstrate keyboarding and Windows proficiency.

**BOT 218 - Information Processing II (3 cr. (2+2P))**

Advanced information processing techniques using current version of leading software. Prerequisite: BOT 211 or consent of instructor. May be repeated for a maximum of 6 credits.

**BOT 220 - Internship in Business Office Technology (2 cr.)**

Experience in a supervised office position. Student must work at least eight hours per week. Prerequisites: sophomore standing and consent of instructor. May be repeated for a maximum of 4 credits.

**BOT 221 - Internship I (1-3 cr.)**

Work experience that directly relates to a student's major field of study that provides the student an opportunity to explore career paths and apply knowledge and theory learned in the classroom. Internships may be paid or unpaid. Students are supervised/evaluated by both the employer and the instructor. May be repeated up to 6 credits. Consent of Instructor required. Restricted to: BOT HIT majors. S/U Grading (S/U, Audit). Restricted to Community Colleges campuses only.

**BOT 222 - Internship II (1-3 cr.)**

Continuation of BOT 221. May be repeated up to 6 credits. Consent of Instructor required. Prerequisite(s): BOT 221 and consent of instructor. Restricted to: BOT HIT majors. S/U Grading (S/U, Audit). Restricted to Community Colleges campuses only.

**BOT 223 - Medical Transcription I (3 cr. (2+2P))**

Introductory machine transcription for the medical office using medical terminology. Prerequisite(s): (BOT 150 or HIT 150 or AHS 120) and (BIOL 101 G/L or AHS 100). Restricted to: Community Colleges only.

**BOT 225 - Medical Transcription II (3 cr. (2+2P))**

Study of machine transcription for the medical office using medical terminology. Continuation of BOT 223. Prerequisite: BOT 223.

**BOT 228 - Medical Insurance Billing (3 cr. (2+2P))**

Comprehensive overview of the insurance concepts and applications required for successfully and accurately completing and submitting insurance claims and reimbursement processes for various insurance carriers, both private and government, will be emphasized. Prerequisite(s): HIT 150 or AHS 120 and BOT 208. Restricted to Community Colleges campuses only.

**BOT 233 - Advanced Medical Transcription (3 cr. (2+2P))**

Builds upon the concepts introduced in Medical Transcription providing greater understanding of how to produce advanced reports of physician dictation with increasing speed and accuracy. Emphasis will be on proofreading and editing of operative reports, patient history and physicals, office notes, labor and delivery reports, consultation reports, discharge summaries, and other medical reports. Prerequisite(s): (AHS 120 or BOT 150 or HIT 150) and (BIOL 101 G/L or AHS 100). Restricted to: Community Colleges only.

**BOT 239 - Personal Development (3 cr.)**

Development of a marketable, employable office systems person, to include interview, voice, manners, and apparel.

**BOT 240 - Introduction to Individual Taxation (3 cr.)**

Overview of Individual Federal Taxation; awareness of tax problems pitfalls and planning opportunities; focus on individual personal financial concerns and tax planning. One semester of accounting principles/procedures is recommended.

**BOT 241 - Auditing and Business Issues (3 cr.)**

Introduction to basic auditing concepts, the purpose for the auditing process, and requirements of persons assisting with the audit process. The course will also deal with issues of business law including contracts, sales, torts, strict liability, and business ethics. Prerequisite(s): BOT 120 or ACCT 221. Restricted to Community Colleges campuses only.

**BOT 244 - Tax Preparation (3 cr.)**

Introduces basic federal and state tax codes for preparing individual income tax returns. Emphasis on use of tax software. Prerequisite: keyboarding proficiency.

**BOT 247 - Civic Involvement in Tax Preparation (1-3 cr.)**

Prepare individual tax returns applying current tax code. Each credit requires specific number of volunteer hours at a designated New Mexico Tax Coalition site. Prerequisite(s): BOT 246. Restricted to: Community Colleges only.

**BOT 248 - Medical Coding I (3 cr. (2+2P))**

Continuation of BOT 228. Emphasis is on the most recent revisions of ICD-9-CM. In depth study of the ICD-9/10-CM coding conventions and principles. Prerequisite: BOT 228.

**BOT 249 - CPT Coding I (3 cr.)**

Introductory coding class for the medical office using the CPT coding conventions and principles. NURS 150 or OEHO 120 or BOT 150 and OEHO 100 or BIOL 101G/L.

**BOT 250 - Electronic Office Systems (3 cr. (2+2P))**

Management of the electronic office. Office use of computers, printers, fax machines, copiers, and scanner concepts will be covered. Prerequisite: BOT 211.

**BOT 253 - Advanced Medical Transcription (3 cr.)**

Builds upon the concepts introduced in Medical Transcription providing greater understanding of how to produce advanced reports of physician dictation with increasing speed and accuracy. Emphasis will be on proofreading and editing of operative reports, patient history and physicals, office notes, labor and delivery records, consultation reports and letters, outpatient records, discharge summaries, and other medical reports. Prerequisite: BOT 223. Restricted to: Community Colleges only.

**BOT 255 - Special Topics (1-4 cr.)**

Specific subjects to be announced in the Schedule of Classes.

**BOT 258 - Medical Coding II (3 cr. (2+2P))**

Continuation of BOT 228, and Medical Coding I. Emphasis is on the most recent revision of ICD-10-CM, CPT-4, and DSM-IV. Continued study in the ICD-9/10-CM coding conventions and principles and in depth the CPT-4, HCPCS, and DSM-IV coding convention and principles. Designed as a medical coding capstone course. Prerequisite(s): BOT 228 AND BOT 248. Restricted to: Community Colleges only.

**BOT 259 - CPT Coding II (3 cr.)**

Continuation of BOT 249. Emphasis on the most recent revisions of CPT coding. In depth study of CPT coding conventions and principles. Designed as a medical coding capstone course. Prerequisite: BOT 249.

**BOT 260 - Bookkeeping Simulation Capstone (3 cr. (2+2P))**

Refines the professional and technical skills students have learned while completing the BOT-Bookkeeping Assistant Option curriculum by demonstrating how coursework ties together. Designed as a bookkeeping assistant capstone course. Prerequisite(s): BOT 121 or ACCT 221, BOT 140, BOT 205, and BOT 244, or consent of instructor.

**BOT 268 - Health Information Systems (3 cr. (2+2P))**

Applications of systems and policies to health information systems, functions and health care data requests such as administrative, patient registration, personal health record (PHR), lab, radiology, pharmacy, etc. Prerequisite(s): OECS 105 or C S 110; AND BOT 208. Restricted to: Community Colleges only.

**BOT 270 - Business Office Technology Capstone (3 cr. (2+2P))**

Refines professional skills learned in the BOT program and ties all BOT coursework together. Prerequisite(s): BOT 102 or BOT 129; and BOT 120; and BOT 209 or ENGL 203G or ENGL 218G; and BOT 211 or OECS 211. Restricted to: Community Colleges only.

**BOT 298 - Independent Study (1-3 cr.)**

Individual studies directed by consenting faculty with prior approval of department head. Prerequisite: sophomore standing with 3.0 GPA. May be repeated for a maximum of 3 credits.

**CCDE - DEVELOPMENTAL ENGLISH****CCDE 105 N - Effective Communication Skills (4 cr. (3+2P))**

Instruction and practice in basic communication, to include written and oral presentations. Develops thinking, writing, speaking, reading, and listening skills necessary for successful entry to college and university classes. Provides laboratory. RR applicable.

**CCDE 110 N - General Composition (4 cr. (3+2P))**

Instruction and practice in preparation for college-level writing. Students will develop and write short essays. Provides laboratory. Prerequisite: CCDE 105N (C or better) or equivalent. RR applicable.

**CCDL - DEVELOPMENTAL ESL****CCDL 101 N - Basic Skills in English as a Second Language I (4 cr. (3+2P))**

Developmental studies course for ESL students. Development of basic skills in speaking, listening, reading, and writing English as a second language with emphasis on speaking and listening. Pronunciation stressed. Course intended for U.S. citizens and residents who are nonnative speakers of English. Prerequisite: English language screening or consent of instructor.

**CCDL 103 N - Basic Skills in English as a Second Language II (4 cr. (3+2P))**

Continuation of CCDL 101N for ESL students. Course intended for U.S. citizens and residents who are nonnative speakers of English. Prerequisite: English language screening or consent of instructor.

**CCDL 105 N - Intermediate Skills in English as a Second Language I (4 cr. (3+2P))**

Intermediate level with emphasis on reading and writing. Grammar and syntax stressed. Course intended for U.S. citizens and residents who are nonnative speakers of English. Prerequisite: English language screening or consent of instructor.

**CCDL 107 N - Intermediate Skills in English as a Second Language II (4 cr. (3+2P))**

Continuation of CCDL 105N. Course intended for U.S. citizens and residents who are nonnative speakers of English. Prerequisite: English language screening or consent of instructor.

**CCDM - DEVELOPMENTAL MATHEMATICS****CCDM 100 N - Mathematics Preparation for College Success (1-4 cr.)**

Mathematics skills course designed for college students with math skills insufficient for success in CCDM 103N. May be repeated for a maximum of 4 credits. RR applicable.

**CCDM 103 N - Pre-Algebra (4 cr. (3+2P))**

Fundamental mathematics operations and arithmetic computations. Introduction to algebra and applied geometry. Provides laboratory and individualized instruction. RR applicable.

**CCDM 105 N - Mathematics Preparation and Pre-Algebra (5 cr. (4+2P))**

A total immersion course that combines CCDM 100N and CCDM 103N using tutorials, manipulatives, and classroom instruction. Completion of this class is equivalent to the completion of CCDM 100N and CCDM 103N. Prerequisite(s): Math Placement Exam. Restricted to: Community Colleges only.

**CCDM 112 N - Developmental Algebra I (4 cr. (3+2P))**

Fundamental algebra operations, algebraic expressions, solving linear equations, systems of equations and applications of linear equations. Introduction to exponents and polynomials. Provides laboratory instruction. Completion of CCDM 112N and CCDM 113N is equivalent to completion of CCDM 114N. Graded: Traditional with RR. Prerequisite(s): Grade of C or better in CCDM 103N or CCDM 105N or adequate placement score. Traditional Grading with RR. Restricted to Community Colleges campuses only.

**CCDM 113 N - Developmental Algebra II (4 cr. (3+2P))**

Fundamental algebra operations, polynomials, factoring, solving quadratics by factoring, rational expressions, exponents and radical expressions (continuation

of CCDM 112N). Provides laboratory instruction. Completion of CCDM 112N and CCDM 113N is equivalent to completion of CCDM 114N. Graded: Traditional with RR. Prerequisite(s): Grade of C or better in CCDM 112N or consent of instructor. Restricted to: Community Colleges only.

**CCDM 114 N - Algebra Skills (4 cr. (3+2P))**

Fundamental algebra operations: algebraic expressions, solving linear and quadratic equations, factoring, radicals, exponents. Provides laboratory and individualized instruction. Completion of CCDM 114N meets basic skills requirement. Graded: Traditional with RR. Prerequisite(s): C or better in CCDM 103N or CCDM 105N or adequate placement score. Traditional Grading with RR. Restricted to Community Colleges campuses only.

**CCDM 117 N - Intermediate Algebra I (3 cr.)**

Real numbers, linear equations, functions, inequalities, absolute value equations, systems of equations, exponents and scientific notation, polynomials and polynomial functions, rational expressions. Graded S/U. A student who completes CCDM 117N with a grade of S must then continue with a designated section of MATH 120. Prerequisite: student must be qualified for MATH 120.

**CCDR - DEVELOPMENTAL READING****CCDR 101 N - Introduction to Basic Reading (4 cr. (3+2P))**

Provides basic reading skills through comprehension and vocabulary development. Emphasis on oral language literacy and reading fluency. Course earns institutional credit but will not count toward degree requirements. Prerequisite: COMPASS score of below 42 on Reading section.

**CCDR 103 N - Comprehensive Reading Development (4 cr. (3+2P))**

Provides integration of basic reading skills, including vocabulary development, text comprehension, and critical reading skills. Course earns institutional credit but will not count towards degree requirements. Prerequisite: COMPASS score of 43 to 59 on reading section.

**CCDR 105 N - Fundamentals of Academic Reading. (3 cr. (2+2P))**

Fundamentals of academic reading skills. Emphasis on vocabulary development and text comprehension through literature based instruction. Course earns institutional credit but will not count towards degree requirements. Graded: Traditional with RR. Prerequisite(s): COMPASS score 60 on reading section. Restricted to: Community Colleges only.

**CCDR 110 N - Effective College Reading (3 cr. (2+2P))**

Provides a variety of strategies for effective reading and studying at the college level. Emphasis on reading across disciplines. Course earns institutional credit but will not count towards degree requirements. Graded: Traditional with RR. Prerequisite(s): COMPASS score 64 on reading section. Restricted to: Community Colleges only.

**CCDS - DEVELOPMENTAL SKILLS****CCDS 104 N - Comprehensive Reading Development (4 cr. (3+2P))**

Integration of basic reading skills, including vocabulary development, text comprehension, and critical reading skills. RR applicable.

**CCDS 108 N - Effective Reading (4 cr. (3+2P))**

Instruction and practice of skills and strategies for effective reading at the college level. Designed to incorporate applied skill practice lab activities. RR applicable.

**CCDS 109 N - Study Skills for Reading (1-3 cr.)**

Individualized reading skill strategies necessary for success in college classroom. May be repeated for a maximum of 3 credits. Graded traditional or S/U.

**CCDS 111 N - Study Skills for Math (1-3 cr.)**

Individualized study skill strategies necessary for success in the math classroom. May be repeated for a maximum of 3 credits.

**CCDS 113 N - Study Skills for English (1-3 cr.)**

Individualized study skill strategies necessary for success in the composition classroom. May be repeated for a maximum of 3 credits.

**CHEF - CULINARY ARTS****CHEF 101 - Culinary Arts Kitchen Orientation (3 cr.)**

Provides students with basic information and skills necessary for success in the Culinary Arts program. Students learn basic kitchen routines, safety and sanitation, professional conduct and deportment, standard kitchen calculations, knife handling, and are introduced to the laboratories for initial cooking experiences. Restricted to Community Colleges campuses only.

**CHEF 125 - Introductory Cake Decorating (1 cr.(2P))**

Introduction to the professional cake decorating techniques used by pastry chefs. Basic skills of piping a variety of icings into different patterns are taught. Prerequisite(s): Consent of instructor. Restricted to Community Colleges campuses only.

**CHEF 126 - Intermediate Cake Decorating (1 cr.(2P))**

Introduction to more advanced professional cake decorating techniques used by pastry chefs. Fondant work and more complex decorating schemes are taught. Prerequisite(s): CHEF 125. Restricted to Community Colleges only.

**CHEF 127 - Chocolate Work (1 cr.(2P))**

Introduction to working with chocolate utilizing a variety of methods. Tempering, forming, molding, and other professional techniques will be taught. Consent of Instructor required. Restricted to Community Colleges campuses only.

**CHEF 128 - Advanced Chocolate Work (1 cr.(2P))**

More advanced treatments of chocolate are explored and professional techniques for the chocolatier are developed. Prerequisite(s): CHEF 127.

**CHEF 129 - Wedding Cake Design and Construction (1 cr.(2P))**

Basic skills in designing wedding (or other specialty event) cakes. Includes shaping, icing selection, decorating scheme, presentation, transportation, and remote set up. Prerequisite(s): CHEF 125 and CHEF 126. Restricted to Community Colleges only.

**CHEF 155 - Special Topics (1-3 cr. (3P))**

Specific subjects to be announced in the Schedule of Classes. May be repeated up to 6 credits. Restricted to Community Colleges campuses only.

**CHEF 165 - Math for Kitchen Operations (3 cr.)**

Fundamental mathematical concepts and computations, including measurement, recipe scaling and conversions, metric unit conversion, ingredient yield calculations, ratios and cost extensions are covered. Examples of basic mathematical calculations use kitchen and food service functions, as well as situations to demonstrate principles.

**CHEF 211 - Food Production Management I (3 cr. (2+2P))**

Introduction to kitchen design, workflow, and commercial equipment. Techniques, methods, and application of basic food production principles. Practical experience in cooking processes from a managerial viewpoint. Crosslisted with: HOST 211. Restricted to Community Colleges only.

**CHEF 212 - Food Production Management II (3 cr. (2+2P))**

Selection and use of ingredients. Demonstration and application of classical and modern cooking and preparation techniques. Management techniques for kitchen personnel. Recipe design and analysis. Crosslisted with: HOST 212. Prerequisite(s): CHEF 211 or consent of instructor. Restricted to Community Colleges only.

**CHEF 213 - Bakery Management I (3 cr. (2+2P))**

Fundamentals of baking from a supervisory/management perspective. Exposure to commercial equipment and processes. Introduction to commercial alternatives to scratch-preparation methods. Crosslisted with: HOST 213. Restricted to Community Colleges only.

**CHEF 214 - Bakery Management II (3 cr. (2+2P))**

Advanced techniques and management of bakery operations are explored. Students learn classical forms and techniques. Modern methods of preparing traditional pastry and baked goods are introduced. Crosslisted with: HOST218. Prerequisite(s): CHEF 213 or consent of instructor. Restricted to Community Colleges only.

**CHEF 233 - Culinary Arts Fundamentals I (4 cr. (1+9P))**

Introduction to the basics of culinary arts, including ingredients recognition, cooking methods and techniques, knife usage, preparation of basic stocks, mother sauces, starches and vegetables. Students will participate in laboratory work designed to create an understanding of the professional role of the culinarian. Preparation and production of food products integral to service to guests is incorporated in the course. May be repeated up to 4 credits. Prerequisite(s): Consent of Instructor. Restricted to Community Colleges campuses only.

**CHEF 234 - Culinary Arts Fundamentals II (4 cr. (1+9P))**

Continuation of introductory course focusing on meat cookery, daughter sauces, cold food preparation, poultry and seafood. Safe use of equipment is emphasized while experiencing differing methods of preparation and cooking. Preparation and production of food products integral to service of guests is incorporated in this course. Prerequisite(s): CHEF 233 with a grade of C- or better. Restricted to: HOST/CHEF/HSMG majors. Restricted to Community Colleges campuses only.

**CHEF 235 - Advanced Culinary Arts I (4 cr. (1+9P))**

Exploration and experience in preparation techniques beyond the basic level. Nutritional components of food are discussed, as in the application of good nutrition practices in recipe design. Students are encouraged to use creative methods to expand the individual's culinary expressions. Prepares food products for service to guests in both bulk feeding and individual service settings. Plans, prepares, serves and critiques meals provided for students, faculty and staff. Prerequisite(s): CHEF 234 with a grade of C- or better. Restricted to: CHEF majors. Restricted to Community Colleges campuses only.

**CHEF 236 - Advanced Culinary Arts II (4 cr. (1+9P))**

Advanced techniques and experimental use of food combinations to enhance the student's repertoire of skills and abilities. Utilizes knowledge to develop recipes for unique products. Plans, prepares, serves and critiques meals provided for students, faculty and staff. Prerequisite(s): CHEF 235 with a grade of C- or better. Restricted to: CHEF majors. Restricted to Community Colleges campuses only.

**CHEF 237 - Banquet/Catering Production (3 cr. (1+6P))**

Planning and implementation of the culinary aspects of catered functions. Development of time schedules, work assignments and service plans for catered events and banquet functions. Production of food items in appropriate quantities for catered events. Costing and control functions are covered. May be repeated up to 6 credits. Prerequisite(s): CHEF 234. Restricted to: CHEF majors. Restricted to Community Colleges campuses only.

**CHEF 240 - Baking Fundamentals I (4 cr. (1+9P))**

Introduction to baking techniques, measurement and use of ingredients; equipment use and chemical reactions inherent in the baking process. Production of simple desserts and baked goods. Introduction to working with bread doughs. Corequisite(s): CHEF 233. Restricted to: HOST, CHEF majors. Restricted to Community Colleges campuses only.

**CHEF 241 - Baking Fundamentals II (4 cr. (1+9P))**

More advanced baking and bread making techniques are covered in this course with emphasis on the more advanced elements of quantity production. Students work with a variety of products and ingredients. Prerequisite(s): grade of C- or above in CHEF 240. Restricted to: HOST, CHEF majors. Restricted to Community Colleges campuses only.

**CHEF 242 - Intermediate Baking I (4 cr. (1+9P))**

More advanced baking and pastry techniques are covered in this course with emphasis on the basic elements of patisserie production. Focus is on preparing students to work in a pastry kitchen. Prerequisite(s): Grade of C- or above in CHEF 241. Restricted to: HOST, CHEF majors. Restricted to Community Colleges campuses only.

**CHEF 243 - Intermediate Baking II (3 cr. (1+6P))**

Continuation of work with basic elements of patisserie products including laminated doughs and filled products. Students prepare creams, custards, fillings and are introduced to cake assembly procedures. Prerequisite(s): Grade of C- or above in CHEF 242. Restricted to: HOST, CHEF majors. Restricted to Community Colleges campuses only.

**CHEF 244 - Advanced Baking I (4 cr. (1+9P))**

Students focus on production of variety cakes, centerpieces, wedding cakes and other products found in commercial bakeries and patisserie shops.

Prerequisite(s): Grade of C- or above in CHEF 243. Restricted to: HOST, CHEF majors. Restricted to Community Colleges campuses only.

**CHEF 245 - Pastry Art and Techniques (3 cr. (1+6P))**

Advanced skills for the pastry chef including pulled sugar work, spun sugar, chocolate art, pastillage, marzipan molding, butter carving and advanced decorating techniques are explored. Students prepare specialty items for display and competition. Prerequisite(s): CHEF 240. Restricted to: CHEF HOST majors. Restricted to Community Colleges only.

**CHEF 255 - Special Topics (3 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated up to 6 credits. Restricted to: Culinary Arts and Hospitality Tourism majors. Restricted to Community Colleges only.

**CHEF 256 - International Cuisine (3 cr. (1+6P))**

Exploration into a variety of international cuisines is undertaken, including the cultural and historical backgrounds of the foods being prepared. Students work on developing themed menus and production plans for meals utilizing a single international cuisine.

May be repeated up to 6 credits. Prerequisite(s): CHEF 234. Restricted to: CULI, HOST majors. Restricted to Community Colleges campuses only.

**CHEF 257 - Garde Manger (3 cr. (1+6P))**

Traditional garde manger skills are taught, including plated salads, cold foods, entremets, pates, forcemeat, terrines, charcuterie and chaud froid work. The art and craft of food design, preparation and service are emphasized.

Prerequisite(s): CHEF 234. Restricted to: CHEF HOST majors. Restricted to Community Colleges only.

**CHEF 260 - Nutrition for Chefs (3 cr.)**

Aspects of basic human nutritional requirements are covered as are the applications of the standards to the cooking and baking. Meeting the USDA nutrient guidelines while preparing good tasting food is discussed, calorie, fat and sodium reduction techniques are explored.

**CMT - CREATIVE MEDIA TECHNOLOGY****CMT 100 - Introduction to Visual Communications (3 cr.)**

Overview of the process of crafting a digital product from conception to final. Incorporates basic principles of art and design, typography, layout, color and imagery, logos and advertising basics. Same as OEGR 105.

**CMT 108 - Introduction to Media Technologies (1-3 cr.)**

Introduction to various media technologies. Restricted to: Community Colleges only. Cross-listed: OEGR 108

**CMT 110 - Introduction to Web Design (1 cr.)**

Basics of creating simple web sites for personal use.

**CMT 115 - Digital Photography and Imaging I (3 cr. (2+2P))**

Principles and techniques of photography using digital equipment with an emphasis on lighting, focus, and composition.

**CMT 120 - Introduction to Creative Media (3 cr. (2+2P))**

Exploration and discovery of the creative processes through art, music, theater, narrative, and other avenues.

**CMT 126 - Film Crew Training I (9 cr.)**

This course was designed in collaboration with the NM IATSE Local 480 union and the NM Film Office and focuses on providing hands-on training for students wishing to work on film crews. The course will offer an overview of the primary below-the-line craft areas of film production. Restricted to: Community Colleges only.

**CMT 130 - Introduction to Web Design (3 cr. (2+2P))**

Introduction to web development techniques, theory, and design. Incorporates HTML and industry-standard web editing software in developing various web sites. Restricted to: Community Colleges only.

**CMT 135 - Introduction to 3D Computer Animation (3 cr. (2+4P))**

Learning to work in a 3D environment. Introduction to the basics of modeling, animation, dynamics, and rendering. Working with polygons, NURBS and subdivisions, and editing in multiple interfaces. May be repeated for a maximum of 6 credits.

**CMT 140 - Print Media I (3 cr. (2+2P))**

Creation and design of publications and presentation materials using page layout software. May be repeated for a maximum of 6 credits.

**CMT 142 - Computer Illustration (3 cr. (2+2P))**

Preparation of digital graphics with a vector or draw program for use in print, web, video, animations, and multimedia. May be repeated for a maximum of 6 credits.

**CMT 145 - Image Processing I (3 cr. (2+2P))**

Design and creation of digital graphics using a raster or bitmap program for use in print, multimedia, video, animation and web. May be repeated for a maximum of 6 credits.

**CMT 146 - Digital Foundations (4 cr. (2+4P))**

Accelerated course covering concepts and techniques of industry-standard raster and vector graphics programs with focus on design and application. May be repeated for a maximum of 8 credits.

**CMT 148 - Digital Signage Systems (3 cr. (2+2P))**

A compare and contrast of different digital signage systems and the selection as needed for environment, lighting, and purpose. Topics cover resolution and network considerations, as well as the computer system and digital storage media for digital signage systems.

**CMT 150 - 2D Animation (3 cr. (2+2P))**

Concepts and techniques in storyboarding and creating interactive 2D animations for web, multimedia and video. Prerequisites: CMT 142 or CMT 146.

**CMT 151 - Evolution of Electronic Games (3 cr. (2+2P))**

Focus on the evolution of video games and how they have shaped mainstream entertainment. May be repeated up to 6 credits.

**CMT 155 - Selected Topics (1-4 cr.)**

Specific titles to be announced in the Schedule of Classes. May be repeated for a maximum of 18 credits. Same as OEGR 155.

**CMT 156 - Film Crew Training II (9 cr.)**

The purpose of this course is to provide applied training in a specific film production crew craft area, in which a student has decided to specialize. The various craft areas include but are not limited to, Art Dept., Grip., Electric, Sound, Production Office, Script Supervision, Props, Set Dressing, Locations, Special Effects, Hair/Makeup, Wardrobe, Production Assistant/Set Operations. Prerequisite(s): CMT 126. Restricted to: Community Colleges only.

**CMT 160 - Modeling and Animation (3 cr. (2+2P))**

Building on student's knowledge of 2D animation, covers modeling, animating objects and scenes in a 3D environment using various camera and lighting effects. May be repeated for a maximum of 6 credits. Restricted to: Community Colleges only.

**CMT 165 - Writing and Storyboarding (3 cr. (2+2P))**

Learning good writing principles to create storyboards and scripts that communicate the overall picture of the project, timing, scene complexity, emotion, and resource requirements. Prerequisite: CMT 135 or CMT 160.

**CMT 170 - History of Film: A Global Perspective (3 cr.)**

Explores the history of cinema from the earliest 19th century developments to the present digital video revolution. Offers students a broader base of understanding of the tools and methodologies used in the craft.

**CMT 175 - 3-D Character Design (3 cr. (2+4P))**

Focus on designing a character and then taking that design and building it in 3D using intermediate modeling techniques. Prerequisite: CMT 135 or CMT 160. May be repeated for a maximum of 6 credits.

**CMT 180 - Design Principles (3 cr. (2+2P))**

Techniques and theories of design principles, including layout foundations, logo building, type, color, and story-boarding and their application to print, web, animation and video. Prerequisite(s): CMT 142 or CMT 146. Restricted to: Community Colleges only.

**CMT 182 - Environmental Modeling, Shading and Lighting (3 cr. (2+4P))**

Modeling design techniques to create natural and architectural environments to be used for animated films and gaming. Study of various lighting techniques, shading and shadowing. Prerequisite: CMT 135 or CMT 160.

**CMT 185 - 3D Shading and Lighting Techniques (3 cr. (2+4P))**

Study of various global, scene and character lighting techniques, shading and shadowing, and creating atmospheres and reflections that bring computer generated 3D scenes to life. Examines environmental and studio lighting to bring real life experience into the digital production process. Prerequisite: CMT 135 or CMT 160.

**CMT 190 - Digital Video Production I (3 cr. (2+4P))**

A hands-on study of the tools and techniques used to produce the independent video. Through the production of various short projects, the student explores how the ideas of the writer/director are translated into a visual story. May be repeated for a maximum of 6 credits.

**CMT 191 - Digital Content Integration (3 cr. (2+2P))**

An overview of available prepackaged content for digital signage applications. Topics address the use of RSS feeds, widgets, and other pre-produced content in digital signage displays. Topics will also include file format conversion, both free and commercial.

**CMT 192 - Acting for the Camera (3 cr. (2+2P))**

Covers acting techniques, body movement, monologues and auditioning. Students will gain professional acting experience on camera as well as learn what is expected on a film or video set. Restricted to: Community College only.

**CMT 195 - Digital Video Editing I (3 cr. (2+2P))**

A study of the basic tools and techniques of non-linear digital video editing. May be repeated for a maximum of 6 credits.

**CMT 200 - Critical Game Studies (3 cr. (2+2P))**

Focus on creating a complete design document utilizing techniques and standards used in the industry today. May be repeated for up to 6 credits. Restricted to: Community Colleges only.

**CMT 205 - Cinematography (3 cr. (2+2P))**

Theory and techniques of visual design in cinematography and the aesthetics of lighting. May be repeated for a maximum of 6 credits. May be repeated up to 6 credits. Prerequisite(s): CMT 190. Restricted to Community Colleges campuses only.

**CMT 206 - Principles of Sound (3 cr. (2+2P))**

Study of soundtrack design theory, and the use of audio editing software that is compatible with media editing software to create soundtracks for different visual media. Pre/Corequisite(s): CMT 195. Restricted to: Community Colleges only.

**CMT 210 - Digital Video Production II (3 cr. (2+2P))**

Advanced techniques of the tools and application of professional film making. Prerequisite: CMT 190. May be repeated for a maximum of 6 credits.

**CMT 215 - Digital Video Editing II (3 cr. (2+2P))**

Advanced features of digital video, audio/music, and titling production software. Included are color correction, vector scopes, motion effects, and advanced editing techniques used by filmmakers. Prerequisite: CMT 195 or OEGR 210. May be repeated for a maximum of 6 credits. Same as OEGR 215.

**CMT 216 - Digital Photography and Imaging II (3 cr. (2+2P))**

Provide understanding and skills needed for advanced digital capture, editing, optimizing and manipulating photographic images for print, web and multimedia applications. The course will prepare students to make more advanced technical and more refined aesthetic decisions relative to specific photographic applications. Prerequisite(s): CMT 115. Restricted to: Alamogordo campus, Carlsbad campus, Dona Ana campus.

**CMT 217 - Layer Animation & 3D Applications in Photoshop (1 cr.)**

This is an advanced course in Photoshop 2D techniques and motion graphic applications pertaining to the animation of Photoshop Layers juxtaposed over time and space relationships. Prerequisite(s): CMT 145. Restricted to: CMT majors. Restricted to Community Colleges only.

**CMT 218 - Video for Social Interaction and Informal Commerce (3 cr.)**

The use of DSLR video has opened the way for photographers to be able to add video as a component of expression. This course shows the ways that this tool can be used for on-line instructional videos, demonstrations and presentations. As more and more commercial entities become involved in YouTube and other social media, this becomes a vocationally viable form of visual communication. May be repeated up to 6 credits. Consent of Instructor required. Restricted to: Community Colleges only.

**CMT 220 - Environmental Scene Design (3 cr. (2+4P))**

Modeling design techniques used to create environments and scenes for use in animated films and games. Investigation of both natural and architectural environments to be recreated in the virtual world. Prerequisite: CMT 135 or CMT 160.

**CMT 221 - Internship (1-3 cr.)**

Work experience that directly relates to a student's major field of study that provides the student an opportunity to explore career paths and apply knowledge and theory learned in the classroom. Internships may be paid or unpaid. Students are supervised/evaluated by both the employer and the instructor. May be repeated up to 9 credits. Consent of Instructor required. Prerequisite(s): Consent of instructor. S/U Grading (S/U, Audit). Restricted to Community Colleges campuses only.

**CMT 222 - Pre-production Management (3 cr. (2+2P))**

Pre-production planning paperwork breakdowns, budgeting, and scheduling; taking a project from start to finish from a producers standpoint. Prerequisite: CMT 190.

**CMT 223 - Media Production Services (1-3 cr.)**

A design studio environment in which students obtain real-world experience while providing service to college and non-profit associations with faculty supervision using a variety of media. Can be used with permission to fulfill cooperative requirement. Prerequisite: CMT 180 or ART 163. May be repeated for a maximum of 6 credits.

**CMT 224 - Environmental Scene Design II (3 cr.)**

Second level of modeling design techniques used to create environments and scenes for use in animated films and games. Investigation of both natural and architectural environments to be recreated in the virtual world. Prerequisite(s): CMT 220. Restricted to Community Colleges campuses only.

**CMT 225 - Anatomical Character Design (3 cr. (2+4P))**

Focus on building anatomy-based 3D characters. Advanced study in NURBS, subdivisions, and polygon modeling techniques used to create fully functional and realist models. Prerequisite: CMT 175. May be repeated for a maximum of 6 credits.

**CMT 226 - Film Crew Cooperative Experience (3-6 cr.)**

Industry production experience in specific craft areas for film crew technicians who have successfully completed two semesters of FTTP. Prerequisite(s): CMT 156. Restricted to: Dona Ana campus, Carlsbad campus.

**CMT 227 - Advanced Character Animation (3 cr. (2+2P))**

Focus on complex rigging techniques as well as utilizing advanced animation functions to blend multiple animations into complex animations. May be repeated for a maximum of 6 credits. Prerequisite(s): CMT 160. Restricted to: Community Colleges only.

**CMT 228 - Level Design Concepts (3 cr. (2+2P))**

Focus on the design and creation of video game levels. Dealing with the challenges and pitfalls of different video game genres. May be repeated for a maximum of 6 credits. Prerequisite: CMT 200



**CMT 229 - 3D Digital Sculpting (3 cr.)**

Introduce students to the 3D Sculpting programs which are the industry standard sculpting programs. Students will learn how to create complex high polygon sculpts and normal maps and transfer the models into 3D studio Max and Autodesk Maya. May be repeated up to 6 credits. Prerequisite(s): CMT 160. Restricted to: Community Colleges only.

**CMT 230 - Web Design II (3 cr. (2+2P))**

Creating and managing well-designed, organized web sites using HTML and web development software. May be repeated for a maximum of 6 credits. Prerequisite(s): CMT 130. Restricted to: Community Colleges only. Cross-listed: OEGR 230

**CMT 232 - Script Development & Storyboarding (3 cr.)**

Examines effective writing principles for creating storyboards that communicate the overall picture of a project, timing, scene complexity, emotion and resource requirements. Same as ENGL 232 and CMI 232.

**CMT 235 - Web Design for Small Businesses (3 cr. (2+2P))**

Technology and techniques for designing and building a web presence for small business. May be repeated for a maximum of 6 credits. Prerequisite(s): CMT 130. Restricted to: Community Colleges only. Cross-listed: OEGR 235

**CMT 236 - Digital Audio Fundamentals (3 cr. (2+2P))**

Advanced digital audio post production and recording techniques using current entertainment industry-standard software and hardware. Restricted to: Community Colleges only.

**CMT 237 - Digital Audio Editing (3 cr. (2+2P))**

Techniques in digital audio composing, recording, editing, processing, MIDI virtual instruments. Additional course topics include signal routing and processing, digital console design, audio signal paths, digital plug-ins, audio file management. Prerequisite(s): CMT 236. Restricted to: Community Colleges only.

**CMT 238 - Digital Signage Content Management (3 cr. (2+2P))**

An overview of PC-based digital signage software for content management. Topics include proper selection of software based on client needs; software installation and management; digital content playlists and scheduling.

**CMT 239 - Digital Content Management for Mobile Devices (3 cr. (2+2P))**

This course will cover mobile device content management such as uploading and scheduling for personal content delivery. Topics include the selection of content management software for mobile devices and the installation and hardware requirements for use, accepted practices for distribution of content on mobile devices.

**CMT 240 - Print Media II (3 cr. (2+2P))**

Refining of technical design skills using advanced features of page layout software in preparing a variety of business-related documents. Prerequisite: CMT 140 or OEGR 140. May be repeated for a maximum of 6 credits.

**CMT 241 - Game Animation I (3 cr. (2+2P))**

Introduction to basic game play theory of 3D game design, including levels, character development and game playing concepts. Prerequisite: CMT 160.

**CMT 242 - Advanced Computer Illustration (3 cr. (2+2P))**

Advanced techniques in 2D vector drawing and fundamentals of 3D illustration for use in print, web, and multimedia applications. Prerequisite: CMT 142. May be repeated for a maximum of 6 credits. Same as OEGR 270.

**CMT 245 - Image Processing II (3 cr. (2+2P))**

Advanced techniques in editing and manipulation of raster images for digital graphics for print, multimedia and web. Prerequisite: CMT 145. May be repeated for a maximum of 6 credits. Same as OEGR 260.

**CMT 247 - Production Audio (3 cr. (2+2P))**

Essential tools and techniques in: field and studio recording and mixing, environmental assessment, film set protocol, various microphones, audio documentation, wildlines, ambient audio. Prerequisite(s): CMT 190 and CMT 236. Restricted to: Community Colleges only.

**CMT 248 - Music Production and Mastering (3 cr. (2+2P))**

Introduction to fundamental tools and techniques in music production and mastering. Including: microphones and microphone techniques, live and studio recording, editing, mixing, and introduction to mastering digital audio. Prerequisite(s): CMT 206 and CMT 236. Restricted to: Community Colleges only.

**CMT 249 - Layer Animation and 3D Applications in Photoshop (3 cr.)**

This is an advanced course in Photoshop 3D techniques and motion graphic applications pertaining to the animation of Photoshop Layers juxtaposed over time and space relationships. May be repeated up to 6 credits. Prerequisite(s): CMT 245. Restricted to Community Colleges only.

**CMT 250 - Advanced Graphics for Digital Media (3 cr. (2+2P))**

Advanced techniques in design and creation of high-level 2D animations and interactive interfaces for web, multimedia, and video. Prerequisite: CMT 150. May be repeated for a maximum of 6 credits.

**CMT 251 - Gaming Platform and Standards (3 cr. (2+2P))**

Focus on the different gaming platforms and their corresponding gaming demographics and standards. May be repeated for a maximum of 6 credits. Prerequisite: CMT 200.

**CMT 252 - Game Tools and Techniques (3 cr. (2+2P))**

Focus on the different engines and gaming technologies that power the games of today. May be repeated for a maximum of 6 credits. Prerequisite: CMT 200.

**CMT 253 - History of Animation (3 cr.)**

Exploration of animation as art form and industry. Material spans from the roots of animation before film technology to modern commercial and artistic animated productions. Restricted to: Community Colleges only.

**CMT 254 - History of Media Design (3 cr.)**

An introduction to the principles of design history and theory within a chronological framework of historical and emerging media.

**CMT 255 - Special Topics (1-4 cr.)**

Specific topics to be announced in the Schedule of Classes. May be repeated for a maximum of 18 credits.

**CMT 256 - Typography (3 cr.)**

Foundation in typography with an emphasis on history of typography and the practical application and impact of font choices for print, web, animation and video. Deals with studies in font or letter construction and font choices focusing on design, application, incorporation, and visual impact. Prerequisite(s): CMT 142. Restricted to: Community Colleges only.

**CMT 258 - Advanced Camera Techniques (3 cr. (2+2P))**

Professional camera techniques and training for electronic news gathering and studio filmmaking. Utilizes high-end handheld shooting techniques, cranes, dollies, and steadicam training. May be repeated for a maximum of 6 credits. Prerequisite: CMT 190.

**CMT 260 - 3D Special Effects (3 cr. (2+4P))**

Creating advanced virtual special effects for both rigid and soft bodies. Using MEL, dynamic principles, mixing nodes, and advanced particle systems. How to drive particles over surfaces, add texture to flow, create surface tensions, and use collision events to drive texture. Study of integrating computer-generated images with real-life video and audio. Prerequisite: CMT 160 or CMT 225.

**CMT 261 - 3D Digital Sculpting (3 cr. (2+2P))**

Learn the fundamentals of 3D digital sculpting with industry standard software. Work with brushes, meshes, masks, posing models with the transpose tool, and 3D layers. Prerequisite(s): CMT 160. Restricted to: Community Colleges only.

**CMT 265 - Personal Character Development (3 cr. (2+4P))**

Focus on the development of personal character(s), from sketch to render. Develop complete biographies of character, then build, skin and animate with as many personal attributes as possible. Prerequisite: CMT 225.

**CMT 266 - Audio Postproduction (3 cr. (2+2P))**

Application of techniques for the final postproduction phase of audio track editing, mixing and mastering for film, music, and animation; including Automated

Dialog Replacement (ADR) and Foley. Prerequisite(s): CMT 206, CMT 236, CMT 237, CMT 247 & CMT 248. Restricted to: Community Colleges only.

**CMT 275 - Advanced Web Techniques (3 cr. (2+2P))**

Creating and managing complex web sites using advanced techniques and tools. Prerequisites: CMT 145 and CMT 230. May be repeated for a maximum of 6 credits. Restricted to: Community Colleges only.

**CMT 276 - Advanced Photography Workshops (1 cr.)**

This is a series of 1-credit workshops offering specialized and intense advanced skill training and upgrading applications of photography for commercial purposes and training in photographic skills and styles presented by a variety of professional lecturers. May be repeated up to 7 credits. Prerequisite(s): CMT 115. Restricted to Community Colleges only.

**CMT 285 - Print Media III (3 cr. (2+2P))**

Refinement of skills needed to prepare a variety of documents for print and the service bureau. Prerequisite: CMT 140 or CMT 240. May be repeated for a maximum of 6 credits.

**CMT 287 - Personal Animation Development (3 cr. (2+4P))**

Students choose from producing an original animated short OR research, gather, develop and prepare concepts, models and materials to be used for their Final Workshop Project. (Should be taken semester prior to Workshop.) Consent of instructor required.

**CMT 290 - Advanced 3d Animation Workshop A (3 cr. (2+4P))**

Program capstone. Students will utilize the skills learned in the program to produce their final animation. Group integrated projects are strongly recommended to emulate a real-work animation studio environment. Prerequisite: consent of instructor. Corequisite: CMT 291. May be repeated for a maximum of 9 credits.

**CMT 291 - Advanced 3d Animation Workshop B (3 cr. (2+4P))**

Program capstone. Students will utilize the skills learned in the program to produce their final animation. Group integrated projects are strongly recommended to emulate a real-work animation studio environment. Prerequisite: consent of instructor. Corequisite: CMT 290. May be repeated for a maximum of 9 credits.

**CMT 292 - Creative Media Studio (3 cr. (2+2P))**

A studio environment where students specialize in creating film-festival quality and portfolio-ready projects under the supervision of faculty. Prerequisites: CMT 190 and CMT 195 or CMT 160. May be repeated for a maximum of 6 credits.

**CMT 293 - Advanced Digital Signage Content Management (3 cr. (2+2P))**

An overview of proprietary industry software used to manage digital content and perform content upload, playlist creation, and scheduling. Topics include proper selection of a commercial digital content management system based on client needs; installation and management; digital content playlists and scheduling.

**CMT 294 - Creative Media Studio II (3 cr.)**

Second level of studio environment where students specialize in creating film-festival quality and portfolio ready projects under the supervision of faculty. Prerequisite(s): CMT 292. Restricted to Community Colleges campuses only.

**CMT 295 - Professional Portfolio Design and Development (1-3 cr.)**

Personalized design and creation of the student's professional portfolio including hard-copy, demo reel, and online. Prerequisite: consent of instructor. May be repeated for a maximum of 6 credits. Same as OEGR 280.

**CMT 298 - Independent Study (1-3 cr.)**

Individual studies directed by consenting faculty with prior approval of department head. Prerequisite: minimum GPA of 3.0 and sophomore standing. May be repeated for a maximum of 6 credits. Same as OEGR 298.

**COLL - COLLEGE**

**COLL 101 - College/Life Success (1-3 cr.)**

Provides students with an opportunity to cultivate the skills, values, and attitudes necessary to become confident, capable students, and contributing community

members. Topics include time management, memory techniques, relationships, health issues, money management, and college and community resources.

**COLL 103 - Managing Your Money (1 cr.)**

Principles and strategies for effective money management. Includes financial goal setting, both short and long term. Explores the relationship between career and income earning potential. Explores issues of credit and debt management and prevention of identity theft.

**COLL 108 - Academic Reading and Study Skills (1-4 cr.)**

Introduction to and practice with strategies for effective reading and studying at the college level. Provides laboratory.

**COLL 111 - Academic Skills for Mathematics (1-3 cr.)**

Emphasis on study skills for success in math, up to the calculus level, tailored to meet individual student needs. Topics include test preparation strategies, efficient time management and practice methods, and introduction to and practice with learning software. Consent of instructor required.

**COLL 120 - Career Exploration (1 cr.)**

Survey of careers possible with community college associate degrees. Information on how to make a career choice.

**COLL 122 - Introduction to learning in an Electronic Environment (1-3 cr.)**

Extends methods of learning and thinking by using communication technology. Interaction with a wide range of electronic information. Focus on technical and student skills necessary for distance learning.

**COLL 155 - Special Topics (1-4 cr.)**

Covers specific study skills and critical thinking topics. Specific sub-titles to be listed in the Schedule of Classes. May be repeated for a maximum of 8 credits.

**COLL 185 - Prior Learning: Professional Portfolio (1-6 cr.)**

Creating a portfolio that outlines professional and educational experiences. Life skills and education learned through workplace training and non-traditional education experiences will be evaluated for consideration of awarding college credit. Students will draft a life history paper, prepare a professional resume, assemble supporting documentation and evidence in support of their petition to receive college credit for prior learning. Culminating activities will include an oral presentation of the portfolio contents. Prerequisite: CCDE 110N or equivalent. Graded S/U.

**COLL 201 - Critical Thinking Skills (3 cr.)**

Introduction to critical thinking processes. Develops higher order thinking necessary to evaluate clearly, logically, and accurately one's academic and life experiences. Practical emphases on assertive thinking and perspectives. Prerequisite: placement scores for CCDE 110N or higher.

**DAS - DENTAL ASSISTING**

**DAS 101 - Introduction to Dental Assisting (2 cr.)**

An introduction to the duties and responsibilities of a dental assistant. Includes brief lessons on head and neck anatomy, chair side assisting, sterilization techniques, dental office emergencies, and dental office management. Restricted to: Community Colleges only.

**DAS 111 - Bio-Dental Science (4 cr. (3+3P))**

An introduction to biomedical and dental sciences with emphasis on head and neck anatomy and tooth morphology. Includes microbiology, general anatomy and physiology, histology and embryology of the oral cavity, pathology and pharmacology as they relate to dentistry. Corequisite(s): DAS 113, DAS 115, and DAS 117. Prerequisite(s)/Corequisite(s): PSY 201G, PHLS 150G, and HNDS 251. Prerequisite(s): ENGL 111G, BIOL 154, and (COMM 253G or COMM 265G). Restricted to: OEDA majors. Restricted to Alamogordo, Carlsbad and Dona Ana campuses.

**DAS 113 - Dental Assisting I (4 cr. (2+6P))**

Introduction to chair side assisting procedures, instrumentation, infection control, equipment safety and maintenance, dental office emergencies, and management of pain and anxieties. Corequisite(s): DAS 111, DAS 115, and DAS 117. Prerequisite(s)/Corequisite(s): PSY 201G, PHLS 150G, and HNDS 251.

Prerequisite(s): ENGL 111G, BIOL 154, and (COMM 253G or COMM 265G).

Restricted to: OEDA majors. Restricted to Alamogordo, Carlsbad and Dona Ana campuses.

**DAS 115 - Dental Radiology (3 cr. (2+3P))**

Radiation physics, hygiene, and safety theories. Emphasis on the fundamentals of oral radiographic techniques and interpretation of radiographs. Includes exposure of intra-oral radiographs, quality assurance, radiographic interpretation, patient selection criteria, and other ancillary radiographic techniques. Corequisite(s): DAS 111, DAS 113, and DAS 117.

Prerequisite(s)/Corequisite(s): PSY 201G, PHL 150G, and HNDS 251.

Prerequisite(s): ENGL 111G, BIOL 154, and (COMM 253G or COMM 265G).

Restricted to: OEDA majors. Restricted to Alamogordo, Carlsbad and Dona Ana campuses.

**DAS 117 - Dental Materials (3 cr. (2+3P))**

Composition, chemical and physical properties, manipulation and uses of dental materials. Laboratory experiences include the application and manipulation of various materials used in dentistry. Corequisite(s): DAS 111, DAS 113, and DAS 115. Prerequisite(s)/Corequisite(s): PSY 201G, PHL 150G, and HNDS 251.

Prerequisite(s): ENGL 111G, BIOL 154, and (COMM 253G or COMM 265G).

Restricted to: OEDA majors. Restricted to Alamogordo, Carlsbad and Dona Ana campuses.

**DAS 123 - Dental Assisting Practicum (6 cr. (1+15P))**

This course is the clinical component of the program that combines general practice and experiences in the work place. Seminar topics focus on the practicum experiences and critique of performance. Corequisite(s): DAS 125, DAS 127, and DAS 129. Prerequisite(s): DAS 111, DAS 113, DAS 115, and DAS 117. Restricted to Alamogordo, Carlsbad and Dona Ana campuses.

**DAS 125 - Professional Concepts (3 cr.)**

Emphasis on the development of professionalism for the dental office. Includes oral communication, psychology, patient relations, problem-solving skills, stress management, and employability in addition to dental jurisprudence and ethics. Corequisite(s): DAS 123, DAS 127, and DAS 129. Prerequisite(s): DAS 111, DAS 113, DAS 115, and DAS 117. Restricted to Alamogordo, Carlsbad and Dona Ana campuses.

**DAS 127 - Dental Office Management (2 cr.)**

This capstone course is an introduction to business office procedures, including telephone management, appointment control, accounts payable, completion of third party reimbursement forms, inventory control data entry for charges and payments, management recall, basic dental computer software and operating basic business equipment. Corequisite(s): DAS 123, DAS 125, and DAS 129.

Prerequisite(s): DAS 111, DAS 113, DAS 115, and DAS 117. Restricted to: OEDA majors. Restricted to Alamogordo, Carlsbad and Dona Ana campuses.

**DAS 129 - Preventive Dentistry (2 cr.)**

Prevention of dental diseases, oral hygiene instruction, fluoride, community dental health, and nutrition. Development, implementation and evaluation of a community dental health project. Corequisite(s): DAS 123, DAS 125, and DAS 127. Prerequisite(s): DAS 111, DAS 113, DAS 115, and DAS 117. Restricted to Alamogordo, Carlsbad and Dona Ana campuses.

**DAS 130 - Dental Assisting II (4 cr. (2+6P))**

Continuation of chair side assisting skills and techniques with a major emphasis on four-handed dentistry. This capstone course includes specialties within dentistry and expanded chair side functions. Prerequisite(s): DAS 111, DAS 113, DAS 115, DAS 117, DAS 123, DAS 125, DAS 127, and DAS 129. Restricted to Alamogordo, Carlsbad and Dona Ana campuses.

**DAS 131 - Dental Office Management I (3 cr.)**

Introduction to the field of dental office management with emphasis placed on professional verbal and written communication skills utilized within the dental office. Content includes dental terminology, charting, and back office experience as they relate to dental reception and management.

Prerequisite(s)/Corequisite(s): DAS 101, AHS 120, and AHS 202. Prerequisite(s): ENGL 111G. Restricted to Alamogordo, Carlsbad and Dona Ana campuses.

**DAS 133 - Dental Office Management II (3 cr.)**

Places emphasis on computer programs specifically designed for dental office management (Dentrix, Sof Dent, etc.) Expanded course content on oral communication and telephone skills, appointment scheduling, patient relations, stress management solutions, and comprehensive critical thinking/problem solving skills. Prerequisite(s)/Corequisite(s): AHS 202. Prerequisite(s): ENGL 111G, DAS 101, and AHS 120. Restricted to Alamogordo, Carlsbad and Dona Ana campuses.

**DAS 155 - Special Topics (1-6 cr.)**

Specific subjects to be announced in the Schedule of Classes. Prerequisite: consent of instructor. May be repeated for a maximum of 12 credits.

**DAS 156 - Independent Study (1-6 cr.)**

Individual studies/research on topics related to dental assisting. Prerequisite: consent of instructor. May be repeated for a maximum of 8 credits.

**DHYG - DENTAL HYGIENE/ HYGIENIST**

**DHYG 110 - Preclinical Dental Hygiene (3 cr.)**

Basic scientific principles and current theory, prevention of disease transmission, ethical and professional treatment of patients, clinical learning preparation, and introduction to comprehensive patient care. Offered concurrently with DHYG 112 to provide dental hygiene students with introductory knowledge, skills and attitudes to function in the clinical setting. Corequisite(s): DHYG 112, DHYG 114, DHYG 116, DHYG 117, DHYG 118. Prerequisite(s): ENGL 111G, MATH 120, CHEM 210, BIOL 225, BIOL 226, BIOL 221 and BIOL 221L. Restricted to: DHYG majors. Restricted to Community Colleges campuses only.

**DHYG 112 - Preclinical Dental Hygiene Lab (3 cr. (9P))**

Clinical application to basic theories and procedures used in dental hygiene practice. Techniques of instrumentation used in performing diagnostic, preventive and therapeutic services utilized when providing comprehensive patient care. Student will practice these techniques on manikins and student partners in the clinic. Corequisite(s): DHYG 110, DHYG 114, DHYG 116, DHYG 117 & DHYG 118. Prerequisite(s): ENGL 111G, MATH 120, CHEM 210, BIOL 225, BIOL 226, BIOL 221 AND BIOL 221 L, OEHO 225. Restricted to: DHYG majors. Restricted to Community Colleges campuses only.

**DHYG 114 - Oral Histology and Embryology (2 cr.)**

Introduction and description of general histology and embryology with emphasis on the microscopic structures of enamel, dentin, pulp, cementum, periodontal ligament, bone, oral mucosa, epithelial attachment and development of orofacial structures. Corequisite(s): DHYG 110, DHYG 112, DHYG 116, DHYG 117 & DHYG 118. Prerequisite(s): ENGL 111G, MATH 120, CHEM 210, BIOL 225, BIOL 226, BIOL 221 AND BIOL 221 L, OEHO 225. Restricted to: DHYG majors. Restricted to Community Colleges campuses only.

**DHYG 116 - Head and Neck Anatomy (3 cr.)**

Comprehensive study of the anatomy of the head and neck regions, including skeletal, nervous, circulatory, lymphatic, and muscular systems. Corequisite(s): DHYG 110, DHYG 112, DHYG 114, DHYG 117 and DHYG 118. Prerequisite(s): ENGL 111G, MATH 120, CHEM 210, BIOL 225, BIOL 226, BIOL 221 AND BIOL 221 L, HNDS 251. Restricted to: DHYG majors. Restricted to Community Colleges only.

**DHYG 117 - Dental Anatomy (1 cr. (1+2P))**

A detailed study of nomenclature, morphologic characteristics, and physiologic relationships of human primary and permanent teeth as related to the clinical practice of dental hygiene. Laboratory activities develop observation and dexterity skills. Corequisite(s): DHYG 110, DHYG 112, DHYG 114, DHYG 116 and DHYG 118. Prerequisite(s): ENGL 111G, MATH 120, CHEM 210, BIOL 225, BIOL 226, BIOL 221 and BIOL 221 L, HNDS 251. Restricted to: DHYG majors. Restricted to Community Colleges only.

**DHYG 118 - Dental Radiology (3 cr. (2+3P))**

Study of radiation physics, hygiene and safety theories. Fundamentals of oral radiographic techniques and interpretation of radiographs. Includes exposure of intra-oral radiographs, quality assurance, radiographic interpretation, patient selection criteria, ancillary radiographic techniques and application to dental hygiene treatment. Corequisite(s): DHYG 110, DHYG 112, DHYG 114, DHYG 116, DHYG 117. Prerequisite(s): ENGL 111G, MATH 120, CHEM 210, BIOL 225, BIOL 226,

BIOL 221 AND BIOL 221L, OEHO 225. Restricted to: DHYG majors. Restricted to Community Colleges campuses only.

**DHYG 120 - Dental Hygiene Theory I (3 cr.)**

Continuation of the theoretical basis for dental hygiene clinical practice. Emphasis on emergency care, planning dental hygiene care, health promotion and disease prevention, oral rehabilitation and care of appliances, modifications of dental hygiene care through the life-span, and an introduction to medically comprised patients. Corequisite(s): DHYG 122, DHYG 124, DHYG 126. Prerequisite(s): C- or above in DHYG 110, DHYG 112, DHYG 114, DHYG 116, DHYG 117 & DHYG 118. Restricted to: DHYG majors. Restricted to Community Colleges campuses only.

**DHYG 122 - Clinical Dental Hygiene I (3 cr. (12P))**

Application of dental hygiene procedures on a variety of clinical patients under direct supervision of faculty. Emphasis on patient assessment and diagnosis, treatment procedures, appointment planning and prevention techniques. Theory is simultaneously related to practical experience. Offered concurrently with DHYG 120. Corequisite(s): DHYG 120, DHYG 124, DHYG 126. Prerequisite(s): C- or above in DHYG 110, DHYG 112, DHYG 114, DHYG 116, DHYG 117 & DHYG 118. Restricted to: DHYG majors. Restricted to Community Colleges campuses only.

**DHYG 124 - General and Oral Pathology (3 cr.)**

Introduction to general pathology with focused study of diseases and disorders of the oral cavity and their interrelationship with body systems; developmental anomalies of the teeth and jaws; manifestations of disease in the oral cavity, head and neck. Corequisite(s): DHYG 120, DHYG 122, DHYG 126. Prerequisite(s): C- or above in DHYG 110, DHYG 112, DHYG 114, DHYG 116, DHYG 117 & DHYG 118. Restricted to: DHYG majors. Restricted to Community Colleges campuses only.

**DHYG 126 - Periodontology (3 cr.)**

Study of normal and diseased periodontium to include the structural, functional and environmental factors. Emphasis on etiology, pathology, evaluation of disease, treatment modalities, and therapeutic and preventative periodontics relative to the hygienist's role as a co-therapist in a contemporary practice setting. Corequisite(s): DHYG 120, DHYG 122, DHYG 124. Prerequisite(s): C- or above in DHYG 110, DHYG 112, DHYG 114, DHYG 116, DHYG 117 & DHYG 118. Restricted to: DHYG majors. Restricted to Community Colleges campuses only.

**DHYG 132 - Clinical Dental Hygiene II (1 cr. (.5+3.5P))**

Continuation of clinical skills, patient assessment and diagnosis, treatment and appointment planning, preventive techniques and application of dental hygiene procedures at an intermediate level under the direct supervision of faculty. Clinical-based instruction helps students synthesize new knowledge, apply previous knowledge, and gain experience managing the workflow. Theory is simultaneously related to practical experience. Prerequisites: C- or above in DHYG 120, DHYG 122, DHYG 124, DHYG 126.

**DHYG 134 - Dental Materials (3 cr. (2+3P))**

Study of the composition, chemical and physical properties, manipulations, and uses of dental materials. Emphasis on materials and procedures for which the dental hygienist is directly responsible. Laboratory experiences include application and manipulation of various materials used in dentistry. Prerequisites: C- or above in DHYG 120, DHYG 122, DHYG 124, DHYG 126.

**DHYG 155 - Special Topics in Dental Hygiene (1-6 cr.)**

Study of special topics related to the practice of dental hygiene. May include educational methodology as well as applications in clinical practice, research, or community service. Consent of instructor required. Restricted to: Community Colleges only. Restricted to DHYG majors.

**DHYG 210 - Dental Hygiene Theory III (2 cr.)**

Advanced theory of dental hygiene and information on periodontal therapies relative to the hygienist's role as a co-therapist in clinical practice. Continuation of the study of dental hygiene care for medically comprised patients and an introduction to special needs patients. Restricted to DHYG majors. Offered concurrently with DHYG 212. Corequisites: DHYG 212, DHYG 214, DHYG 216, DHYG 218. Prerequisites: C- or above in DHYG 132, DHYG 134, and SOC 101G (or equivalent).

**DHYG 212 - Clinical Dental Hygiene III (4 cr. (16P))**

Continuation of clinical skills, patient assessment and diagnosis, treatment and appointment planning, preventive techniques and applications of dental hygiene procedures at the intermediate to competent level under supervision of faculty. Emphasis on dental hygiene treatment for the medically compromised and periodontally involved patients. Theory is simultaneously related to practical experience. Offered concurrently with DHYG 210. Restricted to DHYG majors. Corequisites: DHYG 210, DHYG 214, DHYG 216, DHYG 218. Prerequisite: C- or above in DHYG 132, DHYG 134, and SOC 101G (or equivalent).

**DHYG 214 - Dental Pharmacology (3 cr.)**

Study of the pharmacologic aspects of drugs and drug groups with which the dentist and dental hygienist are directly and indirectly concerned. Emphasis is placed on nomenclature, origin, physical and chemical properties, preparation, modes of administration and effects of drugs upon the body systems. Restricted to DHYG majors. Corequisites: DHYG 210, DHYG 212, DHYG 216 and DHYG 218. Prerequisites: C- or above in DHYG 132 and DHYG 134.

**DHYG 216 - Dental Public Health Education (3 cr.)**

Study of principles and concepts of community public health and dental health education. Emphasis on dental epidemiology and statistical methods, community assessment, educational planning, implementation, and evaluation, scientific review of literature, and classroom presentation. Restricted to DHYG majors. Corequisites: DHYG 210, DHYG 212, DHYG 214 and DHYG 218. Prerequisites: C- or above in DHYG 132 and DHYG 134.

**DHYG 218 - Pain and Anxiety Management (3 cr. (2+4P))**

Study of the application of various physical, chemical, and psychological modalities to the prevention and treatment of preoperative and postoperative patient anxiety and pain. Emphasis on administration of local anesthesia and nitrous oxide. Restricted to DHYG majors. Corequisites: DHYG 210, DHYG 212, DHYG 214 and DHYG 216. Prerequisites: C- or above in DHYG 132 and DHYG 134.

**DHYG 220 - Dental Hygiene Theory IV (3 cr.)**

Theoretical preparation for advanced clinical practice. In-depth study of dental hygiene care for patients with special needs. Case Study presentations and a Board Review are utilized to demonstrate the synthesis of comprehensive dental hygiene knowledge, skills and attitudes. The most current dental and dental hygiene technology will be reviewed as it related to clinical practice. Prerequisite(s): C- or above in DHYG 210, DHYG 212, DHYG 214, DHYG 216, and DHYG 218. Corequisite(s): DHYG 222, DHYG 224, DHYG 226. Restricted to: Community Colleges only. Restricted to DHYG majors.

**DHYG 222 - Clinical Dental Hygiene IV (4 cr. (16P))**

Clinical sessions combine basic and advanced dental hygiene skills with time management techniques essential for private practice. Comprehensive patient care to include assessment, dental hygiene diagnosis, treatment planning, implementation and evaluation of dental care, nonsurgical periodontal therapy, adjunct clinical procedures, ultrasonic instrumentation, patient management, sealants, and comprehensive programs for control of oral diseases will be emphasized. Theory is simultaneously related to practical experience. Students are encouraged to develop independent decision-making with minimal faculty supervision. Prerequisite(s): C- or above in DHYG 210, DHYG 212, DHYG 214, DHYG 216, and DHYG 218. Corequisite(s): DHYG 220, DHYG 224, DHYG 226. Restricted to: Community Colleges only. Restricted to DHYG majors.

**DHYG 224 - Principles of Practice (2 cr.)**

Examination of the dental hygienist's role in both traditional and non-traditional employment settings. Career planning, resume preparation and interviewing are practices. An understanding of the law, professional ethics of dental hygiene and the need for lifelong learning are emphasized. Future roles of the dental hygienist and emerging issues in dental hygiene will be explored. Prerequisite(s): C- or above in DHYG 210, DHYG 212, DHYG 214, DHYG 216, and DHYG 218. Corequisite(s): DHYG 220, DHYG 222, DHYG 226. Restricted to: Community Colleges only. Restricted to DHYG majors.

**DHYG 226 - Community Oral Health (2 cr. (1+3P))**

Students assess, plan, implement, and evaluate a community oral health project. Dental specialties and the dental hygienist's role in referrals and in interdisciplinary patient care are presented. Students participate in a variety of community health projects and practicum and observe in dental specialty

practices. Prerequisite(s): C- or above in DHYG 210, DHYG 212, DHYG 214, DHYG 216, and DHYG 218. Corequisite(s): DHYG 220, DHYG 222, DHYG 224. Restricted to: Community Colleges only. Restricted to DHYG majors.

**DHYG 255 - Special Topics in Dental Hygiene (1-6 cr.)**

Study of special topics related to the advanced practice of dental hygiene. May include educational methodology as well as applications in clinical practice, research, or community service. Consent of instructor required. Restricted to: Community Colleges only. Restricted to DHYG majors.

**DHYG 298 - Independent Study in Dental Hygiene (1-9 cr.)**

Individual study related to the dental hygiene profession. Prior approval of both the Program Chairperson and the supervising instructor are required. Consent of instructor required. Restricted to: Community Colleges only. Restricted to DHYG majors.

**DMS - DIAGNOSTIC MEDICAL SONOGRAPHY**

**DMS 101 - Introduction to Sonography (2 cr.)**

Introduction to the principles of ultrasound, terminology, scanning planes and applications of ultrasound. Includes observation in an ultrasound facility. All DMS courses are restricted to students who have been accepted into the Diagnostic Medical Sonography Program. Corequisite(s): DMS 112, DMS 113. Restricted to: Community Colleges only. Restricted to DMS majors.

**DMS 110 - Ultrasound Physics (4 cr.)**

Properties of sound and its use in diagnostic imaging; technical components involved in ultrasound imaging; how to use ultrasound equipment during lab sessions; the bioeffects of high-frequency sound; and artifacts created during imaging. Restricted to: DMS majors. Restricted to Dona Ana campus only.

**DMS 112 - Abdominal Sonography I (4 cr. (3+3P))**

Includes anatomy, physiology, and pathology of the abdominal organ systems; scanning techniques, ultrasound appearance of normal structures, and changes seen with pathologic conditions. Corequisite(s): DMS 116, DMS 101, DMS 113. Restricted to: DMS majors. Restricted to Community Colleges campuses only.

**DMS 113 - GYN Sonography (3 cr. (2+2P))**

Includes female pelvic anatomy, scanning techniques, pelvic pathology, sonography, and Doppler findings in normal and abnormal exams, introduction to human embryology, and first trimester pregnancy. Corequisite(s): DMS 101, DMS 112, DMS 116. Restricted to: Community Colleges only. Restricted to DMS majors.

**DMS 114 - OB Sonography (4 cr. (3+2P))**

Includes review of human embryology, normal fetal anatomy, obstetrical scanning techniques, fetal biometry, fetal abnormalities, fetal Doppler, the role of ultrasound in genetic testing and chromosome abnormalities, fetal echocardiography, and congenital heart abnormalities. Restricted to: DMS majors. Restricted to Community Colleges campuses only.

**DMS 115 - Abdominal Sonography II (3 cr. (2+2P))**

Includes anatomy, physiology, and pathology of superficial structures, including female breast, thyroid, and neck structures, male pelvis, and musculoskeletal system; scanning techniques, ultrasound appearance of normal structures, and changes seen with pathologic conditions; abdominal Doppler principles of applications and organ transplant sonography. Restricted to: DMS majors. Restricted to Dona Ana campus only.

**DMS 116 - Introduction to Vascular Technology (3 cr. (2+2P))**

Basic ultrasound physics and principles, peripheral vascular anatomy, hemodynamics, Doppler evaluation, peripheral vascular scanning techniques, physiologic testing and the more common pathologies of the carotid arteries, and the peripheral vascular system. Corequisite(s): DMS 101, DMS 112, DMS 113. Restricted to: Community Colleges only. Restricted to DMS majors.

**DMS 117 - Advanced Sonographic Procedures (2 cr.)**

This course will focus on the anatomy, pathology, laboratory values and sonographic appearances of organ transplants, the musculoskeletal system and the breast. Students will also demonstrate knowledge in age related competency (i.e. neonates, pediatric patients, adolescents, adults, and Obstetric patients) and

be able to respond appropriately to parental needs. Restricted to: DMS majors. Restricted to Community Colleges only.

**DMS 118 - Neurosonography (2 cr. (1+3P))**

This course will cover detailed anatomy of neonatal brain and central nervous system. This course includes scanning techniques and indications for performing neurosonograms of the newborn; as well as common pathologies seen in the fetal and newborn brain and central nervous system. Restricted to: DMS majors. Restricted to Community Colleges campuses only.

**DMS 120 - Clinical Internship I (4 cr. (32P))**

Provides the practical, hands-on experience required for both the national registry exam and for quality patient care. Students will spend approximately 32 hours per week at their assigned clinical site performing ultrasound exams under the supervision of the clinical staff. Students return to campus periodically to participate in advanced seminars. Six-week course. Restricted to: DMS majors. Restricted to Community Colleges only.

**DMS 122 - Clinical Internship II (4 cr. (32P))**

Provides the practical, hands-on experience required for both the national registry exam and for quality patient care. Students will spend approximately 32 hours per week at their assigned clinical site performing ultrasound exams under the supervision of the clinical staff. Students return to campus periodically to participate in advanced seminars. Six-week course. Restricted to: DMS majors. Restricted to Community Colleges only.

**DMS 124 - Clinical Internship III (8 cr. (32P))**

Provides the practical, hands-on experience required for both the national registry exam and for quality patient care. Students will spend approximately 32 hours per week at their assigned clinical site performing ultrasound exams under the supervision of the clinical staff. Students return to campus periodically to participate in advanced seminars. Prerequisite(s): DMS 122 or Consent of Instructor. Restricted to: DMS majors. Restricted to Dona Ana campus only.

**DMS 126 - Clinical Internship IV (8 cr. (32P))**

Provides the practical, hands-on experience required both for national certification and for quality patient care. Students will spend approximately 32 hours per week at their assigned clinical site performing ultrasound exams under the supervision of the clinical staff. Students will learn more difficult exams and will work on case reports and course review materials. Prerequisite(s): DMS 124 or consent of instructor. Restricted to: DMS majors. Restricted to Community Colleges campuses only.

**DMS 155 - Special Topics (1-6 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits. Consent of instructor required. Restricted to: Community Colleges only. Restricted to DMS majors.

**DMS 200 - Independent Study (1-6 cr.)**

Individual study/research on topics related to diagnostic medical sonography. Consent of instructor required. Restricted to: Community Colleges only. Restricted to DMS majors.

**DRFT - DRAFTING**

**DRFT 101 - Introduction to Drafting and Design Technologies (1 cr.)**

Professional and student organizations associated with the Drafting and Design Technologies program, degree requirements, employment skills and work habits, and university and college policies and procedures will be explored. Students will be introduced to the current learning management system and career-readiness certification. Restricted to Community Colleges only.

**DRFT 105 - Technical Drawing for Industry (3 cr. (2+2P))**

Technical sketching, basic CAD, and interpretation of drawings with visualization, speed and accuracy highly emphasized. Areas of focus include various trades such as machine parts, welding, heating and cooling, and general building sketches/plan interpretation.

**DRFT 108 - Drafting Concepts/Descriptive Geometry (2 cr. (1+2P))**

Basic manual drafting skills, sketching, terminology and visualization. Graphical solutions utilizing applied concepts of space, planar, linear and point analyses. Metric and S.I. units introduced.

**DRFT 109 - Computer Drafting Fundamentals (3 cr. (2+2P))**

Introduction to computer-aided drafting. Principles and fundamentals of drafting using the latest version of AutoCAD software. Crosslisted with: C E 109 and E T 109

**DRFT 112 - Drafting Concepts/Computer Drafting Fundamentals I (4 cr. (2+4P))**

Basic drafting skills, terminology, and visualization. Introduction to principles and fundamentals of computer-aided drafting. Prerequisites: OECS 207, OECS 125 or consent of instructor. Same as E T 106.

**DRFT 113 - Drafting Concepts/Computer Drafting Fundamentals II (4 cr. (2+4P))**

Drafting for mechanical/industrial applications; machine part detailing, assemblies in orthographic, isometric, auxiliary, oblique, and sectional views. Two-dimensional AutoCAD with introduction to 3-D AutoCAD. Prerequisite: DRFT 112. Same as E T 216. Restricted to: Community Colleges only.

**DRFT 114 - Introduction to Solid Modeling (3 cr. (2+2P))**

Students will learn 3-D visualization, mechanical drafting, and dimensioning skills as solid modeling skills are developed. Working drawings, assembly models, and assembly drawings will be introduced. May be repeated for a maximum of 6 credits. Restricted to Community Colleges only.

**DRFT 115 - General Construction Safety (3 cr. (2+2P))**

Overview of general construction safety related to building, highway and road construction, and surveying field work for entry-level individuals. Students will also have the opportunity to earn a 10-hour construction industry OSHA card. Crosslisted with: ARCT 115. Restricted to Community Colleges campuses only.

**DRFT 118 - Geometry for Drafting (3 cr.)**

Analysis and problem solving of related technical problems using measuring instruments and techniques with geometry and trigonometry. Prerequisite: CCDM 103N or CDDM 104N.

**DRFT 120 - Survey Equipment Fundamentals (2 cr.)**

Introduces the application and the setup to the following surveying equipment: Automatic Level, Total station, and Global Positioning Systems. Field safety knowledge is required. Restricted to Community Colleges only.

**DRFT 123 - Introduction to Civil/Architectural Technology (4 cr. (2+4P))**

Introduction to beginning civil/architecture drafting and its applications. Drawings, projects and terminologies are related to both fields of civil engineering and architectural technology. Restricted to: Community Colleges only.

**DRFT 130 - General Building Codes (3 cr. (2+2P))**

Interpretation of the Building Code, local zoning codes, A.D.A. Standards and the Model Energy Code to study construction and design requirements and perform basic plan checking. Restricted to: Community Colleges only.

**DRFT 135 - Electronics Drafting I (3 cr. (2+2P))**

Drafting as it relates to device symbols; wiring, cabling, harness diagrams and assembly drawings; integrated circuits and printed circuit boards; schematic, flow and logic diagrams; industrial controls and electric power fields. Drawings produced using various CAD software packages. Prerequisites: DRFT 108 and DRFT 109.

**DRFT 143 - Civil Drafting Fundamentals (3 cr. (2+2P))**

Introduction to drafting in the field of Civil Engineering. Drawings, projects, and terminologies related to topographic, contour drawings, plan and profiles, and street/highway layout. Crosslisted with: E T 143. Prerequisite(s): DRFT 109. Restricted to Community Colleges only.

**DRFT 151 - Construction Principles and Print Reading (3 cr. (2+2P))**

Introduction to construction materials, methods, and basic cost estimating and print reading applicable in today's residential, commercial, and public works industry. Instruction by print reading and interpretation, field trips, and actual job-site visits and progress evaluation.

**DRFT 153 - Survey Drafting Applications (3 cr. (2+2P))**

Introduction to drafting in the field of survey engineering. Drawings, projects and terminologies related to Point Data, topography, land/boundary surveys, legal descriptions and plat surveys. Using the current Autodesk software. Crosslisted with: SUR 143. Prerequisite(s): DRFT 109. Restricted to: Community Colleges only.

**DRFT 154 - GIS Technology (3 cr. (2+2P))**

Introduction to GIS and related data collecting and mapping techniques. National standards emphasized utilizing computer and web-based systems and peripherals. Prerequisite(s): DRFT 109. Restricted to: Community Colleges only.

**DRFT 160 - Construction Take-Offs and Estimating (3 cr. (2+2P))**

Computing and compiling materials and labor estimates from working drawings using various techniques common in general building construction and in accordance with standard specifications and estimating formats. Use of spreadsheets and estimating software introduced. Prerequisite: DRFT 151.

**DRFT 161 - Introduction to Construction Management (3 cr.)**

Introduction to the construction industry and construction management; construction documents and contracts; project planning, scheduling and administration; construction site management; and the role of Building Information Modeling (BIM) in construction management. Pre/Corequisite(s): DRFT 151 or consent of instructor. Restricted to: Community Colleges only.

**DRFT 164 - Intermediate Mechanical Drafting/Solid Modeling (3 cr. (2+2P))**

Students will learn advanced solid modeling techniques. Use of different file types and compatibility issues between different software packages will be studied. Drawing organization and presentation methods will be practiced. Projects requiring precision field measurements and sketches, as well as teamwork, will be assigned. Geometric Dimensioning and Tolerancing will be introduced. May be repeated for a maximum of 6 credits. Prerequisite: DRFT 114.

**DRFT 165 - Introduction to Building Information Modeling (3 cr.)**

Introduction to Building Information Modeling (BIM) in the development of virtual 3D building models, construction documents, renderings and basic animations related to architectural, structural, and mechanical/electrical/plumbing building components. Utilizes the latest BIM technologies in the integration one, parametric BIM. Restricted to: Community Colleges only.

**DRFT 176 - Solid Modeling, Rendering and Animation (3 cr. (2+2P))**

Introduction to three dimensional drafting and solid modeling, rendering and animation for architecture and engineering fields. Material application, mapping, and scene lighting will be introduced. Prerequisite(s): DRFT 109. Restricted to: Community Colleges only.

**DRFT 177 - Computer Rendering and Animation I (3 cr. (2+2P))**

Introduction to technical applications of computer generated renderings and animations for the architecture and engineering fields. 3D models, photo-realistic renderings, and basic animation movie files will be produced utilizing Autodesk VIZ and Google SketchUp software. May be repeated for a maximum of 6 credits. Prerequisite: DRFT 109.

**DRFT 180 - Residential Drafting (3 cr. (2+2P))**

Basic residential drafting including, floor plans, foundation plans, sections, roof plans, exterior and interior elevations, and site plans. Applicable residential building and zoning codes, construction methods and materials, adaptable residential design, and drawing and sheet layout for architectural drafting will be introduced.

**DRFT 181 - Commercial Drafting (3 cr. (2+2P))**

Drafting principles, plan coordination, and code analysis applicable in the development of working drawings for commercial, public, and industrial building projects. Students will utilize National Cad Standards, ADA Standards, and will

be introduced to modern office practice. Prerequisite(s): DRFT 109.  
Pre/Corequisite(s): DRFT 180. Restricted to: Community Colleges only.

**DRFT 190 - Finding and Maintaining Employment (2 cr.)**

Techniques in self-evaluations, resume writing, application completion, job interviewing, and job retention. Exposure to work ethics, employee attitudes, and employer expectations.

**DRFT 204 - Geographic Information Systems Technology (3 cr. (2+2P))**

The use of digital information for which various digitized data creation methods are captured. Users will capture, store, analyze and manage spatially referenced data in a modeled mapping procedure. Prerequisite(s): DRFT 109. Restricted to: Community Colleges only.

**DRFT 214 - Advanced Solid Modeling (3 cr. (2+2P))**

Advanced mechanical drafting/solid modeling techniques and topics will be studied using the student's software(s) of choice. Students will use any of the 3-D solid modeling software packages that are available on campus as they develop these skills, as well as develop a thorough working knowledge of the use of GDT in Mechanical Drafting/Solid Modeling. Detailed class projects will be assigned, and presentations will be required. May be repeated for a maximum of 6 credits. Prerequisite(s): DRFT 114 or DRFT 176. Restricted to: Community Colleges only.

**DRFT 215 - Construction Site Safety Management (3 cr.)**

Construction safety, compliance, documentation, and reporting requirements for individuals with construction site safety management responsibilities. Students will have the opportunity to earn a 30-hour construction industry OSHA card. Consent of Instructor required. Restricted to Community Colleges campuses only.

**DRFT 222 - Surveying Fundamentals (3 cr. (2+2P))**

Elementary surveying and civil drafting theory and techniques for non engineering majors. Includes traverse plotting, site plans, mapping, cross sections, and development of plan and profile drawings. Actual basic field measurement/surveying as well as extensive manual and CAD projects will be assigned. Prerequisite(s): DRFT 108 and DRFT 109, and (DRFT 118 or MATH 180 or MATH 190G).

**DRFT 230 - Building Systems Drafting (3 cr. (2+2P))**

Development of working drawings for electrical, plumbing, and HVAC systems, for residential and commercial building through the applications of both 2D Drafting and 3D Building Information Modeling (BIM) techniques. Basics of project setup, National CAD Standards, ADA Standards, modern office practice, code analysis, as well as Sustainability and LEED for new construction. Prerequisite(s): DRFT 180 or DRFT 181. Restricted to: Community Colleges only.

**DRFT 240 - Structural Systems Drafting (3 cr. (2+2P))**

Study of foundations, wall systems, floor systems and roof systems in residential, commercial and industrial design/construction. Produce structural drawings including foundation plans, wall and building sections, floor and roof framing plans, shop drawings and details; schedules, materials lists and specifications. Use of various software. Prerequisite(s): DRFT 180 or DRFT 181. Restricted to: Community Colleges only.

**DRFT 242 - Roadway Development Drafting (3 cr. (2+2P))**

Advanced civil/survey technology and drafting related to roadway development. Emphasis is on relevant terminology, codes/standards, and the production of complex working drawings such as topographical/grading, drainage, master utilities, roadway P P/details/etc., according to agency standards. Prerequisites: DRFT 143 and DRFT 173.

**DRFT 243 - Land Development Drafting (3 cr. (2+2P))**

Advanced civil/survey technology and drafting related to land development. Emphasis is on relevant terminology codes/standards, and the production of complex working drawings such as subdivision plats, local utility and drainage plans, construction details roadway P P, etc., according to local development/agency standards. Prerequisite: DRFT 143 and DRFT 153.

**DRFT 250 - Principles of Detailing and Design (3 cr. (2+2P))**

Advanced practice in construction documentation in the development and coordination of working drawings specifications. In particular, will utilize Architectural Graphic Standards, National CAD Standards, and ADA standards to

develop detail drawings related to Architectural, Civil, Structural and Building Mechanical systems. Will also be introduced to basic principles, factors, and process of building design such as space planning, site analysis, and basic architectural programming. Prerequisite(s): DRFT 180 or DRFT 181. Restricted to: Community Colleges only.

**DRFT 253 - Geodatabase Design (3 cr. (2+2P))**

Study of geodatabase design using techniques learned in GIS I and more advanced methods. Will be using real-world ESRI models for design; including the architecture, design, building, management, implementation and use of working geodatabase. Prerequisite(s): DRFT 204. Restricted to: Community Colleges only.

**DRFT 254 - Spatial Data Processing (3 cr. (2+2P))**

Utilizes the tools and technologies of GIS, processing volumes of geodata identifying a numerical, coded or listed map. Involves the analysis of spatial data from various diverse applications and place in a descriptive mapping process. Prerequisite(s): DRFT 109 or DRFT 204. Restricted to: Community Colleges only.

**DRFT 255 - Independent Study (1-3 cr.)**

Instructor-approved projects in drafting or related topics specific to the student's individual areas of interest and relevant to the drafting and graphics technology curriculum. Consent of instructor required. May be repeated for a maximum of 6 credits.

**DRFT 265 - Advanced Building Information Modeling Applications (3 cr. (2+2P))**

Advanced applications of Building Information Modeling (BIM) including the creation of, and practice in collaborative work sets, data and design analyses, energy modeling and analysis, preliminary LEED analysis, construction take-offs estimation, and construction animation, through use of various BIM and related software. Prerequisite(s): DRFT 165. Restricted to: Community Colleges only.

**DRFT 274 - GIS Theory and Analysis (3 cr. (2+2P))**

Analyzes the hypothesis in which location and spatial data sufficiently quantifies the appropriate statistical methodology. Prerequisite(s): DRFT 109 and DRFT 204. Restricted to: Community Colleges only.

**DRFT 276 - Computer Rendering and Animation I (3 cr. (2+2P))**

Introduction to technical applications of computer generated renderings and animations for the architecture and engineering fields. 3D models, photo-realistic renderings, and basic animation movie files will be produced utilizing industry standard modeling and animation software.

**DRFT 277 - Computer Rendering and Animation II (3 cr. (2+2P))**

Continuation of DRFT 276. Covers advanced modeling and animation techniques using 3-D animation software. Prerequisite: DRFT 276.

**DRFT 278 - Advanced CAD Applications (3 cr. (2+2P))**

Introduction to advanced CAD commands, applications, usage techniques, and user customization. the latest version of the National CAD Standards will also be explored. Prerequisite(s): DRFT 109. Restricted to: Community Colleges only.

**DRFT 288 - Portfolio Development (0-3 cr.)**

Production of a portfolio consisting of previously produced student work related to the student's individualized degree option. Process shall include the compilation and organization of working and presentation drawings, construction documents, BIM Models, and renderings/animations. Students will learn the basics of design layout and online portfolio documentation. Job search and resume preparation activities will also be required. Production of new material and content may also be required. This course is designed as a last semester course in the Drafting Design curricula. Crosslisted with: ARCT 288. Restricted to: Community Colleges only.

**DRFT 290 - Special Topics (1-4 cr.)**

Topics subtitled in the Schedule of Classes. May be repeated for a maximum of 12 credits.

**DRFT 291 - Cooperative Experience (1-6 cr.)**

Supervised cooperative work program. Student is employed in an approved occupation and supervised and rated by the employer and instructor. Student meets with advisor weekly. Prerequisite: consent of instructor. Graded S/U.

**DRFT 295 - Professional Development and Leadership DAGA (1 cr.)**

As members and/or officers of student professional organizations, drafting and graphics students gain experience in leadership, team building, and community services. This course is required for 2 credits. However, it may only be taken 1 credit at a time. May be repeated up to 6 credits. Restricted to: Community Colleges only.

**ELT - ELECTRONICS TECHNOLOGY****ELT 103 - Math Study Skills for Electronics (1 cr.)**

Covers specific math study skills and critical thinking processes to reinforce practical applications of math and its use with electronics. The student will be introduced to electronic mathematical formulas during the problem-solving steps required for circuit analysis. May be repeated up to 4 credits.

Prerequisite(s)/Corequisite(s): E T 183 OR E T 184. Restricted to Community Colleges only.

**ELT 105 - Basic Electricity and Electronics (3 cr. (2+2P))**

Fundamentals of electricity and electronics, basic circuit devices, meters, transistors, integrated circuits and other solid state devices, computers, fiber optics, and industrial application topics. Minimum math proficiency of CCDM 103 or CCDM 104 required or math placement into CCDM 114 or higher. Restricted to: Community Colleges only. Crosslisted with: AERT 111

**ELT 110 - Electronics I (4 cr. (3+3P))**

Fundamentals of electronics including: components, schematics, Ohm's law, Thevenin's and Norton's theorems, and series/parallel circuits incorporating passive, active and magnetic elements. Introduction to AC circuits. Crosslisted with: AERT123. Restricted to: Community Colleges only.

**ELT 120 - Mathematics for Electronics (4 cr.)**

Includes fundamental mathematics, algebra, sine, cosine, and other elementary functions as they specifically apply to the operation, manipulation, and evaluation of direct current (DC) and alternating current (AC) circuits. Minimum math proficiency of CCDM 114 required or math placement into MATH 120 or higher. Restricted to: Community Colleges only. Crosslisted with: AERT 124

**ELT 135 - Electronics II (4 cr. (3+3P))**

Analysis of AC circuits, filters, and resonance. Introduction to solid state fundamentals including diodes and rectifier circuits, voltage regulators, various transistors and transistor characteristics, amplification and amplifiers, photoelectric effects, gates and timing circuits. Prerequisite(s): ELT 110 and ELT 120. Restricted to Community Colleges campuses only.

**ELT 155 - Electronics CAD and PCB Design (3 cr. (2+2P))**

Introduction to and the use of commercially available CAD software covering schematic representation of electronic components and circuits. Printed circuit board layout techniques including proper schematic capture, netlist generation, design rule checking and manual routing covered.

**ELT 160 - Digital Electronics I (4 cr. (3+3P))**

Number systems, codes, Boolean algebra, logic gates, Karnaugh maps, combination circuits, flip-flops, and digital troubleshooting techniques. Prerequisite(s): ELT 110 and (ELT 120 or MATH 120). Restricted to: Community Colleges only.

**ELT 175 - Soldering Practices (3 cr. (2+2P))**

Methods and techniques of hand soldering in the production of high quality and reliable soldering connections. Restricted to: Community Colleges only.

**ELT 201 - Television Theory (3 cr. (2+3P))**

Origin and development of color television, video-audio characteristics, digital television, VITS and VIRS channels, broadcast antennas, and transmission lines.

**ELT 205 - Semiconductor Devices (4 cr. (3+3P))**

Analysis and trouble shooting of linear electronic circuits including amplifiers, op-amps, power supplies, and oscillators. Prerequisite(s): ELT 110 and ELT 135. Restricted to: Community Colleges only.

**ELT 210 - Electronics Laboratory III (2 cr. (4P))**

Circuit breadboard, circuit parameter measurements; emphasis on troubleshooting, fault analysis.

**ELT 215 - Microprocessor Applications I (4 cr. (3+2P))**

Fundamentals of microprocessor architecture and assembly language with an emphasis on hardware interfacing applications. Prerequisite(s)/Corequisite(s): ELT 235. Prerequisite(s): ELT 160. Restricted to: Community Colleges only.

**ELT 220 - Electronic Communication Systems (4 cr. (3+2P))**

Principles and applications of circuits and devices used in the transmission, reception, and processing of RF, microwave, digital and telecommunications systems. Prerequisite(s)/Corequisite(s): ELT 205. Prerequisite(s): ELT 135. Restricted to: Community Colleges only.

**ELT 221 - Cooperative Experience I (1-6 cr.)**

Supervised cooperative work program. Student is employed in an approved occupation and supervised and rated by the employer and instructor. Student will meet in a weekly class. Graded S/U. Prerequisite: consent of instructor.

**ELT 222 - Cooperative Experience II (1-6 cr.)**

Continuation of ELT 221. Maximum of 6 credits. Graded S/U. Prerequisite: consent of instructor.

**ELT 225 - Computer Applications for Technicians (3 cr. (2+2P))**

An overview of computer hardware, software applications, operating systems, high level programming languages and networking systems.

**ELT 230 - Microprocessor Applications II (4 cr. (3+2P))**

Advanced microprocessor interfacing techniques. Topics in A/D and D/A conversion, I/O port address decoding, direct memory accessing, and peripheral device interfacing applications. Prerequisite: ELT 215.

**ELT 235 - Digital Electronics II (3 cr. (2+2P))**

Sequential logic circuits, latches, counters, shift-registers, fault analysis and troubleshooting of digital IC s, multiplexers, timers, encoders/decoders, arithmetic circuits, pulse shaping, and memory devices. Prerequisite(s): ELT 160. Restricted to: Community Colleges only.

**ELT 240 - Introduction to Photonics (4 cr. (3+2P))**

Nature of light, light emitters, lasers, detectors, fiber optics communications systems, and other applications of light to electronics. Prerequisite: ELT 135 or consent of instructor.

**ELT 250 - Electronics Systems Analysis (2 cr. (1+3P))**

Capstone course emphasizing a systems approach to troubleshooting and maintaining complex electronics systems. Includes program review in preparation for technician certification. Prerequisite: consent of instructor.

**ELT 255 - Special Problems in Electronics (1-6 cr.)**

Individual studies in areas directly related to electronics. Prerequisites: ELT 110 and consent of instructor. May be repeated for a maximum of 6 credits.

**ELT 260 - Instrumentation Control and Signal Conditioning (4 cr. (3+2P))**

Introduction to sensors and transducers, signal conditioning and transmission for measuring and process control systems. Includes AD, DA converter, small servos and actuators. Prerequisite:ELT 205.

**ELT 265 - Special Topics (1-6 cr.)**

Topic to be announced in the Schedule of Classes.

**ELT 270 - Biomedical Equipment Instrumentation (4 cr. (3+2P))**

Principles and applications of electronic circuits and devices used in biomedical equipment. Skills taught to include evaluating, troubleshooting and repairing various types of medical equipment. Prerequisite(s)/Corequisite(s): ELT 260. Prerequisite(s): ELT 205. Restricted to: Community Colleges only.

**ELT 295 - Professional Development/Leadership (1 cr.)**

As members and/or officers of student professional organizations, electronics technology students gain experience in leadership, team building, and community services. May be repeated for a maximum of 6 credit. Restricted to ELT and ET E majors.



**FIRE - FIRE INVESTIGATION****FIRE 101 - Basic Firefighter (8 cr. (6+6P))**

Basic concepts and methodologies of fire suppression. Meets or exceeds NFPA standards. Restricted to: Community Colleges Only.

**FIRE 102 - Fire Fighter IB (4 cr. (3+3P))**

Continuation of basic concepts and methodologies of fire suppression. Meets or exceeds NFPA standards. Prerequisite: OEFS 101.

**FIRE 104 - Firefighter II (8 cr. (6+6P))**

Advances concepts and methodologies of fire suppression. Meets and exceeds NFPA standards. Prerequisites: FIRE 101, FIRE 114, FIRE 115, FIRE 126, FIRE 202, FIRE 216, FIRE 223, FIRE 224, FIRE 225, FIRE 251, FIRE 252, OEEM 115 or OEEM 120/121, Basic Firefighter Certification and approval of instructor.

**FIRE 112 - Principles of Emergency Services (3 cr.)**

This course provides an overview to fire protection and emergency services; career opportunities in fire protection and related fields; culture and history of emergency services; fire loss analysis; organization and function of public and private fire protection services; fire departments as part of local government; laws and regulations affecting the fire service; fire service nomenclature; specific fire protection functions; basic fire chemistry and physics; introduction to fire protection systems; introduction to fire strategy and tactics; life safety initiatives. Restricted to: Community colleges only.

**FIRE 114 - Fire Behavior and Combustion (3 cr.)**

This course explores the theories and fundamentals of how and why fires start, spread, and are controlled. Restricted to: Community colleges only.

**FIRE 115 - Hazardous Materials Responder (4 cr.)**

Training for personnel expected to respond to and handle defensively, emergencies involving hazardous materials in order to protect people, property and the environment from as much exposure as possible. Preparation for Awareness Level I and Operations Level II. Meets or exceeds NFPA 471, 472, 473, OSHA 1910.120 part Q, HMER plan. Restricted to: Community Colleges only.

**FIRE 120 - Fire Protection Hydraulics and Water Supply (3 cr.)**

This course provides a foundation of theoretical knowledge in order to understand the principles of the use of water in fire protection and to apply hydraulic principles to analyze and to solve water supply problems. Restricted to: Community colleges only.

**FIRE 126 - Fire Prevention (3 cr.)**

This course provides fundamental knowledge relating to the field of fire prevention. Topics include: history and philosophy of fire prevention; organization and operation of a fire prevention bureau; use and application of codes and standards; plans review, fire inspection; fire and life safety education; and fire investigation. Restricted to: Community colleges only.

**FIRE 127 - Rescue Operations (3 cr.)**

A course designed to acquaint the student with the equipment and procedures employed in search and rescue operations to safely remove persons from burning structures, automobile accidents, and natural disasters. Prerequisite: consent of instructor. Restricted to: majors.

**FIRE 128 - Apparatus and Equipment (3 cr.)**

Fire apparatus specifications design, construction features, performance factors, and field hydraulics as related to operation and maintenance. Prerequisite: MATH 115 or consent of instructor.

**FIRE 130 - Principles of Fire and Emergency Services Safety and Survival (3 cr.)**

This course introduces the basic principles and history related to the national firefighter life safety initiatives, focusing on the need for cultural and behavior change throughout the emergency services. Consent of instructor required. Restricted to: Community colleges only.

**FIRE 142 - Fire Fighter Training S-130 (3 cr.)**

Wildland Fire Training FFT2: A field course providing entry-level fire fighting skills through 13 instructional units of study. May also serve as refresher training for

returning fire fighters and a means of testing personnel with undocumented prior experience. Instructed in accordance to NWCG standards.

**FIRE 200 - Special Topics (1-3 cr.)**

Specific subjects to be announced in the Schedule of Classes. Course may be repeated for credit as topics change.

**FIRE 201 - Independent Study (1-3 cr.)**

Research on an approved topic to meet graduation requirements. Meets or exceeds NFPA standards. Prerequisite: consent of instructor. May be repeated for total of 9 credits.

**FIRE 202 - Wildland Fire Control (1-3 cr.)**

Focuses on factors affecting wildland fire control and prevention, fire behavior, control techniques, command structure and other operations including Standards for Survival I-100, S-130 and S-190 Meets or exceeds NWCG Training Curriculum and NFPA 1051 standards. Restricted to: Community Colleges Only.

**FIRE 203 - Fire and Emergency Services Administration (3 cr.)**

This course introduces the student to the organization and management of a fire and emergency services department and the relationship of government agencies to the fire services department and the relationship of government agencies to the fire service. Emphasis is placed on fire and emergency service, ethics, and leadership from the perspective of the company officer. Restricted to: Community colleges only.

**FIRE 205 - Fire Chemistry (3 cr.)**

Theories of combustion and extinguishment, including the analysis of flammable materials, the nature of extinguishing agents, and the properties of matter affecting fire behavior. Prerequisite: CHEM 110G.

**FIRE 210 - Building Construction for Fire Protection (3 cr.)**

This course provides the components of building construction related to firefighter and life safety. The elements of construction and design of structures are shown to be key factors when inspecting buildings, preplanning fire operations, and operating at emergencies. Restricted to: Community colleges only.

**FIRE 214 - Hazardous Materials Technician (3 cr.)**

Knowledge and skills about hazardous materials mitigation needed to certify as a Hazardous Materials Technician Level III. Meets or exceeds NFPA 471, 472, 473 standards, and OSHA 1910.102 part Q, and New Mexico HMER plan. Prerequisite(s): FIRE 115. Restricted to: Community Colleges only.

**FIRE 216 - Hazardous Materials Chemistry (3 cr.)**

This course provides basic chemistry relating to the categories of hazardous materials including recognition, identification, reactivity, and health hazards encountered by emergency services. Restricted to: Community colleges only.

**FIRE 217 - Operations in the Wildland-Urban Interface S-215 (3 cr.)**

Provides training for initial attack incident commanders and company officers confronting wildfire presenting a threat to life and property. Instructional units include: size-up, initial strategy and action plan, structure triage, tactics, action plan, assessment, public relations and follow up, and safety. Presented in a classroom environment. Instructed in accordance to NWCG standards. Prerequisite: qualified as any Single Resource Boss or FIRE 231.

**FIRE 220 - Cooperative Experience I (1-3 cr.)**

Supervised cooperative work program. Student is employed in an approved occupation and rated by the employer and instructor. Prerequisite: consent of instructor. May be repeated for a maximum of 6 credits. Graded S/U.

**FIRE 221 - Cooperative Experience II (3 cr.)**

Apply advanced firefighting knowledge and skills while working with fire protection agencies. Meets or exceeds NFPA standards. Consent of instructor required. Graded: S/U. Prerequisite(s): FIRE 220. Restricted to: Community Colleges only.

**FIRE 222 - Aircraft Fire Control (3 cr.)**

Provides a broad understanding of airport operations required to effectively perform aircraft firefighting and other emergencies. Meets or exceeds NFPA 402, 403, 405 standards. Restricted to: Community Colleges only.

**FIRE 223 - Fire Investigations I (3 cr.)**

This course is intended to provide the student with the fundamentals and technical knowledge needed for proper fire scene interpretation, including recognizing and conducting origin and cause, preservation of evidence and documentation, scene security, motives of the firesetter, and types of fire causes. Restricted to: Community colleges only.

**FIRE 224 - Strategy and Tactics (3 cr.)**

This course provides the principles of fire ground control through utilization of personnel, equipment, and extinguishing agents. Restricted to: Community colleges only.

**FIRE 225 - Fire Protection Systems (3 cr.)**

This course provides information relating to the features and design and operation of fire alarm systems, water-based fire suppression systems, special hazard fire suppression systems, water supply for fire protection and portable fire extinguishers. Restricted to: Community colleges only.

**FIRE 226 - Fire Investigations II (3 cr.)**

This course is intended to provide the student with advanced technical knowledge on the rule of law, fire scene analysis, fire behavior, evidence collection and preservation, scene documentation, case preparation and courtroom testimony. Restricted to: Community colleges only.

**FIRE 230 - Fire Service Instructor (3 cr.)**

Provides the instructor candidate with methods and techniques of instruction including oral communications, preparing lesson plans, writing performance objectives, use of audio and other training aids, and the selection, evaluation and preparation of performance tests. Meets and exceeds NFPA 1041 Level I standards. Restricted to: Community Colleges only.

**FIRE 232 - Firefighter Internship (3 cr.)**

Application of knowledge, skills and abilities in a fire service department, as a firefighter intern and integrated member of a fire affiliated agency. Prerequisites: FIRE 101, FIRE 102, FIRE 115, FIRE 202 and EMT-B and consent of instructor. Restricted to majors.

**FIRE 233 - Practical Approach to Terrorism (3 cr.)**

Gives responder an overall safety approach in recognizing and responding to incidents involving terrorism. Presents an overview in types of harm, explosive weapons, chemical weapons, biological weapons and radiological weapons. Restricted to: Community Colleges only. Crosslisted with: LAWE 233

**FIRE 251 - Incident Command System-NIMS 700 (3 cr.)**

NIMS provides a consistent nationwide Homeland Security template to enable all government, private-sector, and nongovernmental organizations to work together during domestic incidents, Community Colleges only.

**FIRE 252 - Vehicle Extrication (2 cr. (1+2P))**

Course provides students with information on the newest types of air bags, restraint systems and latest tools and techniques used in vehicle extrication; course meets or exceeds NFPA standards. Restricted to Community Colleges campuses only.

**HIT - HEALTH INFORMATION TECHNOLOGY****HIT 110 - Electronic Health Records (3 cr.)**

Current electronic health record principles, methods and procedures, and computerized medical record concepts and software applications will be introduced. Prerequisite(s): C S 110 or OECS 105. Restricted to: Community Colleges only.

**HIT 120 - Health Information Introduction to Pharmacology (3 cr.)**

Introduction to the principles of pharmacology, including drug terminology; drug origins, forms, and actions; routes of administration; as well as the use of generic name drugs, trade name drugs and categories of drugs to treat multiple and specific body systems.

**HIT 130 - Health Information Technology Anatomy & Physiology (3 cr.)**

An introductory course in the basics of human structure and function. Body systems are examined as to how they relate to proper code selection and as part

of the functioning of the body as a whole. Restricted to Community Colleges campuses only.

**HIT 140 - Health Information Introduction to Pathophysiology (3 cr.)**

Introduction to the nature of disease and its effect on body systems. Disease processes affecting the human body via an integrated approach to specific disease entities will be presented including a review of normal functions of the appropriate body systems. Diseases will be studied in relation to their etiology, pathology, physical signs and symptoms, diagnostic procedures, complications, treatment modalities and prognosis.

**HIT 150 - Introduction to Medical Terminology (3 cr.)**

The study and understanding of medical terminology as it relates to diseases, their causes and effects, and the terminology used in various medical specialties. Emphasis will be placed on learning the basic elements of medical words, appropriate spelling and use of medical terms, and use of medical abbreviations. Restricted to: Community Colleges only.

**HIT 158 - Advanced Medical Terminology (3 cr.)**

Builds upon the concepts covered in HIT 150 or AHS 120 providing greater understanding of how to properly use and apply medical terminology used in the various health fields. Medical terminology associated with the body system's anatomy and physiology, pathology, diagnostic and therapeutic procedures, pharmacology, and abbreviations will be emphasized. Prerequisite(s): HIT 150 or AHS 120. Restricted to Community Colleges campuses only.

**HIT 221 - Internship I (1-3 cr.)**

Work experience that directly relates to a student's major field of study that provides the student an opportunity to explore career paths and apply knowledge and theory learned in the classroom. Internships may be paid or unpaid. Students are supervised/evaluated by both the employer and the instructor. May be repeated up to 6 credits. Consent of Instructor required. Restricted to: HIT BOT majors. S/U Grading (S/U, Audit). Restricted to Dona Ana campus only.

**HIT 222 - Internship II (1-3 cr.)**

Continuation of HIT 221. May be repeated up to 6 credits. Consent of Instructor required. Restricted to: HIT BOT majors. S/U Grading (S/U, Audit). Restricted to Dona Ana campus only.

**HIT 228 - Medical Insurance Billing (3 cr.)**

Comprehensive overview of the insurance specialist's roll and responsibilities. Concepts and applications that will assist the student in understanding the steps necessary for successfully completing the insurance claim filing and reimbursement processes for various insurance carriers, both private and government, will be emphasized. Prerequisite(s): HIT/NURS 150; BOT 208. Restricted to Carlsbad campus only.

**HIT 240 - Health Information Quality Management (3 cr.)**

Introduction to basic concepts of quality improvement and performance improvement as they apply to health record systems and the health care industry. Quality assessment and improvement standards and requirements of licensing, accrediting fiscal and other regulatory agencies will be presented.

**HIT 248 - Medical Coding I (3 cr. (2+2P))**

Comprehensive overview of the fundamentals, coding conventions, and principles of selecting the most appropriate ICD-9-CM and future ICD-10-CM diagnostic and procedure codes. The most recent version of ICD-9-CM and an in depth study of the current Official Coding Guidelines for coding and reporting will be emphasized. Prerequisite(s): BOT 228. Restricted to: Community Colleges only.

**HIT 258 - Medical Coding II (3 cr. (2+2P))**

Continuation of Medical Coding I. Comprehensive overview of the coding and reporting guidelines, fundamentals, coding conventions, and principles of selecting the most appropriate CPT and HCPCS procedural codes for all medical specialties. The most recent version of CPT and a continued study of the ICD-9-CM coding conventions and principles will be emphasized. Designed as a medical coding capstone course. Prerequisite(s): HIT 248. Restricted to: Community Colleges only.

**HIT 268 - Health Information Systems (3 cr.)**

Overview of health data management, work planning, and organization principles; an introduction to health care information systems; and review of the fundamentals of information systems for managerial, clinical support, and information systems.

**HOST - HOSPITALITY AND TOURISM****HOST 155 - Special Topics (1-3 cr.)**

Specific subjects to be announced in the Schedule of Classes. Restricted to: Community Colleges only.

**HOST 201 - Introduction to Hospitality Industry (3 cr.)**

Overview of hospitality industry; organization and operation of lodging, food and beverage, and travel and tourism segments; focus on career opportunities and future trends of hospitality industry. Restricted to: Community College campuses only.

**HOST 202 - Front Office Operations (3 cr.)**

Hotel/motel front office procedures detailing flow of business, beginning with reservations and extending to the night audit process. Restricted to: Community College campuses only.

**HOST 203 - Hospitality Operations Cost Control (3 cr.)**

Management of Food Beverage facilities using cost control techniques. Functional training in menu analysis and development with all phases of product flow through a Food Beverage organization explored. Restricted to: Community Colleges only.

**HOST 204 - Promotion of Hospitality Services (3 cr.)**

Organization of hotel marketing functions; developing a marketing plan to sell the varied services of the hotel/motel property. Restricted to: Community College campuses only.

**HOST 205 - Housekeeping, Maintenance, and Security (3 cr.)**

Function of housekeeping departments, including personnel, sanitation, maintenance, and materials. A survey of security procedures to include guest protection and internal security of hotel/motel assets. Restricted to: Community College campuses only.

**HOST 206 - Travel and Tourism Operations (3 cr.)**

Transportation, wholesale and retail operations, attractions, the traveler, tourism development, and operational characteristics of tourism business. Restricted to: Community College campuses only.

**HOST 207 - Customer Service for the Hospitality Industry (3 cr.)**

Concepts of service and the customer, integrating the need for service quality, and the continuing efforts to maximize returns for the operation. Classic service styles as well as more modern service techniques are covered. Students gain in-depth managerial knowledge, planning skills, and hands-on techniques for consistently delivering quality and service in a variety of operations. Restricted to: Community College campuses only.

**HOST 208 - Hospitality Supervision (3 cr.)**

Strategies for directing, leading, managing change and resolving conflict. Prepares students to meet expectations of management, guests, employees, and governmental agencies. Restricted to: Community College campuses only.

**HOST 209 - Managerial Accounting for Hospitality (3 cr.)**

Prepares students to make effective business decisions based on financial report information; forecasting, budgeting, cost analysis. Prerequisite(s): BOT 120 or ACCT 252. Restricted to: Community College campuses only.

**HOST 210 - Catering and Banquet Operations (3 cr.)**

Teaches the basics of catering and banquet operations, including computer coordination, planning, set up, service, and completion. Restricted to Community Colleges campuses only.

**HOST 214 - Purchasing and Kitchen Management (3 cr.)**

Technical purchasing concepts, product selection, and specifications. Safety and sanitation as they relate to food service establishments. Prepares student for work with HACCP programs. Restricted to Community Colleges campuses only.

**HOST 215 - Museum Operations (3 cr. (2+3P))**

Museum operations, including financial, managerial, and display-preservation issues, as well as specimen-display acceptance and setup. Consent of instructor required. Restricted to: Community College campuses only.

**HOST 216 - Event, Conference and Convention Operations (3 cr.)**

The ability to successfully plan, organize, arrange, and execute special events is critical to the success of many hospitality organizations. This course gives the student a grounding in the skills necessary to achieve success in this area. A variety of events are discussed and the similarities and differences with conferences and conventions are explored. Students are taught to organize and plan events of varying type and durations. Sales, logistics, and organizing skills are emphasized. Restricted to: Community College campuses only.

**HOST 217 - Introduction to Gaming Operations (3 cr.)**

A survey of the history of gaming operations (especially Native American gaming), casino regulations, industry trends, and an overview of its impact on tourism. Consent of instructor required. Restricted to: Community College campuses only.

**HOST 219 - Safety, Security and Sanitation in Hospitality Operations (3 cr.)**

It is the responsibility of the manager to provide appropriate security, sanitation, and safety precautions in hospitality operations. Preparation for internal and external disasters is an important task for the Hospitality Manager. This course uses the National Restaurant Association ServSafe training material. Restricted to: Community College campuses only.

**HOST 220 - Experiential Travel (3 cr.)**

Course provides an opportunity for students to plan, prepare for and experience travel to destinations they might not otherwise have visited. Students experience local culture and peoples. May be repeated up to 9 credits. Prerequisite(s): HOST 201 or consent of instructor. Restricted to Community Colleges campuses only.

**HOST 221 - Internship I (1-3 cr.)**

Work experience that directly relates to a student's major field of study that provides the student an opportunity to explore career paths and apply knowledge and theory learned in the classroom. Internships may be paid or unpaid. Students are supervised/evaluated by both the employer and the instructor. May be repeated up to 3 credits. Consent of Instructor required. Restricted to: OEHS, HOST majors. S/U Grading (S/U, Audit). Restricted to Community Colleges campuses only.

**HOST 222 - Cooperative Experience II (3 cr.)**

Continuation of HOST 221. Restricted to majors. Graded: S/U. Prerequisite(s): HOST 221. Restricted to: Community College campuses only. Restricted to HOST majors.

**HOST 223 - Travel Agency Principles (3 cr.)**

Travel agents are called upon to exhibit broad knowledge about many different tourism products. This course prepares students to undertake the challenging job of an agent in a travel agency. Restricted to: Dona Ana campus, Carlsbad campus.

**HOST 224 - Travel Agency Booking & Operations (3 cr.)**

Course trains students to use the common electronic booking software that is found in travel agencies. Familiarization with operational procedures of travel agencies. Prerequisite(s): HOST 223. Restricted to: Community College campuses only.

**HOST 230 - Wedding Events Management (3 cr.)**

This course will address various issues that could potentially arise in the preparation and management of a wedding or related event. All aspects of planning and attention to details that will ensure that students are prepared to provide services as a professional wedding planner. Restricted to: Community College campuses only.

**HOST 239 - Introduction to Hotel Management (3 cr.)**

This course covers basic management functions in hotels, resorts, Boutique Hotels, Bed Breakfast establishments, and other lodging operations. All aspects

of the operation are covered including guest management, operations, and sales and marketing. Restricted to: Branch campuses only.

#### **HOST 255 - Special Topics (3 cr.)**

Specific subjects to be announced in the Schedule of Classes. Restricted to: Community College campuses only.

#### **HOST 266 - Group Travel Systems (3 cr.)**

The course provides students with the basic skills necessary for developing and packaging tours and itineraries for large and small groups. Methods of marketing the specialized tour packages are explored. Restricted to: Community Colleges only.

#### **HOST 268 - Regional Tour Operations (3 cr.)**

Inbound tourists depend on regional tour operators to develop, market, operate and lead tours and activities. The specific skills for receptive tour operators, step-on guides, business agents and tour developers are explored and taught. Restricted to: Community Colleges only.

#### **HOST 290 - Hospitality Service Capstone (3 cr.)**

Refines skills and validates courses the student has taken in hospitality program Business simulations, case studies and projects used to test and improve hospitality business practices. Prerequisite(s): HOST 201, HOST 203, HOST 207, HOST 208, HOST 209 and HOST 221. Restricted to: Community College campuses only. Restricted to HOST majors.

#### **HOST 298 - Independent Study (1-3 cr.)**

Individual studies directed by consenting faculty with prior approval of department chair. May be repeated for a maximum of 3 credits. Prerequisite(s): Minimum 3.0 GPA and sophomore standing. Restricted to: Community College campuses only.

### **HVAC - HEATING AC REFRIGERATION**

#### **HVAC 100 - EPA Clean Air Act: Section 608 (1 cr.)**

Refrigerant certification preparation to include basics of refrigerant bearing equipment, ozone depletion and the new legislation, technician categories covered and the certification examination.

#### **HVAC 101 - Fundamentals of Refrigeration (4 cr. (3+2P))**

Refrigeration cycle and the various mechanical components. Use of special tools, equipment, and safety precautions.

#### **HVAC 102 - Fundamentals of Electricity (4 cr. (3+2P))**

Introduction to electricity theory, OHM s Law, circuits, AC/DC, and practical applications.

#### **HVAC 103 - Electrical and Mechanical Controls I (4 cr. (3+2P))**

Applications of basic electrical and mechanical controls. Reading and drawing diagrams of simple refrigerating equipment. Safe use of testing equipment. Prerequisites: HVAC 101 and HVAC 102, or consent of instructor.

#### **HVAC 104 - Domestic Refrigeration (4 cr. (3+2P))**

Installation and maintenance of refrigeration systems. Prerequisites: HVAC 101, and HVAC 102, or consent of instructor.

#### **HVAC 110 - Professional Development and Leadership (1 cr.)**

As members and/or officers of various student professional organizations, students gain experience in leadership, team building, and community service. Students competing in Skills USA are required to register for the course. May be repeated up to 6 credits. Consent of Instructor required. Restricted to: HVAC majors. S/U Grading (S/U, Audit). Restricted to: Community Colleges only.

#### **HVAC 113 - Job Shadowing (1 cr.)**

Course will expose students to actual HVAC/R field work and provide them knowledge of the expectations of field work as they shadow an HVAC/R technician. Consent of instructor required. Restricted to: Community colleges only.

#### **HVAC 118 - Technical Math for Heating, Air Conditioning, and Refrigeration Technicians (3 cr. (2+2P))**

Geometry, algebra, and basic arithmetic pertaining to mathematical applications in the heating, air conditioning, and refrigeration trades.

#### **HVAC 205 - Commercial Refrigeration Systems (4 cr. (3+2P))**

Service and maintenance of commercial refrigeration equipment to include evacuation and charging procedures, electrical diagrams, and compressors and accessories. Prerequisites: HVAC 103 or consent of instructor.

#### **HVAC 207 - Residential Air Conditioning Systems (4 cr. (3+2P))**

Applications and types of equipment used in comfort cooling. Preventive maintenance, service, and repairs common to evaporative coolers and refrigerated air conditioning systems. Air properties and psychometrics. Prerequisite: HVAC 103 or consent of instructor.

#### **HVAC 209 - Residential Heating Systems (4 cr. (3+2P))**

Gas and electric systems used in comfort heating. Maintenance procedures, safety, troubleshooting, and servicing malfunctions in equipment. Prerequisite: HVAC 103 or consent of instructor.

#### **HVAC 210 - Commercial Air Conditioning and Heating Systems (4 cr. (3+3P))**

Covers troubleshooting mechanical and electrical problems associated with HVAC equipment in commercial buildings. Includes gas, electric, and heat pump systems. Prerequisite(s): HVAC 103 or consent of instructor. Restricted to Community Colleges campuses only.

#### **HVAC 211 - Heat Pump Systems (4 cr. (3+2P))**

Reverse cycle refrigeration systems utilized in comfort heating and cooling. Troubleshooting mechanical electrical problems associated with heat pumps. HVAC 103 or consent of instructor.

#### **HVAC 213 - Practicum (3 cr.)**

Working in the field with journeymen service technicians. Develop and apply job skills. Consent of instructor required. Prerequisite(s): Consent of instructor. Restricted to: Community colleges only.

#### **HVAC 220 - Introduction to Sheet Metal Fabrication (4 cr. (3+2P))**

Introduction to sheet metal fabrication to include hands-on practical laboratory applications, cutting and forming procedures, identifying types and gauges. Design and layout techniques. Prerequisite: OETS 118 or equivalent math or consent of instructor.

#### **HVAC 225 - New Mexico Mechanical Codes: HVAC (1-4 cr.)**

Principles and regulations developed for HVAC, sheet metal, and plumbing occupations to include terminology, ventilation air supply, exhaust systems, duct systems, combustion air, chimneys and vents, boilers/water heaters, refrigeration, panel and hydronic panel heating, fuel gas piping, storage systems, solar systems, and workmanship standards. May be repeated for a maximum of 12 credits.

#### **HVAC 255 - Special Topics (1-6 cr.)**

Topics to be announced in the Schedule of Classes. Prerequisite: consent of instructor. May be repeated for a maximum of 12 credits.

#### **HVAC 290 - Special Problems (1-4 cr.)**

Individual studies related to heating, air conditioning, and refrigeration. Prerequisites: HVAC 101, HVAC 102, and consent of instructor.

#### **HVAC 291 - Field Experience (1-6 cr.)**

Supervised on-the-job training/field experience at an approved work site. Student is supervised and evaluated by the sponsor and instructor. Student will meet with the regularly scheduled class. Prerequisite: consent of instructor.

### **INMT - INDUSTRIAL MAINTENANCE**

#### **INMT 133 - Process Technology and Systems (4 cr.)**

Provides instruction in the use of common process equipment. Students will use appropriate terminology and identify process equipment components such as piping and tubing, valves, pumps, compressors, turbines, motors, engines, heat exchangers, heaters, furnaces, boilers, filters dryers and other miscellaneous

vessels. Included are the basic functions, scientific principles and symbols. Students will identify components on typical Process Flow Diagrams and Process and Instrument Diagrams. Restricted to Carlsbad campus only.

**INMT 134 - Maintenance Principles (4 cr.)**

The course is an introduction to the maintenance of equipment utilizing mechanical, electrical and instrumentation concepts. Topics include: hand tools, bearing fundamentals, equipment lubrication, material handling, electrical safety, battery systems, diagrams, electrical production and distribution, transformers, breakers, switches, AC and DC motors, motor controllers and operations, and introduction to automation and instrumentation control. Restricted to Carlsbad campus only.

**INMT 165 - Equipment Processes (4 cr.)**

This course introduces power transmission equipment and machinery components, including belt/chain driven equipment, speed reducers, variable speed drives, couplings, clutches, and conveying equipment. Students will learn the operation, maintenance, and troubleshooting for these types of equipment. The course also includes Overhead Crane Certification and Safety. Restricted to Carlsbad campus only.

**INMT 205 - Programmable Logic Controllers and Applications (4 cr.)**

Students learn about programmable logic controllers; architecture; programming, interfacing, and applications. Hands-on experience on modern commercial PLC units is the main component. Prerequisite(s): Computer Literacy (C S 110). Restricted to Carlsbad campus only.

**INMT 223 - Electrical Repairs (4 cr.)**

This course outlines for students the types of problems that occur in electrical machinery and systems. The course covers trouble-shooting and diagnosis, preventative maintenance, and how to make necessary repairs. Restricted to Carlsbad campus only.

**INMT 235 - Mechanical Drives I (4 cr.)**

This course teaches the fundamentals of mechanical transmission systems used in industrial, agricultural, and mobile applications. Students will learn industrial relevant skills including how to: operate, install and analyze performance, and design basic transmission systems using chains, feed-belts, spur gears, bearings, and couplings. Vibration analysis will be used to determine when to perform maintenance of power transmission components. The course also covers power transmission safety, and introduction to belt and chain drives (applications, installations, and tensioning), and introduction to gear drives, coupling, and bearing, basic troubleshooting, blueprint and print reading, learning the basics of electrical drives and PDM and PM. Restricted to Carlsbad campus only.

**INMT 236 - Lubrication Process (3 cr.)**

This course teaches the technical skills needed to operate, install, tune, maintain and troubleshoot automatic lubrication systems. Lubrication concepts, setup and tuning, pneumatic pumps, series-progressive valve systems and microprocessor based lubrication controllers will be covered. The course covers the principles of and importance of lubrication, oils and grease types and applications, lube management (storage, handling, and purity), and PDM and PM. Restricted to Carlsbad campus only.

**INMT 237 - Hydraulics I (2 cr.)**

This course teaches fundamentals of hydraulic systems used in industry mobile application. Students learn the basic theory of application of hydraulic and electricity as it applies to hydraulics. Covered in the course are basic systems, principles of flow, pressure, viscosity, filtration, and colling. Also covered are basic components such as motor, pumps, cylinders, piping and control and relief valves. Troubleshooting strategies are discussed, along with blueprint and print reading, and PDM and PM. Industry, relevant skills including how to operate, install, analyze performance, and design basic hydraulic systems, reviewing intermediate hydraulic components and system applications. Restricted to Carlsbad campus only.

**INMT 261 - Pump Operations I (4 cr.)**

This course teaches how to select, operate, install, maintain and repair the many types of pumps used by industry. Students learn the theory and practical application of all types of processed pumps and pipe systems. It covers types, components, and systems operation. It also covers troubleshooting for flow loss

and cavitation. Students learn how to select, operate, install, maintain and repair the many types of pumps used by industry. Other topics covered include: Net Positive Suction Head, pump flow/head measurement, pressure head conversion, pressure flow characteristics, cavitation, series/parallel pump operation, mechanical seal/stuffing box maintenance, multi stage operation and construction, positive displacement pumps, turbine, diaphragm, peristaltic, piston, gear, and magnetic pump systems. Restricted to Carlsbad campus only.

**INMT 262 - Piping Systems (2 cr.)**

This course teaches students how to install, maintain and troubleshoot fluid systems such as how to select, size, identify, install a variety of types of piping, fittings, and valves. Measurement techniques from basic to precision measurement, gauging, including the fundamentals of demensioning and tolerancing will taught. Restricted to Carlsbad campus only.

**INMT 263 - Mechanical Drives II (4 cr.)**

This course teaches the bearings and gears used in heavy duty mechanical transmission systems. This course will emphasize linear access drives, clutches, and brakes. In addition, this course teaches how to set up, operate and apply laser shaft alignment to a variety of industrial applications. This course is a study of the basic concepts and procedures for the maintenance and operations of pumps, turbines, seals, bearings, and compressors. The course will provide the student with the knowledge and skills necessary to perform proper maintenance, repair, replacement and selection of pumps, turbines, seals, bearings and compressors. Also covered are advanced gearbox, coupling and bearings, precision alignment (shaft, flange, and sheave), as well as basic vibration analysis and thermography as troubleshooting and RCA aids. Restricted to Carlsbad campus only.

**INMT 264 - Rigging (2 cr.)**

This course teaches how to safely move loads of different shapes and sizes using a variety of different methods. Students will lift loads and demonstrate how to move it. Students will use hoists, slings, ropes and fittings to learn how to safely lift a wide variety of loads. Included are weight estimation, lifting rules, load ratings (sling, wire, ropes and hoists). Restricted to Carlsbad campus only.

**INMT 265 - Hydraulics II (2 cr.)**

This course teaches advanced hydraulics systems. The student will learn operation of advanced hydraulic systems applications, equipment installation, performance analysis of motors and pumps, accumulators, control, relief and check valve, equipment maintenance, and system design. The course covers accumulators, sequence valves, pilot circuits and unloader valves. Students learn more troubleshooting, hydraulic drives and other applications. Restricted to Carlsbad campus only.

**INMT 267 - Pump Operations II (2 cr.)**

This course teaches the student the disassembly, inspection and reassembly of centrifugal and positive displacement pumps. This course allows the student to identify and replace worn or broken components of pumps, and learn predictive and preventive maintenance principles. Lockout of the pump will be performed in addition to measurements and alignment. Restricted to Carlsbad campus only.

**L SC - LIBRARY SCIENCE**

**L SC 100 - Introduction to Libraries (3 cr.)**

Overview of libraries, including history and development, responsibilities of library personnel, types of libraries and services, and technology and trends. Restricted to Dona Ana campus only.

**L SC 110 - Reference and Information Resources I (3 cr.)**

Overview of reference services. Introduction to, and evaluation of, basic types of information resources (both print and electronic) and their application in libraries.

**L SC 111 - Introduction to Information Literacy in an Electronic Environment (3 cr.)**

Introduction to the basics of the research process; the organization, location and evaluation of information using print, non-print and electronic resources. Restricted to: Community Colleges only.

**L SC 112 - Introduction to Consumer Health Information Literacy in an Electronic Environment (3 cr.)**

Introduction to consumer health information literacy; the process and organization, location, and evaluation of online information. Restricted to: Community Colleges only.

**L SC 120 - Cataloging Basics I: Descriptive Cataloging (3 cr.)**

Introduction to descriptive cataloging. Restricted to: Dona Ana campus only.

**L SC 125 - Cataloging Basics II: Classification and MARC Cataloging (3 cr.)**

Continuation of descriptive cataloging basics. Introduction to subject analysis, classification and MARC coding. Restricted to: Dona Ana campus only.

**L SC 130 - Introduction to Technical Services in Libraries (3 cr.)**

Introduction to technical services in libraries, including acquisitions, bindery, cataloging, gifts, and serials. Restricted to Dona Ana campus only.

**L SC 140 - Multimedia Materials and Presentations in Libraries (3 cr.)**

Overview of media formats and equipment. Introduction to desktop publishing, presentations, and web-page creation applications in libraries. Restricted to: Community Colleges only.

**L SC 145 - Marketing Your Library (1 cr.)**

The process of creating and implementing a marketing plan that focuses on the needs of library patrons. Restricted to: Dona Ana campus only.

**L SC 150 - Library Services for Children and Young Adults (3 cr.)**

Library services for children and young adults with an overview of materials, programs, and services for this population. Restricted to: Dona Ana campus only.

**L SC 153 - Picture Books and Young Children (1 cr.)**

If children are to enjoy reading they need to be exposed to books at an early age. This course will provide information to help guide librarians, preschool teachers, parents, and care givers in choosing appropriate books for those younger than six, and how to use books with this age group. Restricted to Dona Ana campus only.

**L SC 154 - State Children's Book Awards (1 cr.)**

Students will explore the state book award offered by their state. Students will read some of the books and plan library programs to promote the award. Restricted to: Dona Ana campus only.

**L SC 155 - Award Winning Books for Children (1 cr.)**

A review of book awards and how to integrate award winning books into school curriculum or public school programming. Restricted to: Community Colleges only.

**L SC 156 - Boys and Books (1 cr.)**

This course looks at why, in general, boys are less interested in books than girls. Students will discover ways libraries can encourage boys to read and develop activities and programs which entice them to do so. Students will also be reading some books recommended for boy readers. Restricted to Dona Ana campus only.

**L SC 160 - Introduction to Public Services in Libraries (3 cr.)**

Introduction to public services in libraries, including circulation, inter-library loan, reference, media services, special collections, and government documents. Restricted to Dona Ana campus only.

**L SC 165 - Customer Service in Libraries (1 cr.)**

Skills for interacting with library patrons from diverse backgrounds and in challenging environments. Restricted to: Dona Ana campus only.

**L SC 168 - Managing Library Volunteers (1 cr.)**

Covers recruitment, training and development, and management of library volunteers. Restricted to: Dona Ana campus only.

**L SC 173 - Library Conference Internship (1 cr.)**

Student will volunteer at an approved library conference. Graded: S/U. Restricted to: Dona Ana campus only.

**L SC 175 - Civic Involvement in Library Science (1-3 cr.)**

Involvement in an organized community service project or group with a library or information technology component. Promotes awareness of volunteer and community service opportunities. May be repeated for a maximum of 6 credits. Graded: S/U. Restricted to: Dona Ana campus only.

**L SC 191 - Children's Books and their Movie Adaptations (1 cr.)**

For almost as long as there have been popular books for children in the United States, there have been dramatic adaptations of them. What is gained, and lost, when children's books are adapted for the big screen? What is the relationship-or what should the connection be-between works of children's literature and their seemingly inevitable film adaptations? Students will be expected to read several children's books and view the movies based on them and make comparisons. Restricted to: Community Colleges only.

**L SC 192 - Myths and Legends in Children's Literature (1 cr.)**

The student will explore myths and legends from diverse cultures; from European and Asian to those who have their roots in Africa and the Americas. Myths which are similar across several cultures will be compared.

**L SC 193 - Poetry for Children (1 cr.)**

This course will explore the genre of poetry for children. In this class, participants will focus on reading and reviewing poetry for kids, exploring poetry on the Web, and trying interactive approaches for sharing poetry with children. Topics include: study and analysis of poetry, ways to use poetry in the classroom, writing poetry with children. Restricted to: Community Colleges only.

**L SC 194 - The Art of Picture Books (1 cr.)**

Students will develop an understanding and appreciation of the processes of the creation of the visual aspects of children's books, including the development process from preliminary sketches and/or storyboard to the published book; various media and techniques; case studies of individual artists and works. Restricted to: Community Colleges only.

**L SC 195 - Mysteries for Children (1 cr.)**

In this course the student will become familiar with a wide variety of mysteries for children. Ways to use mysteries in the classroom and school library will also be covered. Restricted to Community Colleges campuses only.

**L SC 196 - Historical Fiction for Children (1 cr.)**

This course looks at historical fiction as a genre. Topics include: fiction vs. history, American history in children's literature, world history in children's literature, activities for using historical fiction in a school setting. Restricted to: Community Colleges only.

**L SC 197 - Fantasy and Speculative Fiction (1 cr.)**

This course offers professionals serving school students the opportunity to increase your appreciation and knowledge of fantasy and speculative fiction through intense reading and discussion of representative works. The course will also investigate and consider options using fantasy and speculative fiction in a school setting. Restricted to: Community Colleges only.

**L SC 200 - Collection Management and Development in Libraries (3 cr.)**

Principles of identifying, selecting, acquiring, managing, and evaluating resources for libraries. Restricted to Dona Ana campus only.

**L SC 201 - Public Libraries (3 cr.)**

A study of the American public library and its place in communities. Topics may include history, philosophy, and standards, operations and procedures, governance, funding, personnel materials, user services, outreach and advocacy. Restricted to: Dona Ana campus only.

**L SC 202 - Academic Libraries (3 cr.)**

An examination of the functions of the library within the higher education environment. Topics may include history, philosophy, and organization, operations and procedures, governance, funding, personnel, materials, outreach, and user services. Restricted to: Dona Ana campus only.

**L SC 203 - School Library Media Specialist (3 cr.)**

Principles and practice of managing the school library media center, with an emphasis on its specific educational mission. Topics may include collection

development, classes and lesson plans, public relations, administrative procedures, and use of technology. Restricted to Dona Ana campus only.

**L SC 204 - Special Libraries (3 cr.)**

An examination of special libraries. Topics may include management, user services, technical services, facilities, and types of collections. Restricted to Dona Ana campus only.

**L SC 205 - Preservation Basics for Libraries (1 cr.)**

Basic preservation tools and techniques for library resources. Restricted to Dona Ana campus only.

**L SC 210 - Technology Planning in Libraries (3 cr.)**

Overview of computer applications in libraries. Topics may include automated systems and electronic resources, introduction to evaluation of technology, and writing a technology plan. Restricted to Dona Ana campus only.

**L SC 211 - Electronic Privacy (1 cr.)**

An Introduction to the potential dangers of revealing personal information electronically and how libraries can inform and alert to protect the privacy of library computer users. Restricted to Dona Ana campus only.

**L SC 220 - Innovative Technology Applications for Libraries (3 cr.)**

A look at uses for innovative technologies in libraries. Topics may include blogs, wikis, podcasting and virtual reality libraries. Restricted to Dona Ana campus only.

**L SC 221 - Experiential Learning I (1-3 cr.)**

Student is employed (paid or non-paid) in an approved work site and evaluated by their supervisor. Each credit requires a specified number of hours of on-the-job work experience. Consent of Instructor required. Prerequisite(s): Consent of instructor. S/U Grading (S/U, Audit). Restricted to Dona Ana campus only.

**L SC 222 - Experiential Learning II (1-3 cr.)**

Continuation of L SC 221. Each credit requires specified number of hours of on-the-job work experience. Consent of Instructor required. Prerequisite(s): L SC 221 and consent of instructor. S/U Grading (S/U, Audit). Restricted to Dona Ana campus only.

**L SC 230 - Issues and Ethics in Libraries (3 cr.)**

Discussions of current and continuing challenges to effective library service. Topics may include copyright, censorship, intellectual freedom, Internet filtering, problem patrons, security, or other current issues. Restricted to Dona Ana campus only.

**L SC 231 - Copyright Basics for Libraries (1 cr.)**

Copyright definitions and ways that copyright may affect library service. Restricted to Dona Ana campus only.

**L SC 233 - Library Privacy and Confidentiality (1 cr.)**

Covers the USA Patriot Act and other laws that apply to library user privacy. Restricted to Dona Ana campus only.

**L SC 234 - Intellectual Freedom in Libraries (1 cr.)**

Philosophical and practical information related to library policies about access to library materials. Restricted to Dona Ana campus only.

**L SC 235 - Library Security and Safety (1 cr.)**

Strategies for safety and security planning in libraries. Restricted to Dona Ana campus only.

**L SC 236 - Banned Books (1 cr.)**

Banned books, selection policies, and responding to challenges. Restricted to Dona Ana campus only.

**L SC 240 - Internet Resources and Research Strategies (3 cr.)**

Introduction to retrieving and evaluating information found on the Internet and in selected Internet-accessible databases. Restricted to Dona Ana campus only.

**L SC 250 - Reference and Information Resources II (3 cr.)**

Evaluation and use of specialized information resources to offer reference services. Emphasis is on virtual reference and other innovative techniques. Restricted to Dona Ana campus only.

**L SC 255 - Special Topics (1-3 cr.)**

Special topics to be announced in Schedule of Classes. May be repeated for a maximum of 12 credits. Restricted to Dona Ana campus only.

**L SC 260 - Cataloging Non-Book Formats (3 cr.)**

Introduction to cataloging of various non-book formats and MARC coding. Restricted to Dona Ana campus only.

**L SC 261 - U.S. Government Documents (1 cr.)**

An introduction to U.S. government documents and the SuDoc classification system. Restricted to Dona Ana campus only.

**L SC 262 - State and Local Documents (1 cr.)**

An introduction to state and local documents in library collections. Restricted to Dona Ana campus only.

**L SC 270 - Library Science Capstone (3 cr.)**

A culmination of all technical courses that are required to receive an Associate of Applied Science from the program centering around the completion of a library related project. Discussions on the role of paraprofessionals in libraries. Restricted to Dona Ana campus only.

**L SC 275 - Fundamentals of Library Supervision (3 cr.)**

An introduction to supervision of library employees, including student assistants, to create a productive workplace. Restricted to Dona Ana campus only.

**L SC 276 - Building Specialized Collections for Latinos (1 cr.)**

Building a library collection to serve Latino populations. Restricted to Dona Ana campus only.

**L SC 280 - World Libraries and Exchange Programs (3 cr.)**

Students will study about libraries outside the United States. Students will also be introduced to exchange and volunteer program opportunities around the world. Restricted to Dona Ana campus only.

**L SC 281 - Grant Writing for Libraries (1 cr.)**

Introduction to grant writing for libraries. Restricted to Dona Ana campus only.

**L SC 286 - Children's Literature and the Primary Curriculum (3 cr.)**

The student will research the use of picture books and other children's literature across the curriculum with students in kindergarten through second grade. Topics include: using literature to teach writing, using literature to teach science, using literature to teach math, using literature to teach social studies. Restricted to: Community Colleges only.

**L SC 287 - Children's Literature and the Intermediate Curriculum (3 cr.)**

The student will research the use of picture books and other children's literature across the curriculum with students in grades three through five. Topics include: using literature to teach writing, using literature to teach science, using literature to teach math, using literature to teach social studies. Restricted to: Community Colleges only.

**L SC 288 - Children's Literature and the Middle School Curriculum (3 cr.)**

The student will research the use of picture books and other children's literature across the curriculum in grades six through eight. Topics include: using literature to teach writing, using literature to teach science, using literature to teach math, using literature to teach social studies. Restricted to: Community Colleges only.

**L SC 290 - Introduction to Children's Literature for Libraries (3 cr.)**

This course will introduce current and potential library personnel to a wide variety of literature written for children. The course explores the history of children's literature and the path it has taken. Students will read many books from a variety of genre, explore the literary elements found in those books, and develop some evaluation criteria and ways for children to respond to the literature they read. Restricted to Dona Ana campus only.

**L SC 291 - Southwestern Children's Literature (1 cr.)**

This course will introduce students to books which can teach the children visiting your library more about the people and places of the southwest. Restricted to: Dona Ana campus only.

**L SC 292 - Native American Children's Literature (1 cr.)**

This course will introduce students to some children's and young adult books written by and about Native Americans. Restricted to: Dona Ana campus only.

**L SC 295 - Introduction to Young Adult Literature (3 cr.)**

The course will expose students to quality adolescent literature available for reading and study in middle and high school classes. It provides a broad survey of young adult literature and focuses on building an appreciation of literature, encouraging student reading, developing life-long readers, and developing activities for critical thinking. Restricted to: Community Colleges only.

**L SC 296 - Multicultural Books for Children and Youth (3 cr.)**

This course explores a wide range of multicultural children's literature including: African American, Native American, Latino, Asian, Jewish, and Middle Eastern. Topics covered include: nonfiction of the cultures, historical fiction of the cultures, and contemporary literature of the cultures. Restricted to: Community Colleges only.

**L SC 298 - Independent Study (1-3 cr.)**

Individual studies directed by consenting faculty with prior approval of department chair. May be repeated for a maximum of 12 credits. Restricted to: Dona Ana campus only.

**LAWE - LAW ENFORCEMENT****LAWE 201 - Introduction to Juvenile Delinquency (3 cr.)**

An introductory overview of the juvenile justice system of due process, custody, detention and release. Note: course does not meet upper division requirements towards completion of Bachelor of Science in Criminal Justice. Restricted to: Community Colleges Only.

**LAWE 202 - Police Patrol Procedures (3 cr.)**

A critical review of police procedures and the influences on police behavior; policy development, including the police role; discretion; police community interaction and arrest, search and seizure. Restricted to: Community Colleges only.

**LAWE 203 - Introduction to Police Supervision (3 cr.)**

An introductory overview of police supervision and concerns as it applies to law enforcement. (Note: Course does not meet upper division requirements toward completion of Bachelor of Science in Criminal Justice.) Restricted to: Community Colleges only.

**LAWE 204 - Introduction to Homeland Security (3 cr.)**

A historical perspective of international and domestic terrorist threats and the need to develop cohesive response policies and practices in the interest of National Security. [Course does not meet requirements towards completion of Bachelor of Science in Criminal Justice.] Prerequisite(s): C J 101. Restricted to: Community Colleges only.

**LAWE 205 - Practical Field Investigations (4 cr. (3+3P))**

Incorporates the current methods and techniques for the management of the crime scene, includes documentation, collection and preservation of evidence and case presentations. [Course does not meet requirements towards completion of Bachelor of Science in Criminal Justice.] Prerequisite(s): C J 101 and C J 221. Restricted to Community Colleges campuses only.

**LAWE 206 - Traffic Enforcement and Crash Investigations (3 cr.)**

History and development of traffic laws and regulations, including basic elements of traffic violations, detection, apprehension, impaired drivers and guidelines and procedures for effective crash investigations and reporting. Restricted to: Community Colleges only.

**LAWE 207 - Legal Aspects of Law Enforcement (3 cr.)**

An evaluation of police authority including responsibilities, civil liability, liability implications, legal obligations, legal restraints, laws of arrest, and search and seizure. Restricted to: Community Colleges only.

**LAWE 208 - Security Protection Officer Level I (3 cr.)**

This course is designed to provide basic security protection officer training conforming to the New Mexico Regulation and Licensing Department - Level I SPO training standards. Graded: S/U. Prerequisite(s): LAWE 208 Restricted to: Community Colleges only.

**LAWE 209 - Security Protection Officer Level II (2 cr. (1+3P))**

This course combined with the Level I SPO training is designed to provide basic security protection officer training conforming to the New Mexico Regulation and Licensing Department - Level II SPO training standards. Graded: S/U. Prerequisite(s): LAWE 208. Restricted to: Community Colleges only.

**LAWE 210 - Introduction to Law Enforcement (3 cr.)**

An introduction to Criminal Justice System in our democratic society with emphasis on Law Enforcement, Criminal Justice Administration and application. (This is a Law Enforcement Academy Certification Course.) Consent of instructor required. Corequisite(s): LAWE 211, 212, 213, 214, 215, 216, 217, 218, 219, 222 OEEM 155. Restricted to: Dona Ana campus only. Restricted to LAWE majors.

**LAWE 211 - Policing in America (3 cr.)**

The study of Law Enforcement concepts in an American society with emphasis on law and order at the federal, state and local agencies. (This is a Law Enforcement Academy Certification course.) Consent of instructor required. Corequisite(s): LAWE 210, 212, 213, 214, 215, 216, 217, 218, 219, 222 OEEM 155. Restricted to: Dona Ana campus only. Restricted to LAWE majors.

**LAWE 212 - Patrol Procedures (3 cr.)**

Basic patrol concepts with emphasis on police patrol activities including the practices and procedures necessary to perform the patrol functions and report writing. (This is a Law Enforcement Academy Certification course.) Consent of instructor required. Corequisite(s): LAWE 210, 211, 213, 214, 215, 216, 217, 218, 219, 222 OEEM 155. Restricted to: Dona Ana campus only. Restricted to LAWE majors.

**LAWE 213 - Criminal Investigations (3 cr.)**

Fundamentals of criminal investigations including scene security, evidence collection, traffic accidents, case preparation and report writing. (This is a Law Enforcement Academy Certification course.) Consent of instructor required. Corequisite(s): LAWE 210, 211, 212, 214, 215, 216, 217, 218, 219, 222 OEEM 155. Restricted to: Dona Ana campus only. Restricted to LAWE majors.

**LAWE 214 - Criminal Law & Court Procedures (3 cr.)**

Concepts on the rule of law, substantive and procedural law including liability, crimes against persons and property. (This is a Law Enforcement Academy Certification course.) Consent of instructor required. Corequisite(s): LAWE 210, 211, 212, 213, 215, 216, 217, 218, 219, 222 OEEM 155. Restricted to: Dona Ana campus only. Restricted to LAWE majors.

**LAWE 215 - Emergency Vehicle Operations (1 cr. (1P))**

Instruction on operating a patrol vehicle, procedures for emergency driving including legal issues related to emergency vehicle operations. (This is a Law Enforcement Academy Certification course.) Consent of instructor required. Corequisite(s): LAWE 210, 211, 212, 213, 214, 216, 217, 218, 219, 222 OEEM 155. Restricted to: Dona Ana campus only. Restricted to LAWE majors.

**LAWE 216 - Traffic Law and Procedures (3 cr. (2+3P))**

Instruction on law of motor vehicles including traffic enforcement operations and law enforcement officer's role in report writing, hazardous materials incidents and accident investigations. (This is a Law Enforcement Academy Certification course.) Consent of instructor required. Corequisite(s): LAWE 210, 211, 212, 213, 214, 215, 217, 218, 219, 222 OEEM 155. Restricted to: Dona Ana campus only. Restricted to LAWE majors.

**LAWE 217 - Custody and Defensive Tactics (3 cr. (9P))**

Instruction on the mechanics of arrest, custodial procedures, use of force, transporting prisoners and defensive tactics for officer protection. (This is a Law Enforcement Certification course.) Consent of instructor required. Corequisite(s):



LAWE 210, 211, 212, 213, 214, 215, 216, 218, 219, 222 OEEM 155. Restricted to: Dona Ana campus only. Restricted to LAWE majors.

**LAWE 218 - Basic Firearms (3 cr. (1+6P))**

Familiarization on the operation and maintenance of firearms, safety, use of deadly force, body armor and marksmanship. (This is a Law Enforcement Academy Certification course.) Consent of instructor required. Corequisite(s): LAWE 210 211, 212, 213, 214, 215, 216, 217, 219, 222 OEEM 155. Restricted to: Dona Ana campus only. Restricted to LAWE majors.

**LAWE 219 - Law Enforcement Report Writing (4 cr.)**

Covers police, corrections, security and pre-sentence reports, including writing and use of forms. (This is a Law Enforcement Academy Certification course.) Consent of instructor required. Corequisite(s): LAWE 210, 211, 212, 213, 214, 215, 216, 217, 218, 222 OEEM 155. Restricted to: Dona Ana campus only. Restricted to LAWE majors.

**LAWE 220 - Cooperative Experience (3 cr.)**

Supervised cooperative work program. Student is employed in an approved law enforcement occupation and rated by the employer and instructor. Restricted to: Community Colleges only. Prerequisite: consent of instructor.

**LAWE 221 - Law Enforcement Internship (3 cr.)**

Application of knowledge, skills and abilities, in an agency as an intern and integrated member of a law enforcement affiliated agency. Prerequisite: consent of instructor.

**LAWE 222 - Law Enforcement Physical Fitness (2 cr. (6P))**

Instruction on health and physical fitness concepts, flexibility, strength, body composition and cardiovascular endurance. (This is a Law Enforcement Academy Certification course.) Consent of instructor required. Corequisite(s): LAWE 210, 211, 212, 213, 214, 215, 216, 217, 218, 219 OEEM 155. Restricted to: Dona Ana campus only. Restricted to LAWE majors.

**LAWE 233 - Practical Approach to Terrorism (3 cr.)**

Gives responders an overall safety approach in recognizing and responding to incidents involving terrorism. Presents and overview in types of harm, explosive weapons, chemical weapons, biological weapons and radiological weapons. [Course does not meet requirements towards completion of Bachelor of Science in Criminal Justice.] Restricted to: Dona Ana campus only. Crosslisted with: FIRE 233

**MAT-AUTOMATION AND MANUFACTURING**

**MAT 102 - Print Reading for Industry (3 cr. (2+2P))**

Reading, interpretation, and revisions of industrial technical drawings common to manufacturing, Aerospace, machine parts, electrical, hydraulic, and Pneumatic drawings. Interpretation of engineering drawings and related shop calculations. Introduction Crosslisted with: AERT 113. Restricted to: Community Colleges only.

**MAT 105 - Introduction to Manufacturing (3 cr. (2+2P))**

Introduction to manufacturing evolution from basic assembly process to modern automated processes. Covers history, employability, soft skills, quality measurements, teamwork concept, production requirements, and considerations in plan layout and design. Minimum math proficiency of CCDM 114 required or math placement into MATH 120 or higher. Restricted to: Community Colleges only. Crosslisted with: AERT 112

**MAT 106 - Applied Manufacturing Practices (3 cr. (2+2P))**

Course will illustrate how various products are manufactured along with associated process. Mechanical behavior such as bending, cold worked, strained, work hardened, and heat transfer will be emphasized as well. In lab, students will learn how to make selected products starting from prints to complete projects including quality control. Crosslisted with: AERT 114. Restricted to: Community Colleges only.

**MAT 107 - Computer Integrated Manufacturing PLTW (3 cr. (2+2P))**

Applies principles of robotics and automation to Computer Aided Design (CAD) design. The course builds on computer solid modeling skills developed in Introduction to Engineering Design, and Design and Drawing Production. Students use Computer Numerical Control (CNC) equipment to produce actual

models of their three-dimensional designs. Fundamental concepts of robotics used in automated manufacturing, and design analysis are included. Restricted to: Community Colleges only.

**MAT 108 - Metrology, Safety and Quality Control for Manufacturing (3 cr. (2+2P))**

Use of measuring tools in manufacturing process and quality control. These tools include: vernier and digital micrometers, calipers, height gauges, hole gauges, pin gauges, electrical pressure/flow, temperature measuring, stress/strain measurements, and non-destructive testing (eddy currents, magnetic particle, ultrasonic, bubble emission, x-ray, Gamma ray, radiography, visual inspection, ring test, taping Zyglol). Instruction to use of coordinate machine while covering the safety issues that pertains to these types of tools and equipment. Restricted to: Community Colleges only.

**MAT 110 - Machine Operation and Safety (3 cr. (2+2P))**

Introduction to the operation and safety aspects of various types of machinery and equipment, including both mechanical and electrical machines, Rigid Tubing, and Flexible Lines. Maintenance and safety operation of industrial equipment will also be covered. Restricted to: Community Colleges only. Crosslisted with: AERT 115

**MAT 125 - Industrial Electricity (3 cr. (2+2P))**

Electrical safety rules, DC, AC, and solid state circuits, use and care of common measuring instrumentation, schematic and wiring diagrams, electromagnetism, National Electric Code branch circuits. Relationship between motor power, speed, and torque, basic application of relay circuits, motor control circuits, inductance and capacitance factors, transformers, solid state devices and applications, digital devices and controls. Restricted to: Community Colleges only.

**MAT 130 - Applied Industrial Electricity I (4 cr. (3+2P))**

Electrical safety, AC and DC circuits, use and care of common measuring instrumentation, schematic and wiring diagrams, electromagnetism, National Electric Code branch circuits. Prerequisite(s): MATH 120 or ELT 120 or OETS 118. Restricted to: Community Colleges only.

**MAT 135 - Applied Industrial Electricity II (4 cr. (3+2P))**

Relationship between motor power, speed, and torque, basic application of relay circuits, motor control circuits, inductance and capacitance factors, transformers, solid state devices circuits and applications. Prerequisite(s): MAT 130. Restricted to: Community Colleges only.

**MAT 145 - Electromechanical Systems for Non-Majors (4 cr. (3+3P))**

Electromechanical system interfacing. Principles and applications of preventive and corrective maintenance procedures on automated industrial production machines using system technical and maintenance manuals to develop troubleshooting procedures using systems block and schematic diagrams. Prerequisite: consent of instructor.

**MAT 149 - Industrial Mechanical Elements (3 cr. (2+2P))**

Introduction to mechanical systems, theory, characteristics and uses for the different types of mechanical power transmission systems used in the industry, and related industrial safety practices. Topics include: safety, drives, shafts, maintenance and lubrication. Restricted to: Community Colleges only.

**MAT 151 - Introduction to Metalworking I (3 cr. (2+2P))**

Measuring instruments, including steel rules, combination and transfer tools, micrometers, vernier instruments, bevel instruments, and indicators. Shop safety and first aid, introduction to cutting fluids, saws and sawing, and drill presses. Restricted to: Community Colleges only.

**MAT 152 - Introduction to Metalworking II (3 cr. (2+2P))**

Gage blocks and sine bars, cutting and noncutting hand tools, engine lathes, grinding machines, and concepts of numerical control. Prerequisite(s): MAT 151. Restricted to: Community Colleges only.

**MAT 205 - Statistical Controls for Manufacturing Technicians (3 cr. (2+2P))**

Use of hardware and software for quality assurance to include the design of experiments, sampling techniques, SPC, control chart application and

development, and process reliability. Prerequisite(s): ELT 120 or MATH 120. Restricted to: Community Colleges only.

**MAT 221 - Cooperative Experience I (1-6 cr.)**

Supervised cooperative work program. Student is employed in an approved occupation and rated by employer and instructor. Student meets in a weekly class. Prerequisite: consent of instructor. Graded S/U.

**MAT 222 - Cooperative Experience II (1-6 cr.)**

Continuation of MAT 221. Maximum of 6 credits. Prerequisite: consent of instructor. Graded S/U.

**MAT 230 - Power RF (2 cr. (2+1P))**

RF plasma energy and its applications in the manufacturing industry. Includes plasma physics, safety, RF applications, RF generators, transmission lines, and RF interference. Prerequisites: ELT 135 and ELT 205. Corequisite: MAT 220 or consent of instructor.

**MAT 234 - Industrial Electricity Maintenance (3 cr. (2+2P))**

Introduction into electrical systems, theory and uses for the different types of motors used in the industry and related industrial safety practices. DC, AC stepper and servo motors, motor speed and torque, motor performance, and efficiency, motor control fundamentals using variable frequency drives, vector controls, servo and stepper drives. Restricted to: Community Colleges only.

**MAT 235 - Programmable Logic Controllers Pneumatics (2 cr. (1+2P))**

Introduction to theory and application of pneumatic power transfer and control. Programmable logic controllers (PLC s) introduced as controlling elements for electropneumatic systems. Restricted to: Community Colleges only.

**MAT 240 - Electromechanical Devices (4 cr. (2+4P))**

Theory and application of electromechanical devices and digital control circuits. Includes AD and DA converters, pneumatics, hydraulics, programmable logic controllers, DC, AC, and stepper motors, and servomechanisms. Prerequisite(s): MAT 160 and (MAT 105 or (MAT 110 MAT 135)). Restricted to: Community Colleges only. Crosslisted with: AERT 211

**MAT 245 - Electromechanical Systems (3 cr. (2+2P))**

Electromechanical system interfacing. Principles and applications of preventive and corrective maintenance procedures on industrial production machines using system technical and maintenance manuals to develop troubleshooting procedures using systems block and schematic diagrams. Crosslisted with: AERT222. Prerequisite(s)/Corequisite(s): AERT 211 or MAT 240. Prerequisite(s): ELT 135 and ELT 160. Restricted to: Community Colleges only.

**MAT 250 - Semiconductor Manufacturing Technology I (3 cr. (2+2P))**

Contemporary processes, materials and equipment used in the manufacturing of semiconductors. Emphasizes wafer preparation, contamination control, oxidation, diffusion, and thin films. Prerequisites: ELT 205 and ELT 160. Corequisite: MAT 230.

**MAT 251 - Semiconductor Manufacturing Technology II (3 cr. (2+2P))**

Students continue to explore processes, materials, and equipment used in semiconductor manufacturing. Covers ion implantation, photo-lithography and etch. Prerequisite: MAT 250. Corequisite: MAT 220.

**MAT 255 - Special Problems in Semiconductor Manufacturing Technology (1-6 cr.)**

Individual studies in areas directly related to semiconductor manufacturing. Prerequisite: consent of instructor. May be repeated for a maximum of 12 credits.

**MAT 265 - Special Topics (1-6 cr.)**

Course subtitled in the Schedule of Classes. Prerequisite: consent of instructor. May be repeated for a maximum of 12 credits.

**NA - NURSING ASSISTANT**

**NA 101 - Nursing Assistant Theory and Lab (6 cr. (5+3P))**

Nurse aide skills with emphasis on a bio-psychosocial-cultural approach to client care. Practice of these skills is provided in the laboratory as well as at a clinical site. Successful completion of the course prepares and qualifies the student to take the NACES certification examination. Prerequisite(s): (Reading Compass score of 81 or greater or CCDD 110N with C- or better) and (English Compass

score of 76 or greater or CCDE 110N with C- or better) and (Math Compass score of 50 or greater or CCDD 103N with C- or better). Restricted to: Community Colleges only.

**NA 103 - Introduction to Health Care Services (3 cr.)**

Introduction to health care services, functions and responsibilities of a nurse aide, ethical and legal considerations, communication and medical terminology.

**NA 104 - Nursing Assistant Fundamentals (3 cr.)**

This course prepares students for employment as a Nursing Assistant in a Long Term Care Facility. Theory and basic nursing care skills will be taught with an emphasis being placed on the psychosocial-cultural approach to client care. Students will learn communication skills, basic anatomy and physiology, growth and development, infection control, body mechanics, basic nutrition, client/resident elimination needs, the client/resident unit, vital signs, range of motion exercises, bed making, rehabilitation and restorative care, client admission and discharge, common health problems, dealing with death and dying, and basic medical terminology. NA 104 and NA 104L (laboratory) must be successfully completed with a C- or better in order to continue to NA 105 Nursing Assistant Clinical. NA 105 must also be successfully completed with a C- or better to be eligible to take the state certification competency examination. Attendance is required to meet the federal requirements for training hours and content prior to direct contact with a patient/resident and the state competency examination. Corequisite(s): NA 104 L. Prerequisite(s): Test out of all CCDE and CCDD courses and eligible to take ENGL 111G. Restricted to Community Colleges campuses only.

**NA 104 L - Nursing Assistant Fundamentals Lab (1 cr. (3P))**

This course prepares students for employment as a Nursing Assistant in a Long Term Care Facility. Students will learn and demonstrate personal care skills including bathing, grooming, dressing, toileting, assisting with eating and hydration, skin care, transfers and positioning. Students will also learn and demonstrate the use of assistive devices, and how to maintain resident safety, dignity and privacy. NA 104 NA 104L must be successfully completed with a C- or greater in order to continue to NA 105 Clinical. NA 105 must be successfully completed with a C- or greater to be eligible to take the state certification competency examination. Prerequisite(s)/Corequisite(s): NA 104. Prerequisite(s): English COMPASS score of 35 or greater or CCDE 110N, and reading COMPASS score of 55 or greater or CCDD 105N. Restricted to Community Colleges campuses only.

**NA 105 - Nursing Assistant Clinicals (4 cr. (3+3P))**

Extension of basic fundamentals of personal care, including theory, skills and clinical experience leading to the certified Nursing Assistant Examination at the conclusion of the semester. Continuation of NA 104. Requires a C- or better to pass. Prerequisite(s): C- or better in NA 104 or consent of instructor. Restricted to: Community Colleges only.

**NA 106 - Home Health Assistant (4 cr. (3+3P))**

Theory, skills and clinical experience leading to a job working with clients in the home environment. Prepares the certified nursing assistant for certification in the home health care arena. Prerequisite: current CNA or consent of instructor. Corequisites: CCDD 114N and CCDE 110N.

**NA 107 - Medication Assistant (5 cr. (4+3P))**

Theory, skills, and clinical to prepare the student to meet the State of New Mexico requirements to distribute medication in a residential setting to Medicaid DD waiver clients. Prerequisites: CCDD 114N and CNA, or consent of instructor.

**NA 108 - Disabilities Support Services (4 cr. (3+2P))**

Beginning level preservice preparation for providing in-home care for individuals with disabilities. Crosslisted with: AHS 108. Prerequisite(s): NA 101 or NA 104 or Consent of Instructor. Restricted to: Community Colleges only.

**NA 109 - Phlebotomist Basic (4 cr. (2+4P))**

This course provides the latest information, techniques, skills, and equipment for blood and specimen collection based on the standards of the Clinical and Laboratory Standards Institute, Needlestick Prevention Act, Joint Commission 2008 National Patient Safety Goals, OSHA and CDC. An advanced skills lab is included in the course to provide a hands-on practice experience and a 30 hour practicum in a supervised work environment collecting blood and specimens on

actual patients for laboratory tests. Attendance is mandatory. Prepares students for employment as a phlebotomist in health care settings. Requires a C- or better to pass. Upon successful completion of the course, student has the opportunity to test for National Healthcareer Certification. Consent of Instructor required. Prerequisite(s)/Corequisite(s): BIOL 154 or BIOL 226. Restricted to Community Colleges campuses only.

#### **NA 110 - Electrocardiogram Technician Basic (4 cr. (3+3P))**

Prepares students for employment as an Electrocardiogram Technician. Includes basic theory of the cardiovascular system, cardiac rhythm interpretation, 12 lead ECG lead placement, and ECG equipment trouble shooting. The course includes an advanced skills laboratory for hands-on practice and 16 hours of supervised clinical in the work environment assisting with ECG testing. Attendance is mandatory. Course requires a grade of C- or better to pass. Upon successful completion of course, student has the opportunity to test for National Healthcareer Certification. Prerequisite(s): BIOL 154 OR BIOL 225 & BIOL 226. Restricted to Community Colleges campuses only.

#### **NA 111 - Alzheimer/Dementia Care Focus (3 cr.)**

Students will learn respectful care of Alzheimer/Dementia persons while ensuring their dignity, maximizing safe independence focusing on strengths and abilities. Pre/ Prerequisite(s)/Corequisite(s): NA 104 or NA 101. Restricted to: Community Colleges only.

#### **NA 112 - Patient Care Assistant (4 cr. (2+4P))**

This course prepares students to become patient care assistants (certified nursing assistant [CNA]). The course prepares students in the areas of critical thinking, collaboration with healthcare team members and performance of Certified Nursing Assistant skills within acute care units including: out-patient care unit (pre-operative), medical-surgical unit, orthopedic unit, mother-baby (obstetrics) and the mental health inpatient unit. Lab and clinical time will include learning skills in a practice setting with mannequins and in a hospital for acute care skill learning and application. Must pass this course with a C- or better. Corequisite(s): Current Basic Life Support (BLS) for the Health Care Provider (American Heart Association) (BLS certification must remain current through end of course). Prerequisite(s): NA-101 or current State of New Mexico Certified Nursing Assistant (CNA) certificate (CNA certification must remain current through end of course).

#### **NA 115 - Phlebotomist Technician (6 cr. (3+6P))**

Basic theory and skills of phlebotomy following OSHA and Center for Disease Control guidelines. Prepares students for the requirements of testing for the ASCP certification exam and employment in a healthcare organization as a phlebotomist in licensed settings. Laboratory hours include infection control skills practice, patient assessment teaching, and practice in venipuncture. Clinical time includes clinical laboratory processes and operations, patient assessment, venipuncture, and exposure to clinical policies and procedures. Upon successful completion students are workforce ready. Prerequisite(s)/Corequisite(s): OEEM 101. Restricted to Community Colleges campuses only.

#### **NA 204 - Patient Care Technician (4 cr. (3+3P))**

This course will prepare Certified Nursing Assistants (CNAs) to work in the acute care setting through an expansion of their existing basic skill set. Students will acquire expanded acute care skills, critical thinking skills, and knowledge in caring for patients of all ages. Corequisite(s): NA 205. Prerequisite(s): (NA 104, NA 105, NA 109, NA 110, AHS 120, and (BIOL 154 or (BIOL 225 BIOL 226))). Currently CNA certified. Restricted to Community Colleges campuses only.

#### **NA 205 - Patient Care Technicians Practicum (4 cr. (1+9P))**

This course will prepare Certified Nursing Assistants (CNAs) to work in the acute care setting through an expansion of their existing basic skill set. Students will acquire expanded acute care skills, critical thinking skills, and knowledge in caring for patients of all ages. Students will go to acute care settings to practice newly acquired skills. Must have a C or better to pass. Corequisite(s): NA 204. Prerequisite(s): (NA 104, NA 105, NA 109, NA 110, AHS 120, (BIOL 154 or (BIOL 225 BIOL 226))) Currently CNA Certified. Restricted to Community Colleges campuses only.

#### **NA 212 - Medical Assistant Fundamentals (4 cr. (3+3P))**

This course provides the student with entry-level theory and limited hands-on training in basic and routine clinical office tasks. The course will equip the

Medical Assistant (MA) student with the competencies required to perform in a medical office under the direct supervision of a physician. The graduate will be able to assist the physician with physical exams, ECGs, phlebotomy, and minor surgical procedures. Prerequisite(s): (NA 104, NA 105, NA 109, NA 110, AHS 120, (BIOL 154 or (BIOL 225 BIOL 226))). Restricted to Community Colleges campuses only.

### **OEBM - BIOMEDICAL TECHNOLOGY**

#### **OEBM 140 - Applied Human Biology for Biomedical Technology (3 cr.)**

Essential human biology, anatomy, physiology and medical terminology for biomedical equipment technicians. Focus on the vocabulary necessary for effective communication in the hospital environment as part of the health care team. Restricted to: Community Colleges only.

#### **OEBM 141 - Medical Electronics and Safety in Healthcare (3 cr.)**

Introduction to the biomedical equipment technology field. Operation of common biomedical equipment to include pressure and temperature systems, infusion devices, patient monitors, and other physiologic and patient systems. Hospital safety and health regulations explained. Prerequisite(s): OEBM 140. Restricted to Community Colleges campuses only.

#### **OEBM 200 - Biomedical Internship (3 cr. (9P))**

Practice working in industry as a biomedical electronics technologist. Students work on a variety of medical equipment and job tasks. An employer evaluation, student report, and a minimum of 100 work hours are required. May be repeated up to 9 credits. Consent of Instructor required. Prerequisite(s): OEBM 140 and OEBM 141. Restricted to Community Colleges campuses only.

#### **OEBM 210 - Biomedical Clinical (4 cr. (1+9P))**

Clinical experiences to include advanced biomedical equipment maintenance, inventory control, and medical facility and industry standards. Prerequisite(s): OEBM 200. Restricted to Biomedical majors.

#### **OEBM 211 - CBET Exam Preparation (1 cr.)**

An overview of the Certified Biomedical Equipment Technician exam. Topics include anatomy and physiology, electronics principles, safety issues, equipment operation, and equipment troubleshooting. Prerequisite(s)/Corequisite(s): OEBM 241 AND OEBM 240. Restricted to Community Colleges campuses only.

#### **OEBM 240 - Medical Imaging Systems (3 cr.)**

The fundamentals of diagnostic radiography equipment will be explored. Principles of an x-ray system will be explained including the x-ray generation, image formation and film processing. Focus will be on both safety and quality. Prerequisite(s): OEBM 140. Restricted to Community Colleges campuses only.

#### **OEBM 241 - Advanced Medical Electronics (3 cr. (3+1P))**

Advanced study in biomedical equipment to include cardiovascular, pulmonary, telemetry and other critical life support systems. Prerequisite(s): OEBM 141. Restricted to Community Colleges campuses only.

### **OECS - COMPUTER TECHNOLOGY**

#### **OECS 101 - Computer Basics (1 cr.)**

Hands-on instruction to introduce computer use and commonly used software. Graded S/U.

#### **OECS 105 - Introduction to Information Technology (3 cr.)**

Introduction and application of basic information technology skills using personal computers including operating systems, common office application software, and the impact of technology on the economy and society. Restricted to: Community Colleges only.

#### **OECS 110 - Introduction to Power Point (1 cr.)**

An introduction to Power Point software to develop business presentations. Includes concepts of basic presentation methods and graphic design principles. Students will create and deliver presentations using text, charts, digitized images, and sound. Prerequisites: BCIS 110, C S 110, or OECS 105.

#### **OECS 125 - Operating Systems (1-3 cr.)**

Installation, configuration and optimization of current operating systems. Restricted to: Community Colleges only.

**OECS 128 - Operating Systems Linux/Unix (3 cr.)**

Installation, configuration, and use of Linux/Unix operating system software and utilities including hardware management, file management, use of command line, and scripting. Restricted to: Community Colleges only.

**OECS 140 - Introduction to Game Production Industry (3 cr.)**

Students explore the business behind game production, understanding how game companies are organized and funded, positions within the game industry, and what skills game producers need. Prerequisites: Either BCIS 110, C S 110, or OECS 105.

**OECS 141 - Introduction to Interactive Game Programming (3 cr.)**

This introductory programming class reviews the basics of programming, including the object-oriented approach. Students will de-construct existing games, develop their own code, and gain an appreciation for coding strategies. May be repeated for a maximum of 6 credits. Restricted to: Community Colleges Only. Prerequisites: C S 110, BCIS 110, or OECS 105.

**OECS 145 - Mobile Application Development (1-3 cr.)**

An in-depth review of concepts, design strategies, tools and APIs needed to create, test and deploy applications for mobile devices. Topics include: design of mobile user interfaces, application life-cycle, multi-threading, inter-process communication, data persistency, background services, geo-location/mapping, graphics/animation, performance, and security. Restricted to: Community Colleges only.

**OECS 146 - Geographic Information Systems (GIS) Programming (1-3 cr.)**

Introduction to desktop GIS programming with ArcObjects and web-based GIS programming with open-source library, API and public domain GIS services. Topics include GIS programming environment, programming syntax/styles, interface customization, GIS functions and subroutines that can be assembled through programming, open-source GIS package, library, API and services. Restricted to: Community Colleges only.

**OECS 150 - Introduction to Programming Using Visual Basic (4 cr.)**

Introduction to algorithmic problem-solving concepts, structured programming design-oriented application programming interface development. Solutions to problems are implemented using the Visual Basic programming language in the Windows environment, with connection to Access databases as applicable. Prerequisite(s): CS 110, OECS 220, and MATH 120. Restricted to: Community Colleges only.

**OECS 155 - Special Topics - Introductory Computer Technology (.5-4 cr.)**

Topics to be announced in the Schedule of Classes. May be repeated up to 8 credits.

**OECS 159 - Information Technology Ethics (1-3 cr.)**

This course explores the interaction of technology and ethics from both a persona and a professional point of view. Real life case studies are analyzed to identify how people and organizations do or do not act ethically. This course helps better prepare individuals to act ethically when similar situations occur. Restricted to: Community Colleges only.

**OECS 185 - PC Maintenance and Selection I (1-3 cr.)**

Selecting, installing, configuring, troubleshooting, and maintaining microcomputers and peripheral devices. Prerequisites: BCIS 110, C S 110 or OECS 105.

**OECS 192 - C++ Programming I (3 cr.)**

Development of skills in programming using the C++ programming language. Restricted to: Community Colleges only.

**OECS 195 - Java Programming I (1-3 cr.)**

Developing of skills in programming using the Java programming language. Restricted to: Community Colleges only.

**OECS 200 - Accounting on Microcomputers (3 cr.)**

Fundamental accounting principles using popular microcomputer software to include G/L, A/R, A/P, purchase order, billing, inventory, and forecasting modules. Prerequisite: ACCT 252 or BOT 121.

**OECS 203 - UNIX Operating System (1-3 cr.)**

Introduction to the UNIX operating system using Telnet to access a remote UNIX system. Basic UNIX commands and file system concepts. Prerequisite: C S 110, BCIS 110 or OECS 105.

**OECS 204 - Linux Operating System (1-3 cr.)**

Install and configure the Linux operating system on X86 systems. Covers issues involved in maintaining operating system, networking, creating and managing users, and installing and updating software. General procedures for working with operating system includes maintaining disk space, preserving system security, and other related topics. Prerequisite: C S 110, BCIS 110 or OECS 105.

**OECS 205 - Advanced Operating Systems: Administration (3 cr.)**

Examines operating systems designed for PC, minicomputers and mainframes. Covers maintaining operating systems, creating and managing users, and installing and updating software. General procedures for working with operating systems will include maintaining disk space, preserving system security, providing mail services, among other topics. Prerequisite: OECS 128. May be repeated for a maximum of 6 credits.

**OECS 207 - Windows (.5-3 cr.)**

Installation, configuration, and maintenance of Windows. May be repeated for a maximum of 6 credits under different subtitles listed in the Schedule of Classes. May be repeated up to 6 credits. Prerequisite(s): OECS 105 or BCIS 110 or CS 110G or consent of instructor. Restricted to: Community Colleges only.

**OECS 208 - Internet Applications (1-3 cr.)**

Survey of the Internet to include e-mail, file transfer, current search techniques, the World Wide Web and basic Web page development. Prerequisite: C S 110G, BCIS 110 or OECS 105. May be repeated for a maximum of 6 credits.

**OECS 209 - Computer Graphic Arts (1-3 cr.)**

Basic graphics composition using computer programs to include editing and manipulating graphic images, clip-art, and printing of pictures. Prerequisite: OECS 105, C S 110, or OECS 101. May be repeated for a maximum of 6 credits under different subtitles listed in the Schedule of Classes.

**OECS 211 - Word Processing Applications (1-3 cr.)**

Basic word processing to include composing, editing, formatting, and printing of documents. Prerequisites: C S 110, BCIS 110 or OECS 105. May be repeated under different subtitles listed in the Schedule of Classes for a maximum of 6 credits.

**OECS 213 - Image Processing (1 cr.)**

Introduction to digital imaging acquisition and editing. Use of digital cameras and computer graphic software for business and personal use. Prerequisites: C S 110, BCIS 110 or OECS 105. Graded S/U.

**OECS 214 - Creating a Web Page (1 cr.)**

Introduction to creating Web pages for business and personal use. Prerequisites: C S 110, BCIS 110 or OECS 105. Graded S/U.

**OECS 215 - Spreadsheet Applications (1-3 cr.)**

Use of spreadsheets to include graphics and business applications. Prerequisites: C S 110, BCIS 110 or OECS 105. May be repeated for a maximum of 6 credits.

**OECS 216 - Programming for the Web (3 cr.)**

Designing web-based applications using appropriate programming language(s) such as, but not limited to HTML, PHP, MySQL, SQL, Java, Perl, C or C++. May be repeated up to 6 credits. Prerequisite(s): One semester of any programming course. Restricted to: Community Colleges only.

**OECS 220 - Database Application and Design (1-3 cr.)**

Creating, sorting, and searching of single and multifile databases to include report generation and programming database commands. May be repeated for a maximum of 6 credits under different subtitles listed in the Schedule of Classes. Prerequisite(s): C S 110 OR BCIS 110 OR E T 120 OR E T 122 OR OECS 105. Restricted to: Community Colleges only.

**OECS 221 - Internship I (1-3 cr.)**

Work experience that directly relates to a student's major field of study that provides the student an opportunity to explore career paths and apply knowledge

and theory learned in the classroom. Internships may be paid or unpaid. Students are supervised/evaluated by both the employer and the instructor. May be repeated up to 3 credits. Consent of Instructor required. Prerequisite(s): Consent of instructor. Restricted to: OECS majors. S/U Grading (S/U, Audit). Restricted to Community Colleges campuses only.

**OECS 222 - Internship II (1-3 cr.)**

Continuation of OECS 221. Each credit requires specified number of hours of on-the-job work experience. May be repeated up to 3 credits. Consent of Instructor required. Prerequisite(s): OECS 221 and consent of instructor. Restricted to: OECS majors. S/U Grading (S/U, Audit). Restricted to Community Colleges campuses only.

**OECS 227 - Computer Applications for Technicians (3 cr.)**

Computer applications for service technicians in various disciplines. Hardware and software applications explored. Includes operating systems, high level programming, and networking hardware and software.

**OECS 230 - Data Communications and Networks I (1-3 cr.)**

Definition of data communication; survey of hardware applications and teleprocessor software; examination and design of networks. Prerequisite: OECS 185. May be repeated for a maximum of 6 credits.

**OECS 231 - Data Communications and Networks II (1-3 cr.)**

Installation and application of popular microcomputer network software. Prerequisite: OECS 230. May be repeated for a maximum of 6 credits.

**OECS 232 - Implementing and Supporting Networks I (3 cr.)**

Knowledge and skills relating to post-installation and day-to-day administration tasks in a single-domain or multiple-domain network. Prerequisite: OECS 230 or OECS 261.

**OECS 233 - Implementing and Supporting Networks II (1-3 cr.)**

Implementation, administration, and troubleshooting networks in an enterprise computing environment to include multiple servers, domain and sophisticated server applications. Prerequisite: OECS 232.

**234 - Linux Server**

This course addresses the implementation and support needs of IT professionals that are planning to deploy and support Linux Server(s). It provides in-depth, hands-on training for planning, implementation, management and support of Linux networking services. May be repeated up to 6 credits. Prerequisite(s): OECS 128, OECS 203 or OECS 204.

**OECS 235 - Structured Query Language (SQL) (1-3 cr.)**

Installation, configuration, administration, and troubleshooting of SQL client/server database management system. Prerequisite: OECS 185, OECS 207, OECS 230 or OECS 261.

**OECS 237 - Windows Server (3 cr.)**

This course addresses the implementation and support needs of IT professionals that are planning to deploy and support Microsoft Windows Server Active Directory Domain Services in medium to large businesses. It provides in-depth, hands-on training for Information Technology (IT) professionals responsible for the planning, implementation, management, and support of Windows Active Directory services. Prerequisite(s): OECS 207. Restricted to: Community Colleges only.

**OECS 238 - Configuring Windows Server Network Infrastructure (3 cr.)**

This course addresses the knowledge and skills related to configuration of the network infrastructure in medium to large sized companies. Among the knowledge/skill areas covered are: DHCP, DNS, network access, file print services and windows server update services. Prerequisite(s): OECS 237. Restricted to: Community Colleges only.

**OECS 245 - Game Programming I (3 cr.)**

Development of programming skills for games and animation using current programming languages and tools. May be repeated for a maximum of 6 credits. Prerequisite: consent of instructor.

**OECS 250 - Systems Analysis and Design I (3 cr.)**

Analysis, configuration, design and testing of organizations' work flow as it relates to hardware, software, data, procedures and personnel. Systems Life Cycle approach matching end users' needs to feasible financial, technical and operational solutions. Prerequisite(s): OECS 220. Restricted to Community Colleges campuses only.

**OECS 251 - Systems Analysis and Design II (3 cr.)**

Continuation of OECS 250. Prerequisite(s): OECS 250. Restricted to: Community Colleges only.

**OECS 252 - Project Management (3 cr.)**

Utilization of project management software to establish, control and coordinate timelines, budgets, and work teams. Introduction to methods and principles of oriented project management emphasizing team-based performance.

**OECS 255 - Special Topics (1-4 cr.)**

Topics to be announced in the Schedule of Classes.

**OECS 260 - Hypertext Markup Language (HTML) (1-3 cr.)**

Coverage of HTML as used for web-page development for Internet and Intranet. Text manipulation, graphics, hypertext links, lists, and tables. Prerequisite: C S 110, BCIS 110 or OECS 105. May be repeated for a maximum of 3 credits.

**OECS 261 - Introduction to Networks (4 cr.)**

Introduction to networking principles including the practical and conceptual skills for understanding basic networking, planning and designing networks, implementing IP addressing schemes, examining the OSI and TCP/IP layers, and performing basic configurations for routers and switches. Aligns to the first course of the Cisco Networking Academy CCNA curriculum. Prerequisite(s): C S 110G, BCIS 110G, OECS 105, or E T 120. Restricted to Community Colleges campuses only.

**OECS 262 - Essentials of Routing and Switching (4 cr.)**

Examination of the architecture, components, and operations of routers and switches in a small network. Student will learn how to configure, verify and troubleshoot: routers and switches, static routing, default routing, VLANs, and ACLs. Aligns to the second course of the Cisco Networking Academy CCNA curriculum. Prerequisite(s): OECS 261. Restricted to: Community Colleges only.

**OECS 263 - Network Fundamentals (4 cr.)**

Fundamentals of networking architecture, components, and operations including practical and conceptual skills using routers and switches. Student will learn how to configure, verify and troubleshoot static routing, default routing, VLANs, and ACLs. This course aligns to the third course of the Cisco Networking Academy CCNA curriculum. Prerequisite(s): OECS 262. Restricted to: Community Colleges only.

**OECS 264 - Network Routing Protocols (4 cr.)**

Fundamentals of routing protocols for troubleshooting advanced network operations. Covers common networking issues such as RIP, OSPF, and EIGRP for IPv4 and IPv6 networks. This course aligns to the fourth course of the Cisco Networking Academy CCNA curriculum. Prerequisite(s): OECS 263. Restricted to: Community Colleges only.

**OECS 269 - Network Security (3 cr.)**

Fundamentals of design and implementation of network security solutions that will reduce the risk of system vulnerability. Prerequisite(s): OECS 207 or OECS 261 or consent of instructor. Restricted to: Community Colleges only.

**OECS 272 - Introduction to Bioinformatics Research (3 cr.)**

Bioinformatics is the intersection of computer science and molecular biology. It is the science of informatics as applied to biological research. This course develops the understanding of genomics research techniques and how large amounts of complex data is managed. This research based class is designed to introduce skills necessary to enter this high demanding field of study. Prerequisite(s): BCIS 110, or C S 110, or OECS 105. Restricted to: Community Colleges only.

**OECS 275 - PC Maintenance and Selection II (1-3 cr.)**

Continuation of OECS 185. Prerequisite: OECS 185. May be repeated for a maximum of 6 credits.

**OECS 280 - Desktop Publishing I (3 cr.)**

Design and production of publication materials to fill the needs of business communities, using a microcomputer. Prerequisites: either BCIS 110, C S 110, OECS 105. May be repeated for a maximum of 6 credits. Same as BOT 280.

**OECS 285 - Fundamentals of Multimedia Applications (1-3 cr.)**

Fundamentals of designing video, audio and web-based multimedia presentations for business and technical needs. Restricted to: Community Colleges only.

**OECS 290 - Computer Technology Capstone (1-3 cr.)**

Refines skills learned in the OECS program. Culminates in a review and practice of advanced software applications. May be repeated up to 3 credits. Prerequisite(s): (OECS 125, OECS 128, OECS 207, OR OECS 203) AND (OECS 185 OR ET 283). Restricted to: OECS OECT majors. Restricted to Community Colleges campuses only.

**OECS 299 - Independent Study (1-3 cr.)**

Specific subjects to be determined based on need. DAS Occupational Education, Dental Assisting. Restricted to: Community Colleges only.

**OEEM - PARAMEDIC****OEEM 101 - CPR for the Health Care Professional (1 cr.)**

Students learn identification and response to airway and circulation emergencies, including use of a SAED and accessing the EMS system. This course is taught using the American Heart Association guidelines for course completion. Required: grade of C- or better.

**OEEM 102 - CPR for the Health Care Professional - Renewal Care (1 cr.)**

A comprehensive review of the CPR course for those who are already certified at the professional level. Includes the American Heart Association requirements for CPR course completion renewal. Prerequisite: OEEM 101 or consent of instructor. May be repeated for unlimited credit. Required: grade of C- or better.

**OEEM 103 - Heartsaver First Aid/CPR (1 cr.)**

Students learn how to identify and respond to airway, circulation and basic first aid emergencies, to include using a SAED and accessing the EMS system. This course is intended for students who are not Allied Health Majors and utilizes the American Heart Association guidelines for course completion. Restricted to: Community Colleges only.

**OEEM 105 - Vehicle Extrication Course (2 cr.)**

Assessment and psychomotor skills required to perform motor vehicle extrication at the scene of an accident. Taught using the NM Fire Academy guidelines for motor vehicle extrication course completion. Graded S/U.

**OEEM 106 - Advanced First Aid (2 cr.)**

Theory and advanced first aid skills taught emphasizing recognition and providing care for injury or sudden illness until professional medical help arrives. Course meets and/or exceeds the Red Cross or National Safety Council standards. Corequisite: OEEM 101 or consent of instructor.

**OEEM 115 - First Responder Prehospital Professional (3 cr. (2+3P))**

Provides training in prehospital medical and traumatic emergencies. Prerequisite: consent of instructor. Corequisite: OEEM 101. Requires a C or better to pass. Restricted to majors.

**OEEM 118 - Spanish for the EMS Provider (2 cr. (1+3P))**

Intensive elementary Spanish with emphasis on developing communicative skills: listening and speaking for students in emergency medical services. Students will focus on mastering vocabulary for selected situations common to EMS, with limited reading and writing practice emphasizing correct pronunciation. EMS scenarios will be an important part of class participation. Restricted to: Community Colleges only.

**OEEM 120 - Emergency Medical Technician Basic (6 cr.)**

EMT-Basic skills to include care of soft tissue and muscular/skeletal injuries, circulatory, nervous, general medical and respiratory emergencies. Requires a

C- or better to pass. Corequisite(s): OEEM 101, OEEM 120 L, OEEM 121 or consent of instructor. Prerequisite(s)/Corequisite(s): BIOL 154. Restricted to Community Colleges campuses only.

**OEEM 120 L - Emergency Medical Technician Basic Lab (2 cr. (6P))**

EMT-Basic skills development with emphasis on assessment, skills competency and team-work in patient care in the prehospital setting. Corequisites: OEEM 101 or OEEM 120, and OEEM 121, or consent of instructor. Requires a C- or better to pass.

**OEEM 121 - Emergency Medical Technician Basic Field/Clinical (1 cr. (3P))**

Covers the patient care experience provided through assigned shifts in the hospital and/or ambulance setting. Corequisites: OEEM 101, OEEM 120, and OEEM 120 L, or consent of instructor. Requires a C- or better to pass.

**OEEM 122 - Emergency Medical Technician Basic Advanced Field/Internship (2 cr. (6P))**

Expanded patient care experience provided through practical scenarios, assigned shifts in the hospital and/or ambulance setting. Prerequisite: current EMT-basic license and consent of instructor. Requires a C- or better to pass.

**OEEM 150 - Emergency Medical Technician Intermediate (5 cr.)**

Theory of the roles, responsibilities and scope of practice of the EMT-Intermediate. Assessment and management of respiratory, cardiac, trauma, environmental, behavior, reproduction, and childhood emergencies. Prerequisites: current EMT-basic license, pretest and consent of instructor. Corequisites: OEEM 150 L and OEEM 151. Requires a C- or better to pass.

**OEEM 150 L - Emergency Medical Technician Intermediate Lab (2 cr. (6P))**

EMT-Intermediate skills development with an emphasis on assessment, skills competency, and team work in patient care in the prehospital setting. Requires a C- or better to pass. Corequisite(s): OEEM 150 and OEEM 151. Restricted to: Community Colleges only.

**OEEM 151 - Emergency Medical Technician Intermediate Field/Clinical (2 cr. (6P))**

Patient care experience provided through assigned shifts in the hospital and/or ambulance setting. Prerequisite: consent of instructor. Corequisites: OEEM 150 and OEEM 150 L. Requires a C- or better to pass.

**OEEM 152 - Emergency Medical Technician-Intermediate Advanced Field/ Internship (2 cr. (6P))**

Expanded patient care experience provided through practical scenarios, assigned shifts in the hospital and/or ambulance setting. Prerequisites: current EMT-I license and consent of instructor. Requires a C- or better to pass.

**OEEM 153 - Introduction to Anatomy and Physiology for the EMS Provider (3 cr.)**

To properly assess and manage a patient, a prehospital provider must have a solid foundation in human anatomy and physiology. This course provides a systematic approach to building this foundation. Grade of C- or better is required to pass the course. Consent of Instructor required. Restricted to Community Colleges campuses only.

**OEEM 155 - Special Topics (1-6 cr.)**

Specific topics to be listed in Schedule of Classes. May be repeated for a maximum of 10 credits.

**OEEM 158 - Emergency Medical Technician-Combination Refresher (2 cr.)**

A comprehensive review of prehospital medicine for the prehospital care provider from the first responder level through the EMT Intermediate. New material relevant to recertification of the New Mexico First Responder, EMT Basic and EMT Intermediate licensure included. Graded S/U.

**OEEM 177 - Emergency Medical Services Instructor (4 cr.)**

Theory of student learning, methodology, instructional components, evaluation, and course coordination for the EMS profession. Prerequisite: consent of instructor. Restricted to majors. Requires a C- or better to pass.

**OEEM 201 - Human Pathophysiology (3 cr. (2+3P))**

Overview of anatomy and physiology. Emphasis on human body pathophysiology including a medical illness component. Prerequisite(s): OEEM 120. Restricted to Community Colleges campuses only.

**OEEM 202 - EMT-Paramedic I Respiratory Emergencies (3 cr. (2+3P))**

Review anatomy, physiology and pathophysiology of the respiratory system. Assessment and management of respiratory emergencies and acute respiratory failure in the prehospital setting. Prerequisites: consent of instructor. Restricted to majors. Requires a C- or better to pass.

**OEEM 203 - EMT-Paramedic II Trauma Emergencies (3 cr. (2+3P))**

Study of the effects of trauma on the human body. Assessment and management of trauma patients and scenes, including vehicular extrication. Prerequisites: OEEM 202 and consent of instructor. Restricted to majors. Requires a C or better to pass.

**OEEM 206 - Introduction to Advanced Prehospital Care (3 cr. (2+3P))**

Overview of prehospital care including roles and responsibilities of EMT-P, EMS systems, medical, legal, ethical issues, stress management, medical terminology, medical report writing and communication. Includes ride-along with ambulance and dispatch observation. Requires a C- or better to pass. Restricted to majors. Consent of instructor required. Prerequisite(s): OEEM 120. Restricted to: Community Colleges only. Restricted to OEEM majors.

**OEEM 207 - Introduction to Pharmacology (3 cr. (2+3P))**

Drug actions, factors modifying drugs and dosages: characteristics of drug effects, and drug history and dosages. Prehospital protocol, transport, and common patient prescription medications. Restricted to majors. Requires a C- or better to pass. Prerequisite(s): OEEM 120. Restricted to: Community Colleges only. Restricted to OEEM majors.

**OEEM 210 - Cardiac Rhythm Interpretation (3 cr. (2+3P))**

Cardiac conduction system: electrophysiology, electrocardiogram, monitor, atrial, sinus, ventricular and junctional dysrhythmias, multiple lead EKG and 12 lead EKG interpretation. Prerequisites: OEEM 203, OEEM 230 and OEEM 240. Requires a C- or better to pass.

**OEEM 212 - EMT-Paramedic Cardiovascular Emergencies (3 cr. (2+3P))**

Review anatomy, physiology, and pathophysiology of cardiovascular system. Assessment and management of cardiovascular emergencies in the prehospital setting. Prerequisites: second semester standing in EMS program and consent of instructor. Requires a C- or better to pass.

**OEEM 213 - EMT-Paramedic: Medical Emergencies I (3 cr. (2+3P))**

Study of the disease process; assessment and management of neurological, endocrine, gastrointestinal, renal emergencies and infectious disease. Prerequisites: OEEM 212, OEEM 230 and OEEM 240. Requires a C- or better to pass.

**OEEM 214 - EMT-Paramedic: Medical Environmental Emergencies II (3 cr. (2+3P))**

Study of disease process, assessment, and management of poisoning, drug and alcohol abuse, environmental, behavioral and geriatric emergencies. Prerequisites: OEEM 213, OEEM 230 and OEEM 240. Requires a C- or better to pass.

**OEEM 216 - EMT-Paramedic: Reproductive and Childhood Emergencies (3 cr. (2+3P))**

Covers anatomy, physiology, disease processes, assessment and management of male and female reproductive system emergencies, childhood emergencies and growth and development. Restricted to majors. Requires a C- or better to pass. Prerequisite(s): OEEM 214 and consent of instructor. Restricted to: Community Colleges only.

**OEEM 218 - Pediatric Advance Life Support for the Healthcare Professional (1 cr.)**

Identify and respond to life threatening pediatric emergencies. Taught using the American Heart Association guidelines for course completion. Prerequisite: OEEM 101. Graded S/U.

**OEEM 219 - Advance Cardiac Life Support for the Healthcare Provider (1 cr.)**

Identify and respond to life threatening cardiac emergencies. Taught using the American Heart Association guidelines for course completion. Prerequisite: OEEM 101. Graded S/U.

**OEEM 230 - EMT-Paramedic Clinical Experience I (3 cr. (9P))**

Assigned clinical experiences in patient assessment and specific management techniques. Successful completion includes minimum required hours and completion of course objectives. Prerequisite: consent of instructor. Restricted to majors. Requires a C- or better to pass.

**OEEM 231 - EMT-Paramedic Clinical Experience II (3 cr. (9P))**

Assigned clinical experiences in patient assessment and specific management techniques. Successful completion includes minimum required hours and completion of course objectives. Prerequisites: OEEM 230 and consent of instructor. Restricted to majors. Requires a C- or better to pass.

**OEEM 240 - EMT-Paramedic Field Experience I (3 cr. (9P))**

Advanced prehospital skills and knowledge. Successful completion of at least the minimum required hours and course objectives. Prerequisite: consent of instructor. Restricted to majors. Requires a C- or better to pass.

**OEEM 241 - EMT-Paramedic Field Internship I (3 cr. (9P))**

Continued focus on advanced prehospital skills and knowledge, with increasing responsibility for patient care. Successful completion includes meeting at least the minimum required hours and course objectives. Prerequisites: OEEM 240 and consent of instructor. Restricted to majors. Requires a C- or better to pass.

**OEEM 242 - EMT-Paramedic Field Internship II (3 cr. (9P))**

Emphasis on total patient care responsibility and team leadership skills. Successful completion includes meeting the minimum hours required and course objectives. Prerequisites: second semester completion in EMS program, OEEM 241, and consent of instructor. Restricted to majors. Requires a C- or better to pass.

**OEEM 243 - EMT-Paramedic Preparation for Practice (2 cr.)**

Comprehensive final program testing to prepare for licensing examination. Prerequisites: OEEM 216 and OEEM 242. Restricted to majors. Requires a C- or better to pass.

**OEEM 247 - Emergency Medical Technician - Paramedic Refresher (2 cr. (1+3P))**

A comprehensive review of prehospital emergency medicine for the EMT Paramedic. New material relevant to recertification of the New Mexico and Nationally Registered Paramedic licensure. Graded S/U.

**OEEM 253 - Critical Care Emergency Medical Transport Program (6 cr. (5+6P))**

This course will provide further education to Paramedics, Registered Nurses and Registered Respiratory Therapists who wish to function as part of a critical care transport team. Consent of instructor required. Prerequisite(s): Licensed Paramedic, Registered Nurse or Registered Respiratory Therapist with one or more years experience. Restricted to: Community Colleges only.

**OEEM 254 - Pediatric & Neonatal Critical Care Transport (5 cr. (4+3P))**

This course is designed to prepare paramedics, nurses and respiratory therapists to function as members of a pediatric and neonatal critical care transport team. Consent of instructor required. Prerequisite(s): Licensed Paramedic, Registered Nurse or Registered Respiratory Therapist with one or more years experience. Restricted to: Community Colleges only.

**OEEM 290 - Independent Study (1-3 cr.)**

Individual studies directed by a consenting faculty member and prior approval of the department head. Prerequisite: OEEM 150 and consent of instructor. May be repeated for a maximum of 6 credits. Requires a C- or better to pass.

**OJET - ELECTRICAL TRADES****OJET 110 - Basic Electricity and Electronics (4 cr. (3+3P))**

An introduction to electricity theory and practice, including electron theory, Ohm's law, construction of electrical circuits, direct and alternating currents, magnetism, transformers, and practical applications. Same as HVAC 102, ELT 105, OEPB 102.

**OJET 112 - Math Study Skills for Electrical (1 cr.)**

Covers specific math study skills and critical thinking processes to reinforce practical uses of math relating to electrical apprenticeship applications. The student will be introduced to electrical mathematical formulas during the problem-solving steps required for electrical circuit design and analysis. May be repeated up to 4 credits. Prerequisite(s)/Corequisite(s): OJET 151 OR OJET 152. Restricted to: Community Colleges only.

**OJET 115 - Wiring Methods and Materials (5 cr. (2+6P))**

Application of electrical code in selection of wiring materials; proper methods of installation. Corequisite: OJET 110 or consent of instructor.

**OJET 118 - Math for Electricians (3 cr.)**

Prerequisite: CCDM 103N. Same as BCT 118, DRFT 118, OEPB 118.

**OJET 120 - Basic Motor Controls (5 cr. (2+6P))**

Developing schematics and wiring simple manual and electromechanical control devices. Prerequisite: OJET 110 or consent of instructor.

**OJET 130 - Introduction to Electrical Power Systems (2 cr.)**

An overview of electrical power systems, equipment, safety practices, first aid and CPR. Prerequisite: acceptance into the electrical lineworker program. Corequisite: OJET 110 and OJET 131. Restricted to majors.

**OJET 131 - Electrical Lineworker Lab I (6 cr. (12P))**

Climbing and work on utility poles using ropes and rigging, pole setting and an introduction to transmission and distribution line construction. Maintenance and troubleshooting to include the use of hot sticks. Prerequisite: acceptance into the electrical lineworker program. Corequisite: OJET 110 and OJET 130. Restricted to majors.

**OJET 140 - Electrical Power Systems II (3 cr. (2+2P))**

Theory of power generation and distribution with emphasis on three phase systems to include transformers, voltage regulators, surge arrestors. Includes troubleshooting. Prerequisites: acceptance into the electrical lineworker program and OJET 130. Corequisite: OJET 141. Restricted to majors.

**OJET 141 - Electrical Lineworker II (6 cr. (12P))**

Practice in the installation of electrical power lines including transformers, voltage regulators, and surge arrestors. Also advanced hot sticking procedures, troubleshooting, underground systems procedures, and pole-top rescue. Prerequisites: Acceptance into the lineworker program and OJET 131. Corequisite: OJET 140. Restricted to: Community Colleges only.

**OJET 151 - Electrical Apprenticeship I (6 cr.)**

Apprenticeship responsibilities and benefits as well as first aid and CPR will be covered. Hand tools, electrical theory, and the regulations imposed by national codes and OSHA. Students will apply theory taught in their jobs. Prerequisite: consent of instructor.

**OJET 152 - Electrical Apprenticeship II (6 cr.)**

OHM's law circuit sizing and service panel sizing will be covered in detail. Other topics include low voltage systems, heating and air conditioning circuits, alarm systems and smoke detectors. Prerequisites: OJET 151 and consent of instructor.

**OJET 153 - Electrical Apprenticeship III (6 cr.)**

Various electrical measuring devices will be covered in detail. Inductance, transformers, capacitance, and simple motors will be studied. Prerequisites: OJET 152 and consent of instructor.

**OJET 154 - Electrical Apprenticeship IV (6 cr.)**

Theory and application of three-phase transformers and autotransformers. Electrical distribution using switchboards, panelboards, and circuit breakers. Prerequisites: OJET 153 and consent of instructor.

**OJET 162 - Structured Cabling Systems II (5 cr.)**

Installation and testing of optical fiber cabling systems including connecting, terminating, splicing and testing of fiber cables. An introduction to networking and telephone systems, grounding, firestopping, and blueprint reading is also included. Restricted to: Community Colleges only.

**OJET 205 - National Electric Code (3 cr.)**

Interpretation and application of the National Electric Code. Prerequisite: OJET 110.

**OJET 210 - Intermediate Electricity (5 cr. (3+4P))**

Introduction to inductance, capacitance, reactances, and power factor correction. Prerequisite: OJET 110.

**OJET 221 - Cooperative Experience I (1-4 cr.)**

Supervised cooperative work program. Student is employed in an approved occupation and is supervised and rated by the employer and instructor. Student will meet in a weekly class. Graded S/U. Prerequisite: consent of instructor.

**OJET 251 - Electrical Apprenticeship V (6 cr.)**

Commercial/industrial applications for electricians. Blueprint interpretation, commercial construction types and processes, wiring methods, wiring materials, and motor controls. Prerequisites: OJET 154 and consent of instructor.

**OJET 252 - Electrical Apprenticeship VI (6 cr.)**

In-depth commercial applications to include commercial/industrial service calculations, mobile home parks, multi-family dwellings, and commercial fire/security systems. Prerequisites: OJET 251 and consent of instructor.

**OJET 253 - Electrical Apprenticeship VII (6 cr.)**

Control devices in commercial/industrial applications; emphasis on logic in-line diagrams, time delay starters, reversing starters, and manual/magnetic solenoids. Prerequisites: OJET 252 and consent of instructor.

**OJET 254 - Electrical Apprenticeship VIII (6 cr.)**

Miscellaneous topics for the journeyman electrician to include power distribution/transmission, solid state controls and relays, photoelectric and proximity controls and programmable controllers. Prerequisites: OJET 253 and consent of instructor.

**OJET 295 - Special Topics (1-6 cr.)**

Topics to be announced in the Schedule of Classes.

**OEGR - DIGITAL GRAPHIC****OEGR 108 - Introduction to Media Technologies (1-3 cr.)**

Introduction to various media technologies. Restricted to: Community Colleges only. Crosslisted with: CMT 108

**OEGR 221 - Cooperative Experience I (1-3 cr.)**

Student employed in approved work site; supervised and rated by employer and instructor. Each credit requires specified number of hours of on-the-job work experience. Prerequisite: consent of instructor. Restricted to majors. Graded S/U.

**OEGR 230 - Web Page Development I (3 cr. (2+2P))**

Creating and managing well-designed, organized Web sites using HTML and Web development software. Prerequisite(s): C S 110G or OECS 101 or OEGR 160. Restricted to: Community Colleges only. Crosslisted with: CMT 230

**OEGS - GEOGRAPHIC INFORMATION SYSTEMS****OEGS 181 - Principles of Geographic Information Systems (4 cr. (3+3P))**

Introduction to GIS using ArcView software. Application of GIS to environmental assessment, analysis of natural hazards, site analysis, resource management, land use planning, and other practical applications. Prerequisite(s)/Corequisite(s): C S 110. Restricted to Community Colleges campuses only.

**OEGS 187 - GIS Data Acquisition and Management (4 cr. (3+3P))**

An introduction to defining data needs and evaluating whether a given dataset matches those needs. Students will explore some common geographic data formats used in ArcGIS and learn about sources of data and maps that can be incorporated into a GIS project. The student will learn the advanced functionality



and versatility of using geodatabases. The student will demonstrate how to design and build a geodatabase, migrate existing data to a geodatabase and edit data stored in a geodatabase. Methods for georeferencing scanned maps, aerial photos and computer aided drafting files will be explored and discussed. Prerequisite(s): OEGS 181. Restricted to Community Colleges campuses only.

**OEGS 231 - Introduction to GIS Spatial Analysis (3 cr. (2+3P))**

This course aims to provide students with the knowledge and skills necessary to investigate the spatial patterns which result from social and physical processes operating on or near the Earth's surface. Essential theoretical concepts of quantitative geography are examined, including measures of geographical distribution (including point and areal pattern analysis) and spatial autocorrelation, interpolation and network connectivity. Students will also be introduced to ArcView (online GIS) and the open source programs such as QGIS and GRASS. Prerequisite(s): OEGS 187. Restricted to Community Colleges campuses only.

**OEMN - FACILITY MAINTENANCE TECH**

**OEMN 210 - Electrical Systems Troubleshooting and Repair (4 cr. (3+2P))**

Hands-on experience in electrical systems maintenance and repair. Use of V.O.M., electrical safety, codes and standards; motors, cable and wire types, and grounding. Prerequisite: HVAC 102 or consent of instructor.

**OEMN 250 - Mechanical Maintenance I (3 cr. (2+2P))**

Introduction to bearings, installation, removal and troubleshooting bearings; installing couplings and coupling removal procedures; belt and chain drives; function and installation of mechanical seals, gaskets, and packing. Prerequisite: OEMN 105 or consent of instructor.

**OEMN 290 - Special Topics in Facilities Maintenance (1-5 cr.)**

Topics to be announced in the Schedule of Classes. Prerequisite: consent of instructor.

**OEPS - PUBLIC SAFETY**

**OEPS 104 - Role of Security Guard (3 cr.)**

This is an introductory level course covering a brief history of law enforcement and security and how they evolved into modern day applications and legal framework. Course covers the legal requirements and authority of a security guard within the state of New Mexico and provides an introduction into constitutional law and its interrelation with the duties of a security guard.

**OEPS 105 - Interview Skills, Evidence, Assesses (3 cr.)**

The student will have a fundamental understanding of how people behave, and the specific processes for effective interpersonal relationships. Basic concept of interviewing suspects is included. Identification and preservation of evidence; to include scene safety and stabilization, and the establishment of the initial crime scene. It will provide basic understanding and introduction to Maslow's hierarchy of needs and the theoretical interrelation with suspect behavior and aggression. It will cover professional deportment and interview skills and legal precedence and an introduction to Risk analysis and its application within the private security field.

**OEPS 106 - Chain of Command (3 cr.)**

The recognition of the chain of command within the work place and the NIMS and ICS systems. The course will introduce the following: Basic report writing with the criminal justice setting and the use of field notes; the use of force model and provide a cursory explanation of the concepts of 'use of force' and 'de-escalation' of force as well as case examples of excessive force; laws of search and seizure within the private security profession and define appropriate guidelines for public interaction within the scope of their duty.

**OEPS 107 - Court Room Ethics and Demeanor (3 cr.)**

This course is a general overview of the US Judicial system and provides for an understanding of the workings of the judicial system. It provides students with a cursory explanation of courtroom etiquette and preparation. It provides the student with an understanding and knowledge of the requirements of a security guard and the prohibited acts within the state of New Mexico and their responsibilities to maintain their professional certification.

**OEPS 108 - CPR First Aid (3 cr.)**

Emphasis on patient rights and the responsibilities of a trained officer when called upon to perform emergency aid. Proper techniques for administering CPR or first aid for security officers. It covers the BLS CPR course and the American Heart First aid course and provides for certification of each.

**OEPS 150 - Correctional Officer Training I (4 cr. (2+4P))**

Introduction to corrections, departmental policies and procedures, report writing, officer safety, and physical conditioning. Prerequisite: consent of instructor. Restricted to majors.

**OEPS 180 - Correctional Officer Training II (4 cr. (2+4P))**

Criminal justice system, communications, ethics, correctional law and responsibilities, search procedures, hostage situations, institutional gangs. Prerequisite: consent of instructor. Restricted to majors OEPS 195.

**OEPS 250 - Correctional Officer Training III (4 cr. (2+4P))**

Use of force, firearms, baton, chemical agents, standard first aid, and CPR. Prerequisite: consent of instructor. Restricted to majors.

**OEPS 280 - Correctional Officer Training IV (4 cr. (2+4P))**

Stress management, supervision of special needs offender, defensive driving, preparation for certifying exams. Prerequisite: consent of instructor. Restricted to majors.

**OEPT - PHOTOGRAPHIC TRADES**

**OEPT 100 - Photographics I (3 cr. (2+2P))**

Covers basic black and white photographic techniques. Emphasizes black and white film and paper handling, film processing, proof printing, projection print, and print finishing. Adjustable camera required. Same as ART 270.

**OEPT 120 - Photo Finishing and Presentation (2 cr. (1+2P))**

Use of visual language for personal expression. Freelance photography; care of original photos; preparation of portfolios, photographic markets, exhibitions and judging, galleries and copyrights. Students will prepare a photographic portfolio. Prerequisite(s): CMT 115. Restricted to: Community Colleges only.

**OEPT 150 - Color Photography I (3 cr. (2+2P))**

Color theory and principles with emphasis on film, exposure, color balance, filtration, and digital output. Visual language of color products introduced. Work with positive film. Work with digital output using Adobe Photoshop. Prerequisite(s): OEPT 100 or consent of instructor. Restricted to: Alamogordo campus, Carlsbad campus, Dona Ana campus, Grants campus.

**OEPT 155 - Portraiture (3 cr. (2+2P))**

Hands-on study of professional photography involving people. Studio and environmental portraits, fashion/glamour, and wedding photography. Studio and exterior lighting techniques, selecting lighting equipment, film and supplies. Prerequisite(s): ART 270 or CMT 115. Restricted to: Community Colleges only.

**OEPT 190 - Photographic Practicum I (2 cr. (1+2P))**

Self-paced instruction to include production, display of work in a simulated self-employed situation. Students must record maintenance, cost expenditures, shooting records, and sequence boards for presentation. Prerequisite(s): OEPT 100 OR CMT 115. Restricted to: Community Colleges only.

**OEPT 192 - Photocommunications (2 cr. (1+2P))**

Human interest, events, documentation, publications, and advertising. Emphasis on equipment, darkroom writing, legal aspects, and visual communication skills. Prerequisite(s): CMT 115. Restricted to: Community Colleges only.

**OEPT 290 - Internship (3 cr. (1+4P))**

Supervised internship program. Student will work for an approved business in his/her area of study. Student will be rated by business supervisor and instructor. Weekly meetings required with instructor. Consent of instructor required. Graded: S/U.

**OETS - TECHNICAL STUDIES****OETS 100 - Industrial/Construction Safety (2 cr.)**

Covers safety issues such as PPE, BBP, ladder safety,, RTK, HazCom, MSDS and information about safety organizations such as OSHA, NIOSH, NFPA, National Safety Council. Community Colleges only. Restricted to Dona Ana and Carlsbad campuses.

**OETS 101 - Energy for the Next Generation (3 cr. (2+2P))**

This course will survey a broad range of sources of energy, types of energy, energy storage, and the forms of energy. Students will be exposed to theory in the classroom, laboratory exercises, and field trips to provide them with a solid foundation for all subsequent energy related environmental courses.

Pre/Corequisite(s): OETS 118 or MATH 120. Restricted to: Community Colleges only.

**OETS 102 - Career Readiness Certification Preparation (1 cr.)**

This course is designed to prepare students to successfully obtain Career Readiness Certifications in all areas and at the appropriate levels for their program of study. Graded: S/U. May be repeated up to 3 credits. S/U Grading (S/U, Audit).

**OETS 103 - Technical Career Skills (4 cr.)**

This course will be project-based and will encompass writing, presentation, math, reading, and critical thinking skills applied in a technical environment. Restricted to: Community Colleges only.

**OETS 104 - Basic Mathematics for Technicians (4 cr.)**

Fundamental mathematical concepts and computations including measurement, ratio and proportions, and pre-algebra as it relates to technical programs. Prerequisite: appropriate placement test score.

**OETS 105 - Building Analyst I (3 cr. (2+2P))**

This course is designed to provide the foundational knowledge and expertise necessary for the energy auditor and home performance contractor. Restricted to: Community Colleges only.

**OETS 106 - Building Analyst II (3 cr. (2+2P))**

Designed to prepare the student for the BPI Building Analyst Certification. This course will walk the student through the hands-on process of conducting visual building inspections, diagnostic testing, identifying improvement opportunities, documenting a home's performance and preparing a scope of work. Prerequisite(s): OETS 105. Restricted to: Community Colleges only.

**OETS 110 - Photovoltaic Application (4 cr. (3+2P))**

This course will provide an introduction to Photovoltaic (PV) installation. The course will provide instruction on site selection, prep, installation, and maintenance for photovoltaic applications. Students that complete the course and have the opportunity to take the entry level exam with the North American Board of Certified Energy Practitioners (NABCEP) en route to becoming Certified Installers. Prerequisite(s): OETS 101. Restricted to: Community Colleges only.

**OETS 117 - Writing for Technicians (3 cr.)**

Instruction in the skills for developing clear, written descriptions of processes and procedures used by technicians in various fields. Emphasis on correct grammar, logical organization, and receiving audience. Focuses on clarity, structure, and concise writing methods. Does not substitute for ENGL 111G. Restricted to: Community Colleges only.

**OETS 118 - Mathematics for Technicians (3 cr. (2+2P))**

Analysis and problem solving of technical problems using measuring instruments and techniques of arithmetic, algebra, geometry, and trigonometry. Prerequisite(s): OETS 104 or CCDM 103N or appropriate placement test score. Restricted to: Community Colleges only.

**OETS 156 - Building Envelope (3 cr. (2+2P))**

Designed to prepare the student for the BPI Building Envelope Certification. This course will provide the principles behind building performance testing and the purpose of completing a comprehensive energy audit. Through lecture and subsequent field training, the student will learn how to use building diagnostics to develop a prescriptive plan for enhancing comfort, health safety, building

durability, and energy savings. The student will learn how to outline the follow-up process required after completion of the retrofit. Prerequisite(s): OETS 106. Restricted to: Community Colleges only.

**OETS 255 - Special Topics Technical Studies (1-6 cr.)**

Topics to be announced in the Schedule of Classes. Prerequisite(s): Consent of instructor. Restricted to: Community Colleges only.

**PHTH - PUBLIC HEALTH****PHTH 100 - Introduction to Anatomy and Physiology for the Phlebotomist (4 cr. (3+3P))**

Introduction to the major human body systems and their functions, with primary emphasis on the cardiovascular system. Prerequisite: acceptance into phlebotomy program or consent of instructor.

**PHTH 101 - Introduction to Phlebotomy I (3 cr.)**

Introduction to basic phlebotomy and the health care field, including ethical and legal issues, medical terminology associated with the various sections of a clinical laboratory, safety, and routine venipuncture equipment and techniques. Prerequisite: acceptance into phlebotomy program or consent of instructor. Corequisite: PHTH 101 L. Restricted to majors.

**PHTH 101 L - Introduction to Phlebotomy I Lab (2 cr. (6P))**

Teaches safety, infection control, routine and special equipment and techniques used for venipuncture and dermal puncture, collection of other specimens, specimen transport, quality assurance, specimen accessioning, use of computers in health care, point-of-care testing, and urinalysis. Prerequisite: acceptance into phlebotomy program or consent of instructor. Corequisite: PHTH 101. Restricted to majors.

**PHTH 102 - Introduction to Phlebotomy II (3 cr.)**

Teaches specific medical terms and diseases associated with various anatomical locations, complications of venipuncture, total quality management, and quality assurance. Prerequisites: PHTH 101 and 101 L. Corequisite: PHTH 103. Restricted to majors.

**PHTH 103 - Phlebotomy Practicum (4 cr. (8P))**

Clinical practicum in affiliated facilities, where students will gain additional practice in techniques, point-of-care testing, and observing arterial punctures, and will become oriented with a health care setting. Prerequisite: PHTH 101 and 101L. Corequisite: PHTH 102. Restricted to majors.

**PL S - PARALEGAL SERVICES****PL S 160 - Legal System for the Paralegal (3 cr.)**

Introduction to the court system, administrative agencies, functions of law offices, and professional conduct and legal ethics. Prerequisite(s): ACT standard score in English of 16 or higher or a Compass score 76 or higher; for those scoring 13-15 in English on ACT or 35-75 on Compass, successful complete of CCDE 105N or CCDE 110N; for those scoring 12 or below on the ACT standard score in English or 34 or below on the Compass, successful completion of CCDE 105N CCDE 110N. Restricted to: Community Colleges only.

**PL S 161 - Legal Terminology (3 cr.)**

Survey of the language of the law that will serve either as an introductory course or as a review course to prepare students for the certification test.

**PL S 162 - The Virtual Law Office (3 cr.)**

The Virtual Law Office class is a 'hands-on', project oriented course designated to provide the student with the basic law office skills needed to function successfully in a law office setting. The student will gain a practical, working knowledge of the procedures necessary to work in a law office. The skills learned in the class will directly translate to real life situations. Prerequisite(s): PL S 160. Restricted to: Community Colleges only.

**PL S 180 - Constitutional Law for the Paralegal (3 cr.)**

Case standing of the law of the Constitution and Bill of Rights with regard to day-to-day applications in the law practice. Documents dealing with constitutional problems in both civil and criminal areas of law will be drafted and discussed. Prerequisite: PL S 160.

**PL S 190 - Criminal Law for the Paralegal (3 cr.)**

Introduction to federal and state criminal law; criminal proceedings, prosecution and defense, sentencing and appeal. Prerequisite: PL S 160.

**PL S 200 - Legal Ethics for the Paralegal (3 cr.)**

Introduction to ethical dilemmas faced in the workforce and the rules of ethics developed by the American Bar Association, various national paralegal organizations, and the Supreme Court of New Mexico. Prerequisite(s): PL S 160. Restricted to: Community Colleges only.

**PL S 203 - Immigration Law (3 cr.)**

Survey of the basics of immigration law including the rights and obligations of citizenship and the naturalization process. Prerequisite: PL S 160.

**PL S 221 - Internship I (2-4 cr.)**

Work experience that directly relates to a student's major field of study that provides the student an opportunity to explore career paths and apply knowledge and theory learned in the classroom. Internships can be paid or unpaid. Students are supervised/evaluated by both the employer and the instructor. Prerequisite(s): PL S 274. Restricted to Community Colleges campuses only.

**PL S 222 - Internship II (1-3 cr.)**

Continuation of PL S 221. Each credit requires specified number of hours of on-the-job work experience. Prerequisite(s): PL S 221. Restricted to Community Colleges campuses only.

**PL S 231 - The Law of Commerce for the Paralegal (3 cr.)**

Law of contracts, negotiable instruments, bank transfers, secured transactions, debtor-creditor relations, agency, and business types and their formation. Students will study the relevant statutes as well as draft documents associated with these types of legal practice. Prerequisite(s): PL S 160. Restricted to: Community Colleges only.

**PL S 255 - Special Topics (1-4 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated for a maximum of 6 credits.

**PL S 272 - Bankruptcy Law for the Paralegal (3 cr.)**

Individual and corporate bankruptcy; the basic principles and processes of bankruptcy law as a system of debtor relief and debt collection. Prerequisite: PL S 160.

**PL S 274 - Legal Research and Writing for the Paralegal I (3 cr.)**

Legal memoranda, briefs, and pleadings will be prepared and written based on the student's original research. Research materials and techniques will be identified and studied; introduction of computer usage in legal research. Prerequisite: PL S 160 and ENGL 111G.

**PL S 275 - Tort and Insurance for the Paralegal (3 cr.)**

Primary legal principles of tort and insurance law and means of establishing insurance plans, types of torts and insurance, as well as use of specific forms and procedures relating to these areas. Prerequisite: PL S 160.

**PL S 276 - Wills, Trusts, and Probate for the Paralegal (3 cr.)**

Cases and statutes dealing with wills, trusts, and probate. Emphasis on preparation and drafting of documents and the application of the law and documents to the client's problems. Prerequisite: PL S 160.

**PL S 277 - Family Law for the Paralegal (3 cr.)**

Methods of conducting client interviews and drafting of pleadings and research relative to families. Laws relating to marriage, divorce, custody, support, adoption, name change, guardianship, and paternity. Prerequisite: PL S 160.

**PL S 278 - Litigation for the Paralegal (3 cr.)**

The law of procedure and evidence will be considered through rules and cases. Case situations will be used to identify and solve problems. Prerequisite: PL S 160.

**PL S 279 - Legal Research and Writing for the Paralegal II (3 cr.)**

Continuation of PL S 274. Advanced training in legal research problems with a focus on analysis, writing, and preparation of sophisticated legal memoranda and documents. Prerequisite: PL S 274.

**PL S 280 - Interviewing and Investigation for the Paralegal (3 cr.)**

Techniques of legal interviewing and investigation with emphasis on development of human relations and communication skills. Prerequisite: PL S 160.

**PL S 298 - Independent Study (1-3 cr.)**

Individual studies directed by consenting faculty with prior approval by department head. Prerequisite(s): PL S 160. Restricted to Community Colleges campuses only.

**RADT - RADIOLOGIC TECHNOLOGY****RADT 100 - Introduction to Radiologic Technology and Patient Care (2 cr.)**

Overview of the profession, including ethics, terminology, and basic radiation protection. Addresses basic and specialized procedures and topics related to the care of the patient. Restricted to: Community Colleges only. Restricted to Majors.

**RADT 101 - Radiographic Positioning I (4 cr. (2+6P))**

Covers radiographic procedure and positioning concepts, techniques, terminology, and mechanics related to the thorax, abdomen, extremities, spine and pelvis. Includes positioning lab and clinical observation.

**RADT 102 - Radiographic Positioning II (4 cr. (2+6P))**

Continuation of RADT 101. Includes skull, gastrointestinal, urinary, reproductive, biliary systems, and more advanced skeletal positions. Includes positioning lab and clinical observation. Restricted to: Community Colleges only. Restricted to Majors. Prerequisite: RADT 101.

**RADT 103 - Introduction to Radiographic Imaging (3 cr. (2+2P))**

Provides the student with an in-depth knowledge of radiographic exposure technique and the factors affecting radiographic film quality. Includes lab experiments. Restricted to majors.

**RADT 104 - Special Radiologic Modalities (2 cr.)**

Discussion of various special procedures used in medical imaging such as, angiography, ultrasound, computerized tomography, magnetic resonance imaging, digital imaging, nuclear medicine, radiation therapy, etc. Includes guest lectures and field trips. Prerequisite: RADT 103.

**RADT 105 - Radiographic Physics and Equipment (3 cr.)**

Fundamentals of rad physics. Includes electromagnetism, x-ray production and interactions, x-ray circuitry, tubes, grids, screens, AES, fluoroscopic and portable units, beam restricting devices, calibration and quality assurance/control. Overview of mammography, US, CT, MRI, and digital radiography. Restricted to: Community Colleges only. Restricted to Majors. Prerequisite: RADT 103 or consent of instructor.

**RADT 110 - Radiographic Pathology (1 cr.)**

Overview of pathology demonstrated by radiographic procedures. Prerequisite: RADT 154. Restricted to majors.

**RADT 154 - Radiographic Anatomy and Physiology (3 cr.)**

Basic AP for radiographic application. Includes a systems approach to body structures and organs as they relate to anatomical projections, radiographic identification, and various imaging modalities. Prerequisite(s): AHS 153 or AHS 140 or BIOL 225 or BIOL 154, or consent of instructor. Restricted to: RADT majors. Restricted to: Community Colleges only.

**RADT 156 - Independent Study (1-6 cr.)**

Individual studies/research on topics related to the radiological sciences. May be repeated for a maximum of 6 credits. Restricted to: Community Colleges only.

**RADT 190 - CT Equipment and Methodology (3 cr.)**

Skill development in the operation of computed tomographic equipment, focusing on routine protocols, image quality, and quality assurance and radiation protection. Consent of Instructor required. Restricted to: Computed Tomography Certificate majors. Restricted to Community Colleges campuses only.

**RADT 200 - Radiation Biology and Protection (2 cr.)**

Biological effects of ionizing radiation on cells and tissues. Includes radiation measurements, policies and protection measures for self, patients, and others.

Restricted to majors. Prerequisite(s): RADT 103. Restricted to: Community Colleges only.

**RADT 201 - Clinical Education I (9 cr. (40P))**

Supervised practice in a radiology department under direct supervision of a registered technician. Includes film critiques. Community Colleges Only. Prerequisite(s): RADT 105. Restricted to: RADT,OERT majors. Restricted to Community Colleges campuses only.

**RADT 202 - Clinical Education II (12 cr. (36P))**

Continuation of RADT 201. Student will work under indirect supervision of registered personnel. Prerequisite(s): OERT 201. Restricted to: RADT,OERT majors. Restricted to Community Colleges campuses only.

**RADT 203 - Clinical Education III (11 cr. (33P))**

Continuation of RADT 202. Prerequisite(s): OERT 202. Restricted to: RADT,OERT majors. Restricted to Community Colleges campuses only.

**RADT 205 - Radiographic Image Critique (1 cr.)**

Review of radiographs produced in clinical settings to evaluate anatomy and technical issues. Prerequisite: RADT 201. Restricted to majors.

**RADT 206 - Applied Radiographic Procedures (2 cr. (1+3P))**

Advanced course which integrates the principles and techniques of radiologic technology. Prerequisite: RADT 202. Restricted to majors.

**RADT 207 - Cross Sectional Anatomy for Medical Imaging (3 cr.)**

Anatomic relationships that are present under various sectional orientations as depicted by computed tomography or magnetic resonance imaging. Consent of Instructor required. Restricted to: Computed Tomography certificate majors. Restricted to Community Colleges campuses only.

**RADT 208 - Clinical I (Computed Tomography) (3 cr. (9P))**

A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. Direct supervision is provided by the clinic professional. Consent of Instructor required. Restricted to: Computed Tomography Certificate Majors. majors. Restricted to Community Colleges campuses only.

**RADT 209 - Clinical II (Computed Tomography) (3 cr. (9P))**

A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. Direct supervision is provided by the clinic professional. (Capstone Course). Consent of Instructor required. Restricted to: Computed Tomography Certificate majors. Restricted to Community Colleges campuses only.

**RESP - RESPIRATORY THERAPY**

**RESP 110 - Respiratory Therapy I (3 cr.)**

Introduction to basic respiratory care techniques. Includes history, professional organizations, medical gas administration, oxygen therapy, cardiopulmonary AP, patient assessments, and medical terminology. Requires a C- or better to remain in program. Restricted to: Community Colleges only. Restricted to DA-RESP-AA majors.

**RESP 110 L - Respiratory Therapy I Lab (2 cr.)**

Laboratory practice of basic respiratory care procedures. Requires a C or better to remain in program. Restricted to: Community Colleges only. Restricted to DA-RESP-AA majors.

**RESP 111 - Respiratory Therapy Cardio Pulmonary Diseases (3 cr.)**

Introduction to basic respiratory care techniques and concepts of physics as they apply to the physiology of the lung. Restricted to: Community Colleges only. Restricted to DA-RESP-AA majors.

**RESP 115 - Respiratory Therapy Pharmacology (3 cr.)**

Concepts of physics as they apply to the physiology of the lungs. Requires a C or better to remain in program. Restricted to: Community Colleges only. Restricted to DA-RESP-AA majors.

**RESP 120 - Respiratory Therapy II (3 cr.)**

Advanced respiratory care techniques. Emphasis on airway management, aerosol treatment, chest physiotherapy, pharmacology, posture pressure breathing, and pulmonary rehabilitation. Requires a C- or better to remain in program. Prerequisite(s): Admission to program and RESP 110. Corequisite(s): RESP 120L. Restricted to: Community Colleges only. Restricted to RESP majors.

**RESP 120 L - Respiratory Therapy II Lab (2 cr. (6P))**

Continuation of lab practices and procedures learned in RESP 120, Respiratory Care II, using equipment and simulations. Requires a C- or better to remain in program. Prerequisite(s): Admission to program, RESP 110, RESP 110L and RESP 112. Corequisite(s):RESP 120. Restricted to: Community Colleges only. Restricted to RESP majors.

**RESP 124 - Respiratory Therapy II Clinical (3 cr. (9P))**

Supervised practice and application in a hospital setting. Requires a C- or better to remain in program. Prerequisite(s): Admission to program, RESP 110, RESP 110L and RESP 112. Corequisite(s): RESP 120 and RESP 120L. Restricted to: Community Colleges only. Restricted to RESP majors.

**RESP 125 - Respiratory Therapy Physics (3 cr.)**

Concepts of physics as they apply to the physiology of the lungs. Emphasis on laws pertaining to gas, gas flow, humidity, and the mechanics of the breathing process. Requires a C- or better to remain in program. Prerequisite(s): Admission to program. Restricted to: Community Colleges only. Restricted to RESP majors.

**RESP 155 - Respiratory Therapy Special Topics (1-4 cr.)**

Topics to be announced in the Schedule of Classes. May be repeated for a maximum of 10 credits. Consent of instructor required. Prerequisite(s): Admission to program. Restricted to: Community Colleges only. Restricted to RESP majors.

**RESP 210 - Respiratory Therapy III (2 cr.)**

Introduction to adult, mechanical, neonatal ventilator theory and concepts of critical care medicine. Requires a C- or better to remain in program. Prerequisite(s): Admission to program, and RESP 115, RESP 120, RESP 120L, and RESP 124. Corequisite(s): RESP 210L. Restricted to: Community Colleges only. Restricted to RESP majors.

**RESP 210 L - Respiratory Therapy III Lab (2 cr.)**

Advanced practice procedures using mechanical ventilation devices. Requires a C- or better to remain in program. Prerequisite(s): Admission to program, and RESP 115, RESP 120, RESP 120 L, and RESP 124. Corequisite(s): RESP 210. Restricted to: Community Colleges only. Restricted to RESP majors.

**RESP 224 - Respiratory Therapy IV Clinical (3 cr. (9P))**

Continuation of RESP 124. Emphasis on mechanical ventilators. Requires a C- or better to remain in program. Prerequisite(s): Admission to program, and RESP 115, RESP 120, RESP 120 L, and RESP 124. Restricted to: Community Colleges only. Restricted to RESP majors.

**RESP 230 - Respiratory Therapy V (3 cr.)**

Continuation of RESP 215. Emphasis on special modalities. Requires a C- or better to remain in program. Restricted to: Community Colleges only. Restricted to DA-RESP-AA majors.

**RESP 230 L - Respiratory Therapy V Lab (2 cr.)**

Advanced practice and procedures of respiratory care. Requires a C- or better to remain in program. Restricted to: Community Colleges only. Restricted to DA-RESP-AA majors.

**RESP 233 - Respiratory Therapy Cardiopulmonary (2 cr.)**

Concepts of physics as they apply to the physiology of the lung. Emphasis on laws pertaining to gas flow, humidity, and the mechanics of the breathing process. Requires a C or better to remain in program. Restricted to: Community Colleges only. Restricted to DA-RESP-AA majors.

**RESP 234 - Respiratory Therapy V Clinical (3 cr.)**

Continuation of RESP 214. Emphasis on special modalities. Restricted to: Community Colleges only. Restricted to DA-RESP-AA majors.

**RESP 240 - Respiratory Therapy VI (3 cr.)**

Advanced theory of hemodynamics, neonate, pediatric, and new specialties that apply to respiratory care. Requires a C- or better to remain in program. Prerequisite(s): Admission to program, and RESP 230, RESP 230 L, RESP 233 and RESP 234. Corequisite(s): RESP 240 L. Restricted to: Community Colleges only. Restricted to RESP majors.

**RESP 240 L - Respiratory Therapy VI Lab (2 cr. (6P))**

Advanced laboratory practice and procedures. Requires a C- or better to remain in program. Prerequisite(s): Admission to program, and RESP 230, RESP 230 L, RESP 233 and RESP 234. Corequisite(s): RESP 240. Restricted to: Community Colleges only. Restricted to RESP majors.

**RESP 242 - Pediatric Advanced Life Support (PALS) (1 cr.)**

Etiology, diagnosis, clinical manifestations, and management of cardiopulmonary disorders related to respiratory care. Corequisite: RESP 230. Restricted to majors.

**RESP 243 - Respiratory Therapy Neonatal Resuscitation (1 cr.)**

Advanced practice of the neonatal resuscitation and certification. Prerequisite(s): Admission to program and RESP 230, RESP 230L, RESP 233, and RESP 234. Corequisite(s): RESP 240 and RESP 244. Restricted to: Community Colleges only. Restricted to RESP majors.

**RESP 244 - Respiratory Therapy VI Clinical (3 cr. (9P))**

Clinical experience on special modalities. Requires a C- or better to remain in program. Prerequisite(s): Admission to program, and RESP 230, RESP 230 L, RESP 233 and RESP 234. Corequisite(s): RESP 240. Restricted to: Community Colleges only. Restricted to RESP majors.

**RESP 255 - Respiratory Therapy Special Topics (1-4 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated for a maximum of 4 credits. Consent of instructor required. Prerequisite(s): Admission to program. Restricted to: Community Colleges only. Restricted to RESP majors.

**RESP 298 - Respiratory Therapy Independent Study (1-10 cr.)**

Individual study for respiratory care majors. Chosen topics must have approval of program coordinator. May be repeated for a maximum of 10 credits. Restricted to majors. Prerequisite(s): RESP 110. Restricted to: Community Colleges only.

**SMET - SCIENCES, MATHEMATICS, ENGINEERING AND TECHNOLOGY****SMET 101 - Introduction to Science, Mathematics, Engineering, and Technology (1 cr.)**

An introductory course for science, mathematics, engineering, or technology students, emphasizing introduction to their disciplines. Development of critical thinking and academic success skills for technical disciplines, as well as degree planning for the major. Consent of Instructor required.

**SMET 102 - Introduction to Engineering Design. (1 cr.)**

Fundamental concepts of engineering design developed through analysis of case studies and hands-on design projects. Consent of instructor required.

**SMET 201 - Research for Visiting Community College Students (1 cr.)**

Research experience for visiting community college students. Consent of instructor required. Restricted to: Main campus only.

**SMET 301 - Undergraduate Research Assistantship (.5 cr.)**

Undergraduate research experience in science, technology, engineering, and mathematics. Consent of instructor required. Graded: S/U.

**SURG - SURGICAL TECHNOLOGY****SURG 120 - Surgical Technology Clinical I (2-4cr. (6P))**

This is a health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. This course is designed to prepare the student to enter the surgical environment. This course provides an introduction to the operating room, observation of surgical procedures, direct participation in the preoperative (pre-op, intra-op, post-op) preparation of individual cases and professional roles and responsibilities of individual members of the surgical team. Direct supervision is provided by the

clinical professional. May be repeated up to 4 credits. Corequisite(s): SURG 140, SURG 145. Prerequisite(s): Admission to Surgical Technology Program, BIOL 221, BIOL 225, BIOL 226, NURS 150.

**SURG 140 - Introduction to Surgical Technology (4 cr.)**

This is an orientation to surgical technology theory, surgical pharmacology and anesthesia, technology sciences and patient care concepts and is designed to prepare the student to enter the surgical environment with entry-level knowledge necessary to understand patient responses to disease, illness, hospitalization, surgical procedures, commonly used pharmacological and anesthetic agents, and legal, moral, and ethical issues that could be encountered in the surgical environment. Prerequisite(s): Admission to Surgical Technology Program; BIOL 221, BIOL 226, NURS 150. Restricted to Community Colleges campuses only.

**SURG 145 - Fundamentals of Perioperative Concepts & Techniques (4-5 cr. (3+3P))**

This is an in-depth coverage of perioperative concepts such as aseptic/sterile principles and practice, infectious processes, wound healing and creation and maintenance of the sterile field. This course is designed to prepare the student to enter the surgical environment with entry-level knowledge of aseptic technique principles and practices, the creation and maintenance of the sterile field including equipment, supplies and instrumentation, and basic case preparation and procedures. An introduction to diseases and disease processes that may be displayed by the surgical patient and the patient's bodily responses to disease are also included. May be repeated up to 5 credits. Prerequisite(s): Admission to Surgical Technology Program, BIOL 221, BIOL 225, BIOL 226, & NURS 150.

**SURG 150 - Surgical Procedures I (4-5 cr. ((3-5)+3P))**

This course is an introduction to surgical procedures and its related pathologies. Emphasis on surgical procedures related to general, obstetrics/gynecology, genitourinary, otorhinolaryngology and orthopedic surgical specialties incorporating instruments, equipment. It is designed to prepare the student to function actively in the surgical environment with entry-level knowledge of surgical procedures. This course expands the basic foundation principles and combines the study of common surgical procedures to include anatomy, physiology and pathophysiology. Specific patient care concepts, medications, instrumentation, equipment, supplies and complication related to selected surgical procedures will be discussed. Prerequisite(s): SURG 140, SURG 145, and SURG 120. Admission to Surgical Technology Program necessary to enroll in the course.

**SURG 155 - Pharmacology for the Surgical Technology (3 cr.)**

This is an orientation to surgical pharmacology and anesthesia and is designed to prepare the student to enter the surgical environment with knowledge necessary to categorize the classification of drugs, calculate drug dosages and identify the therapeutic use, routes of administration, indications, contraindications and adverse effects of pharmacologic agents used in the perioperative setting. This course is the foundation for the acquisition of program specific competencies as identified by the AST Core Curriculum. Restricted to Carlsbad campus only.

**SURG 160 - Surgical Procedures II (4 cr.)**

This is an introduction to surgical procedures and related pathologies. Emphasis on surgical procedures related to thoracic, peripheral vascular, plastic/reconstructive, ophthalmology, cardiac and neurological surgical specialties incorporating instruments. The course is designed to prepare the student to continue to function actively in the surgical environment with entry-level knowledge of more complex surgical procedures. This course expands the basic foundation principles and combines the study of complex surgical procedures to include anatomy, physiology, and pathophysiology. Specific patient care concepts, medications, instrumentation, equipment, supplies, and complications related to specific surgical procedures will be discussed. Realities of clinical practice and concepts of death and dying will also be discussed. Prerequisite(s): SURG 150, SURG 260. Admission to Surgical Technology Program necessary to enroll in the course. Restricted to Community Colleges campuses only.

**SURG 230 - Professional Readiness (2-3 cr.)**

This course transitions the student into professional readiness for employment, professional readiness for attaining certification and professional readiness for maintaining certification status. May be repeated up to 3 credits. Corequisite(s):

SURG 160, SURG 265. Prerequisite(s): SURG 140, SURG 145, SURG 120, SURG 150, SURG 260. Admission to Surgical Technology Program necessary to enroll in the course.

**SURG 260 - Surgical Technology Clinical II (4 cr. (12P))**

This is a health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. This course is designed to provide the student the opportunity to function actively in the role as a surgical technologist and health care team member in a clinical setting under the direct supervision of faculty and health care staff. Applications of basic principles and practices combined with a supervised clinical experience participating in common surgical procedures is the focus. Prerequisite(s): SURG 120, SURG 140, SURG 145. Admission to Surgical Technology Program necessary to enroll in the course. Restricted to Community Colleges campuses only.

**SURG 265 - Surgical Technology Clinical III (3-7 cr. (9P))**

This is a health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. This course is designed to provide the student the opportunity to function actively in the role of a surgical technologist and health care team member in a clinical setting under the direct supervision of faculty and health care staff. Refinement and application of basic principles and practices combined with entry-level employment competency expectations is the focus. Preparation for the National Certification Examination for Surgical Technologists is also included. May be repeated up to 7 credits. Prerequisite(s): SURG 260. Admission to Surgical Technology Program necessary to enroll in the course.

**TCEN - ENVIRONMENTAL AND ENERGY TECHNOLOGY**

**TCEN 101 - Energy for the Next Generation (3 cr. (2+2P))**

This course will survey a broad range of sources of energy, types of energy, energy storage, and the forms of energy. Students will be exposed to theory in the classroom, laboratory exercises, and field trips to provide them with a solid foundation for all subsequent energy related environmental courses. Crosslisted with: OETS 101. Prerequisite(s)/Corequisite(s): OETS 118 or MATH 120. Restricted to: Community Colleges only.

**TCEN 105 - Building Analyst I (3 cr. (2+2P))**

This course is designed to provide the foundational knowledge and expertise necessary for the energy auditor and home performance contractor. Crosslisted with: OETS 105. Restricted to: Community Colleges only.

**TCEN 106 - Building Analyst II (3 cr. (2+2P))**

Designed to prepare the student for the BPI Building Analyst Certification. This course will walk the student through the hands-on process of conducting visual building inspections, diagnostic testing, identifying improvement opportunities, documenting a home's performance and preparing a scope of work. Crosslisted with: OETS 106. Prerequisite(s)/Corequisite(s): TCEN 105 or OETS 105. Restricted to: Community Colleges only.

**TCEN 110 - Photovoltaic Application (4 cr. (3+2P))**

This course will provide an introduction to Photovoltaic (PV) installation. The course will provide instruction on site selection, prep, installation, and maintenance for photovoltaic applications. Students that complete the course and have the opportunity to take the entry level exam with the North American Board of Certified Energy Practitioners (NABCEP) en route to becoming Certified Installers. Crosslisted with: OETS 110. Prerequisite(s)/Corequisite(s): TCEN 101 or OETS 101. Restricted to: Community Colleges only.

**TCEN 111 - Photovoltaic Basic Electrical Principles (4 cr. (3+2P))**

Focuses on resistance, current, voltage, and power in AC and DC circuits; measurements; computations of series and parallel circuits; circuit analysis; and troubleshooting with basic test equipment as applied to renewable energy systems. Prerequisite(s)/Corequisite(s): OETS 104. Restricted to Community Colleges campuses only.

**TCEN 112 - PV Power Generation Design Fundamentals (3 cr. (2+2P))**

A study of photo voltaic design basics, photo voltaic (PV) Cells, modules, and system components; electrical circuits; grid-tied/grid-interactive PV system design and sizing for use on homes; solar electric products and applications; and

understanding energy conversion from sunlight to electricity, and working with solar conversion equipment. Pre/Corequisite(s): TCEN 111. Restricted to Community Colleges campuses only.

**TCEN 113 - OSHA 10 Hour Construction Hazard Identifications (1 cr.)**

Intended for entry-level participants to provide instruction on a variety of construction safety and health standards. Topics include Introduction to OSHA, Electrical, Ladder, Excavation, Scaffold, and Forklift Hazards, Fall Protection, Materials Handling, Personnel Protective Equipment and Confined Space Entry Hazards. Meets OSHA 10-Hour Requirements.

**TCEN 115 - Wind Power Generation Design Fundamentals (3 cr. (2+2P))**

Course covers wind turbine module descriptions and functions and wind system installation, operation, and troubleshooting. Additional topics include wind energy harvesting and the conversion process from the generator system to electricity. Restricted to: Community Colleges only.

**TCEN 121 - Electrical Installation Fundamentals I (4 cr. (3+2P))**

Covers electrical safety with an introduction to electrical circuits, devices, equipment, best practices, and theory relating to the National Electrical Code (2011). No electrical background required. Prerequisite(s)/Corequisite(s): TCEN 113. Restricted to: Community Colleges only.

**TCEN 130 - Introduction to Biomass/Biogas (3 cr. (2+2P))**

Introduction to utilization of renewable biological wastes including crops for production of fuels. Anaerobic digester, gasification, pyrolysis, combustion and fermentation will be covered. Prerequisite(s)/Corequisite(s): TCEN 101 or OETS 101. Restricted to: Community Colleges only.

**TCEN 140 - Biofuel Science (3 cr. (2+2P))**

Fundamentals of basic organic chemistry and biochemistry applied to biofuel synthesis. Students will also be introduced to concept of conservation of matter and chemical reactions. Restricted to: Community Colleges only.

**TCEN 156 - Building Envelope (3 cr. (2+2P))**

Designed to prepare the student for the BPI Building Envelope Certification. This course will provide the principles behind building performance testing and the purpose of completing a comprehensive energy audit. Through lecture and subsequent field training, the student will learn how to use building diagnostics to develop a prescriptive plan for enhancing comfort, health & safety, building durability, and energy savings. The student will learn how to outline the follow-up process required after completion of the retrofit. Crosslisted with: OETS 156. Prerequisite(s): TCEN 106 or OETS 106. Restricted to: Community Colleges only.

**TCEN 180 - Bio-diesel and Bio-ethanol Production (4 cr. (2+4P))**

Overview of the production of biofuels. Students will be introduced to current biofuel production processes, trans-esterification, hydrolysis and fermentation reactions, distillation, and laboratory synthesis of biofuels and engine performance tests. Prerequisite(s): TCEN 140. Restricted to: Community Colleges only.

**TCEN 205 - NEC for Alternative Energy (4 cr. (2+4P))**

This hands-on course will cover the National Electrical Code specifics concerning photovoltaic installation. Also code compliant wiring of basic electrical systems will be covered. Existing installations will be visited and studied. Prerequisite(s): TCEN 101 and ELT 105. Restricted to: Community Colleges only.

**TCEN 210 - Solar Thermal (4 cr. (2+4P))**

The purpose of this course is for students to learn to install solar thermal collectors for several applications, including domestic hot water, pool heating, and space heating. Students will be able to identify types of systems and components, adapt a system design, conduct a site assessment, install solar collectors, install components, install control systems, perform a system checkout, and maintain and troubleshoot a solar thermal system. Prerequisite(s): TCEN 101 or OETS 101. Restricted to: Community Colleges only.

**TCEN 215 - Fluid Thermal Systems (4 cr. (2+4P))**

Fluid properties and measurement, piping and tubing standards, pumps and operation. Prerequisite(s): PHYS 110G or PHYS 211G. Restricted to: Community Colleges only.

**TCEN 220 - Cooperative Experience (1-3 cr.)**

Supervised cooperative work program. Student is employed in an approved occupation and supervised and rated by the employer and instructor. May be repeated up to 6 credits. Consent of Instructor required.

Prerequisite(s)/Corequisite(s): MAT 235. Prerequisite(s): TCEN 180. Restricted to: TCEN majors. S/U Grading (S/U, Audit). Restricted to: Community Colleges only.

**TCEN 221 - Roofing Materials and Methods (3 cr. (2+2P))**

Covers application techniques and estimation of asphalt and wood roofing products and accessories including gutters and flashing. Presents roof penetration, roof loading issues, and energy system installation requirements for mounting photo voltaic or solar thermal systems. Prerequisite(s): TCEN 112.

**TCEN 222 - Photo Voltaic Grid Tie Installation (2 cr. (2+1P))**

Concentrates on providing the student photo voltaic installation information necessary to tie into the electrical grid system. In addition, teaches the student how to layout an installation for maximum performance using standard industry tools such as a Solar Path Finder. Conduit bending, wiring, roof penetrations are also part of the course. Prerequisite(s): TCEN 112.

**TCEN 223 - Photo Voltaic National Electrical Code Principles (2 cr. (2+1P))**

Focuses on all sections of the National Electrical Code and local code requirements applicable to photo voltaic electrical installation. A partial list of areas covered is chapters one through four and section 690, Solar Photovoltaic Systems of the National Electrical Code. Prerequisite(s): TCEN 112.

Pre/Corequisite(s): TCEN 222.

**TCEN 224 - Field Experience (1-3 cr.)**

Student will collaborate with instructor in proposing, defining, implementing, and analyzing outcomes of a project in the Environmental and Energy fields of study. May be repeated up to 6 credits. Consent of Instructor required. Restricted to: TCEN majors. Restricted to: Community Colleges only.

**TCEN 225 - Electrical Installation Fundamentals II (4 cr. (3+2P))**

Covers electrical load calculations, feeders and circuits, transformers and electrical motors, commercial services, basic electronic theory, and fundamentals of crew leadership. Prerequisite(s): TCEN 121. Restricted to: Community Colleges only.

**TCEN 231 - Wind Turbine Maintenance I (3 cr. (2+2P))**

Course includes an introduction to wind energy to include turbine safety, wind tower climbing, and electrical wiring specific to wind energy systems. Prerequisite(s): TCEN 121 and TCEN 111. Restricted to: Community Colleges only.

**TCEN 232 - Wind Turbine Maintenance 2 (4 cr. (3+2P))**

Course covers alternating current (AC) and three-phase systems applied to wind systems. Topics include circuit breakers, fuses, switching devices, wind power distribution systems, and an introduction to bearings and hydraulic system maintenance. Prerequisite(s): TCEN 231. Restricted to: Community Colleges only.

**TCEN 240 - Renewables and Sustainability (3 cr.)**

Various renewable energy technologies and sustainable design practices will be introduced. Prerequisite(s): TCEN 101 or OETS 101. Restricted to: Community Colleges only.

**TCEN 241 - Solar Thermal Principles/ Installation and Maintenance (3 cr. (2+2P))**

Course presents the theory, installation, operation, and maintenance of solar hot water (SHW) systems. Topics include the types of systems to choose, the costs associated with SHW installation and operation, and system sizing requirements. Prerequisite(s): TCEN 225. Restricted to: Community Colleges only.

**TCEN 245 - Building Weatherization Fundamentals (3 cr. (2+2P))**

Provides an overview of the materials and techniques used to reduce building thermal loss. A basic knowledge of HVAC ducting and piping systems is also introduced. The knowledge and techniques learned from the course provide the skills necessary to perform building weatherization installations. Prerequisite(s): TCEN 113, TCEN 221, and TCEN 246. Restricted to: Community Colleges only.

**TCEN 246 - Building Auditor Fundamentals (3 cr. (2+2P))**

Course provides information on how to locate air leaks and identify heat losses or gains through specific testing. Students will learn how to inspect and evaluate building envelopes, mechanical systems, and ventilation systems to determine the safety and energy consumption for each system. Corequisite(s): TCEN 221. Prerequisite(s): TCEN 113. Restricted to: Community Colleges only.

**TCEN 250 - Photo Voltaic System Integrator Fundamentals (3 cr.)**

Teaches the student project management fundamentals for working with homeowners, businesses, government, contractors, and manufacturers to design, build, and install complete alternative energy systems. Covers photovoltaic, small wind, and micro-hydro system designing, permitting, budgeting, and cost estimating requirements. Prerequisite(s): E T 125. Pre/Corequisite(s): TCEN 222.

**TCEN 251 - Advanced Photo Voltaic On/Off Grid Installation (3 cr. (2+2P))**

Photo Voltaic advanced topics to include panel racking and installation, battery storage, charge controllers, mechanical integration of arrays on buildings, and key elements involved in choosing a mounting system. Prerequisite(s): TCEN 222.

**TCEN 252 - NABCEP Entry-Level Exam Review (1 cr.)**

Course presents knowledge, key terms, and concepts of photovoltaic systems and solar hot water systems as related to the NABCEP Entry-level exam. This exam is for those wanting to enter the workforce in either solar thermal or solar PV. Scheduling and taking the exam is the responsibility of the student. Consent of Instructor required. Restricted to: Community Colleges only.

**TCEN 253 - Photo Voltaic System Troubleshooting and Maintenance (3 cr. (2+2P))**

Covers photo voltaic system troubleshooting and maintenance topics to include equipment, electrical, and installation problem areas. Prerequisite(s): TCEN 222. Pre/Corequisite(s): TCEN 251.

**TCEN 254 - Renewable Energy Internship (2 cr.)**

Student will receive industry-related renewable energy experiences at an approved industry location. Typical areas of hands-on practices will be installing solar PV, solar hot-water systems, or wind energy systems. May be repeated up to 6 credits. Consent of Instructor required. Restricted to: Community Colleges only.

**TCEN 255 - Renewable Energy Contracting Fundamentals (2 cr.)**

Covers gathering of customer site specific information to include the analysis, needs, and energy usage for the purpose of advising the customer with the most appropriate renewable energy solutions. Topics include site analysis, conceptual design, financial costs, and proposal preparation. Corequisite(s): TCEN 222. Restricted to Community Colleges campuses only.

**WATR - WATER UTILITIES****WATR 120 - Introduction to Water Systems (3 cr.)**

Introduction to and theory of groundwater sources, production, treatment, and distribution.

**WATR 130 - Wastewater Collection and Basic Treatment Systems (3 cr.)**

Introduction to wastewater characteristics, collection, and basic treatment operations.

**WATR 135 - Sludge Handling (2 cr.)**

Survey of sludge processing units and disposal. Includes aerobic and anaerobic digestion, thickening, conditioning, dewatering, land applications, and ocean dumping. Overview of current sludge regulations.

**WATR 140 - Applied Water and Wastewater Math I (3 cr.)**

Introduction to basic water and wastewater mathematics, flows through distribution networks and collection systems, and fundamentals of flow measurement. Prerequisite: CCDM 114N or equivalent.

**WATR 160 - Systems Maintenance (4 cr. (2+4P))**

Basic tools, equipment, maintenance schedules, chlorinator trouble-shooting, and chlorine safety. Hands-on training with valves, pumps, meters and chlorination equipment.

**WATR 165 - Backflow Prevention (3 cr. (2+2P))**

Theory of operation of backflow prevention devices and their application. Backflow devices including double check, reduced pressure, and pressure vacuum breakers will be tested for proper operation. Prerequisites: WATR 120 and WATR 140, or consent of instructor.

**WATR 170 - Confined Space Entry (2 cr.)**

Regulations concerning confined spaces, identification of confined spaces and hazard identification. Hands-on use of SCBA, other entry equipment and atmospheric testing.

**WATR 175 - Programmable Logic Controllers (2 cr.)**

This course will introduce students to electrical safety, theory, and the function, operations, programming and troubleshooting of the PLC controlling common electrical components utilized in control circuits associated with the water and wastewater industry. Restricted to: Community Colleges only.

**WATR 180 - Water Chemistry (3 cr.)**

Basic chemistry with applications to water and wastewater analysis. Prerequisite: CCDM 114N or consent of instructor.

**WATR 182 - Water Chemistry Analysis (1 cr. (3P))**

Beginning water and wastewater laboratory analysis including gravimetric, volumetric, and quality control techniques. Prerequisite: CCDM 114N or equivalent or consent of instructor.

**WATR 190 - Water and Wastewater Microbiology (3 cr.)**

Overview of microorganisms associated with water and wastewater. Growth and reproduction, energy production, and methods of counting. Prerequisite: WATR 130, WATR 180, or consent of instructor.

**WATR 192 - Water and Wastewater Microbiological Analysis (1 cr. (3P))**

Introduction to water and wastewater treatment operational tests such as BODs, solids testing, activated sludge control tests, use of microscope, and bacteriological techniques. Prerequisites: WATR 130 and WATR 182, or consent of instructor.

**WATR 200 - Internship (3-5 cr.)**

On-the-job training/work experience with municipalities or industries, working in water or wastewater treatment plants, high purity water plants, industrial waste plants, distribution systems, or wastewater collection systems. May be repeated up to 5 credits. Consent of Instructor required. Restricted to: Water Technology majors. S/U Grading (S/U, Audit). Restricted to Community Colleges campuses only.

**WATR 220 - Water Treatment Systems (3 cr.)**

Theory of water systems operation including surface water treatment, fluoridation, sodium zeolite softening, corrosion control, iron removal, various filtration methods, and overview of SDWA. Prerequisites: WATR 180 and WATR 182 or consent of instructor.

**WATR 222 - Water Systems Operation (1 cr. (3P))**

Operations of various water treatment systems including surface water treatment, sodium zeolite softeners, and various filtration methods. Prerequisite: WATR 220 or consent of instructor.

**WATR 230 - Advanced Wastewater Treatment (4 cr.)**

Calculations and operations involved in wastewater and water reclamation plants. Prerequisites: WATR 140, WATR 190, and WATR 192, or consent of instructor.

**WATR 232 - Wastewater Systems Operations (1 cr. (3P))**

Operation of pretreatment, primary, and biological treatment units. Prerequisite: WATR 230 or consent of instructor.

**WATR 240 - Advanced Water and Wastewater Math II (3 cr. (2+2P))**

Advanced water and wastewater mathematics. Flow measurement. Systems head and pump curves. Prerequisites: WATR 140.

**WATR 250 - Municipal Systems Management (4 cr.)**

Management of water utility systems including laws, finance, records, and safety. Prerequisites: WATR 120, WATR 130.

**WATR 255 - Special Individualized Problems in Water Technology (1-4 cr.)**

Individual studies in areas directly related to water technology. Prerequisite: consent of instructor.

**WATR 257 - Industrial Pretreatment (3 cr.)**

Industrial pretreatment regulations, program development and implementation, including correspondence, surveys and inspections. Overview of industrial wastewater treatment. Prerequisites: WATR 120, WATR 130.

**WATR 270 - Special Topics (1-4 cr.)**

Specific subjects to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits.

**WATR 275 - Certification Review (3 cr.)**

Review of water and wastewater plant operations and laws in preparation for state certification exams. Prerequisites: WATR 220, WATR 230, and WATR 240.

**WATR 285 - High Purity Water Treatment Systems (3 cr.)**

Principles of high purity water production including microfiltration, ultra-filtration, reverse osmosis, and deionization. Prerequisite: WATR 220.

**WATR 286 - Advanced High Purity Water Systems Operation (3 cr.)**

Operations of high purity water systems including ultrafiltration, reverse osmosis and deionization. Prerequisite: WATR 220. Corequisite: WATR 285.

**WATR 287 - Advanced Water Chemistry Analysis (3 cr. (6P))**

Sampling techniques, analysis, and evaluation of potable water contaminants using gravimetric, volumetric, spectrophotometric, and other instrumentation methods. Prerequisite: WATR 285 or consent of instructor.

**WATR 290 - Advanced Wastewater Microbiology and Chemistry (3 cr.)**

Covers NPDES permits and DMR calculations and reporting; 503 sludge regs, including pathogen and vector attraction reduction and pollutants; wetlands, composting, and wastewater treatment ponds microbiology; activated sludge bulking and foaming microbiology and treatment; and use of selector to remove nutrients and prevent the growth of filamentous bacteria. Prerequisite: WATR 190, WATR 192.

**WATR 292 - Advanced Wastewater Analysis (3 cr. (6P))**

Covers sampling techniques, analysis, and evaluation of wastewater contaminants using gravimetric, volumetric, spectrophotometric, and other instrumentation methods. Prerequisite: WATR 190 and WATR 192.

**WELD - WELDING TECHNOLOGY****WELD 100 - Structural Welding I (6 cr. (3+6P))**

Development of basic skills in SMAW, OFC, and OFW in accordance with the AWS entry-level welder program.

**WELD 101 - Fundamentals of Welding (3 cr.)**

Set-up and adjustment of ARC and oxyacetylene equipment. Welding safety procedures and terminology. Skill development in laying weld beads with various patterns, positions, and processes.

**WELD 102 - Welding Fundamentals (3 cr. (2+2P))**

Survey of welding and cutting processes for nonmajors. Classroom instruction and laboratory work with OFC/OFW, SMAW, GMAW, FCAW, and plasma arc cutting.

**WELD 105 - Introduction to Welding (3 cr.)**

Welding practices, procedures, and terminology. Welding safety, equipment types, electrode types in usage, joint design and testing procedures.



**WELD 110 - Blueprint Reading (Welding) (3 cr.)**

Interpretation of prints related to welding. Emphasis on AWS standard symbols for welding, brazing, and nondestructive examination.

**WELD 112 - Professional Development and Leadership (1 cr.)**

As members and/or officers of various student professional organizations, students gain experience in leadership, team building, and community service. Students competing or participating in Skills USA are required to register for the course. May be repeated up to 6 credits. Consent of Instructor required. Restricted to: WELD majors. S/U Grading (S/U, Audit). Restricted to: Community Colleges only.

**WELD 115 - Structural Welding II (6 cr. (3+6P))**

Continuation of WELD 100. Emphasis on AWS entry and advanced level welder skills with SMAW, including all-position welding with mild and stainless steel electrodes. Plasma arc and air-carbon arc cutting, metallurgy, heat treatment, and weld defects. Prerequisite: WELD 100.

**WELD 118 - Technical Math for Welders (3 cr. (2+3P))**

Geometry, algebra, and basic arithmetic pertaining to applications in the welding trades.

**WELD 120 - Basic Metallurgy (3 cr.)**

Properties of ferrous and nonferrous materials. Service conditions and heat treatment of metals related to welding trade. Prerequisites: WELD 100 or consent of instructor.

**WELD 125 - Introduction to Pipe Welding (3 cr. (2+2P))**

Pipe fit-up and welding techniques for pipe fitting and pipe weld joint using SMAW, GMAW, GTAW, and FCAW, 2G welding of pipe. Prerequisite(s): WELD 100, WELD 130, and WELD 140, or consent of instructor. Restricted to: Community Colleges only.

**WELD 126 - Industrial Pipe Welding (3 cr.)**

Enhancement of WELD 125. Development of more advanced pipe welding skills. Prerequisites: WELD 110, WELD 130 and WELD 140. Corequisite: WELD 125.

**WELD 130 - Introduction to GMAW MIG (3 cr. (2+2P))**

Development of basic skills with gas metal arc welding (MIG) in accordance with AWS entry-level welder objectives. Wire electrodes, shielding/purge gases, and modes of metal transfer.

**WELD 140 - Introduction to GTAW TIG (3 cr. (2+2P))**

Development for basic skills with gas tungsten arc welding (TIG) in accordance with AWS entry/advanced welder objectives. Welding mild steel, tungsten electrode preparation, filler wire selection, and equipment set-up.

**WELD 150 - Pipe Welding II (3 cr. (2+2P))**

Continuation of WELD 125; with fillet and groove welded joints in a horizontal fixed and 45-degree fixed positions (5-F, 5-G, 6-F, 6-G). Prerequisite: WELD 125.

**WELD 151 - Industrial Pipe Welding II (3 cr.)**

Enhancement of WELD 150. Development of more advanced pipe welding skills. Emphasis on industry driven test. Prerequisites: WELD 125 and WELD 126. Corequisite: WELD 150.

**WELD 160 - Introduction to SAW and FCAW (3 cr. (2+2P))**

Submerged arc and flux-cored arc welding. Demonstrations and practice with machine travel submerged arc welding (SAW), flux-cored arc welding (FCAW-G, FCAW-S) on mild steel plate and pipe. Restricted to: Community Colleges only.

**WELD 170 - Welded Fabrication (3 cr. (1+4P))**

Development of fabrication skills including basic layout, measuring, and utilization of various welding processes including out-of-position welding. Use of common shop tools. Prerequisites: WELD 100, WELD 110, WELD 130, and OETS 104 or OETS 118.

**WELD 180 - GTAW II (3 cr. (2+2P))**

Continuation of WELD 140. Development of more advanced GTAW skills. Emphasis on pipe welding with mild steel, stainless steel, and aluminum. Prerequisite: WELD 140 or consent of instructor.

**WELD 190 - Welded Art (3 cr. (1+4P))**

Students explore the possibilities of welded art in the form of sculpture, jewelry, furniture and as a framework to support other art media. Offered as an elective for students who wish to create art using welding. Prerequisite: WELD 102 or consent of instructor.

**WELD 200 - Structural Welding III (6 cr. (3+6P))**

Continued application of weld bead patterns and structural welded joints.

**WELD 201 - Beginning GMAW and GTAW Processes (6 cr. (3+6P))**

Metal inert gas and tungsten inert gas welding processes with laboratory exercises designed to develop basic welding skills.

**WELD 202 - Advanced Layout for Welders (4 cr. (3+2P))**

For welders and pipefitters desiring more layout knowledge and skill.

**WELD 205 - Welding Equipment Maintenance (3 cr. (2+2P))**

Hands-on experience in the maintenance and repair of welding equipment, including welding machines and associate shop equipment, as well as the development of preventative maintenance programs. Basic safety, including MSDS and Right-to-Know will be introduced. Prerequisite(s): WELD 100, WELD 130, WELD 140, WELD 160. Restricted to: Community Colleges only.

**WELD 211 - Welder Qualification (6 cr. (3+6P))**

Laboratory and classroom instruction on AWS and ASME Welder Performance Qualification Tests. All position plate and pipe techniques and tests for SMAW, GMAW, GTAW, FCAW, and SAW. Nondestructive and destructive examination methods. Basics of welding codes. Prerequisites: OETS 104 or OETS 118; and WELD 100, WELD 110, WELD 120, WELD 130, WELD 140, WELD 160 and WELD 180 or consent of instructor. Restricted to majors.

**WELD 221 - Cooperative Experience I (1-6 cr.)**

Supervised cooperative work program. Student is employed in an approved occupation and supervised and rated by the employer and instructor. Student will meet in a weekly class. Graded S/U. Prerequisites: WELD 100 or WELD 101 and consent of instructor. Restricted to majors.

**WELD 222 - Cooperative Experience II (1-4 cr.)**

Continuation of WELD 221. Graded S/U. Prerequisite: consent of instructor.

**WELD 225 - Stainless Steel Welding (6 cr.)**

A specialized training course for qualified, experienced welders who desire to meet certification requirements of ASME Section IX (American Society of Mechanical Engineers).

**WELD 230 - Weld Testing (3 cr. (2+2P))**

Covers destructive and nondestructive examination methods used to test welds. Tensile, compression, bend, hardness, impact, visual, dye-penetrant, magnetic particle, ultrasound, and radiographic methods of testing/examination. Prerequisite(s): WELD 100, WELD 130, WELD 140, WELD 211, and OETS 104, or consent of instructor. Restricted to: Community Colleges only.

**WELD 255 - Special Problems in Welding Technology (1-6 cr.)**

Individual studies in areas of welding technology. Prerequisite: consent of instructor. May be repeated for a maximum of 12 credits.

**WELD 295 - Special Topics (1-4 cr.)**

Topics to be announced in the Schedule of Classes. May be repeated for a maximum of 12 credits.