

# THE GRADUATE SCHOOL

The University recognizes and supports the concept of off-campus study and research as a valuable experience for graduate students. These experiences may take the form of internships, intensive study of specialized techniques with personnel at other institutions, and conducting research at specialized research facilities. Arrangements for such off-campus activities should be made with the student's committee and the graduate dean and should represent opportunities not normally available at this university. When the bulk of a student's research is to be conducted off-campus, both on- and off-campus advisors should be appointed and periodic meetings with the student's committee held to ensure timely progress. Such opportunities offer students considerable flexibility in their training and promote valuable contacts between the student, the university, industry, and research institutions. Students are encouraged to pursue these opportunities with their advisors and the graduate dean.

## Agricultural Experiment Station

The Agricultural Experiment Station is the research division of the College of Agricultural, Consumer and Environmental Sciences. Faculty, professional personnel, and graduate students conduct basic and applied research concerned with biological, physical, and economic phases of food and fiber production, processing, and distribution; consumer health and nutrition; and the social and economic aspects of rural living. Energy, environmental, and natural resource conservation aspects of these broad disciplines offer many opportunities for the graduate student to undertake meaningful research investigations in both the laboratory and the field.

There are eight departments on the main campus with excellent laboratory facilities for research. In addition, the station maintains 13 field research centers including eight agricultural science centers, a forestry research center, a livestock research center, an animal insect lab, and two research ranches.

The station provides financial support to graduate research assistants and cooperates with research institutes at the university and with various state and federal agencies in providing opportunities for graduate research programs covering a wide scope of student interests. For further information, contact [aesdean@nmsu.edu](mailto:aesdean@nmsu.edu) or visit <http://aces.nmsu.edu/aes/>.

## Apache Point Observatory (APO-ARC)

Apache Point Observatory (APO) is located in the mountains of south-central New Mexico and is operated by New Mexico State University. The observatory is a major astronomical research facility that is home to four telescopes. The largest is a fully equipped 3.5-meter telescope that can be used for optical and infrared imaging, photometry, and spectroscopy. Apache Point Observatory is also the site of the Sloan Digital Sky Survey 2.5-meter telescope, which is running several different wide-field surveys touching on many facets of astronomy. NMSU owns and operates a 1-meter telescope at APO for wide field imaging. There is also a 0.5-meter telescope at the site.

Apache Point Observatory is owned by the Astrophysical Research Consortium (ARC). The consortium members include: New Mexico State University, the University of Colorado, the University of Virginia, the University of Washington, Georgia State University and Johns Hopkins University. NMSU manages and operates the observatory for the ARC consortium. Astronomy faculty and graduate students use

the facility for various research projects. For further information, e-mail [astro@nmsu.edu](mailto:astro@nmsu.edu).

## Arts and Sciences Research Center

The research center is the coordinating office for all scholarly activities within the College of Arts and Sciences. The primary functions are service to departments and faculty members, and the administration of grants and contracts. The center encourages and stimulates individual research and creative efforts in all areas of the college, and it facilitates the development of potential research programs within the college, and with other colleges, institutes, the Physical Science Laboratory, and external organizations. The center assists individual faculty members by providing small grants of "seed" money. Typically, support services fall within, but are not limited to, the following areas:

- Location of funding sources
- Administration of grants and contracts
- Financial management of grants and contracts
- Liaison with the Office of the Vice President for Research

Contact: Lorenza Sanchez at [lorenzaz@nmsu.edu](mailto:lorenzaz@nmsu.edu)  
<https://artsci.nmsu.edu/research/contact-research-center.html>

## Bioinformatics Research Lab

The bioinformatics research lab develops efficient computational and statistical methods to model mechanisms of complex biological systems. The lab's work rigorously evaluates both the theoretical and practical effectiveness of computational methods for characterizing molecular interactions from high-throughput measurements such as next generation sequencing data. The lab's long term goal is to invent advanced computational technology to expedite quantitative understanding of the complexity of life processes.

Director: Joe Song  
<https://www.cs.nmsu.edu/~joemsong/group.shtml>

## Biology Research Facilities

The Department of Biology houses multiple core facilities and individually faculty-maintained research laboratories that have been successful in the acquisition of millions of dollars in research grants from the NIH, NSF, and other agencies. The facilities and equipment include cell culture facilities, insect and invertebrate rearing and microbiology culturing facilities, next generation DNA sequencing instruments, wide-field and confocal microscopes as well as a well-maintained herbarium and vertebrate museum holding more than 100,000 specimens from our region and beyond. Individual research laboratories are equipped to employ a diverse array of molecular, physiologic, behavioral and computational tools to address research questions related to: organismal and microbial evolutionary mechanisms and physiology; vaccine development; host-symbiont interactions; cell and developmental biology; neuronal and muscular tissues; animal vocalization and behavior; computational modeling of biological phenomena; and molecular systematics.

Contact: Dr. Charles Shuster ([cshuster@nmsu.edu](mailto:cshuster@nmsu.edu))

## Bureau of Business Research and Services

Founded in 1969, the bureau has two basic objectives. The first is to provide business and economic research services to both public

and private sectors of the state, the region and the nation. Research capabilities in the behavioral and managerial sciences, business systems, economic and social sciences, marketing, statistical design and analysis and regional planning can be applied to problems relating to economic growth, business development and community needs in New Mexico.

The second objective of the bureau is to provide management training services to business organizations and associations, to government agencies, and to the public as well. Management development seminars, training programs, and analytical services are designed to meet specific organizational needs.

The Bureau of Business Research and Services is a member of the Association for University Business and Economic Research.

<https://business.nmsu.edu/research-centers-and-programs/centers/bbrs/bureau-of-business-research-and-service.html>

## Carlsbad Environmental Monitoring and Research Center

Created in 1991 with a grant from the U.S. Department of Energy, the Carlsbad Environmental Monitoring & Research Center (CEMRC), a department of the College of Engineering, conducts environmental research, provides special analytical services, assists with technology development, and disseminates information for federal, state, and private sponsors. CEMRC is housed at Light Hall, a 26,000-square-foot facility located in Carlsbad, in southeast New Mexico. The facility's laboratories include radiochemistry and associated nuclear spectroscopy, environmental organic and inorganic chemistry, in vivo bioassay, and field sampling. A primary activity of CEMRC is long-term environmental monitoring for contaminants in the region of the Waste Isolation Pilot Plant (WIPP), located near Carlsbad. The data produced from this project are summarized in periodic reports and are presented on the CEMRC web site at [www.cemrc.org](http://www.cemrc.org). Primary research areas of the CEMRC include studies of atmospheric dust and inorganic contaminants, human and ecological risk assessment, and development of radioanalytical and spectroscopic methods for measurement of naturally occurring and human-produced radioactive elements. Results of CEMRC research projects appear in peer-reviewed scientific journals and are presented at national and international meetings.

Contact: Punam Thakur at 575-234-5531, [pthakur@cemrc.org](mailto:pthakur@cemrc.org)

## The Center for Animal Health and Food Safety

The Center was founded in 2007 and is comprised of three primary functional research units:

1. Chemical Analysis and Instrumentation Laboratory maintains high-end analytical instrumentation which is available to support collaborative research within NMSU, the State of New Mexico and other educational or industrial partners.
2. Food Safety Microbiology Laboratory specializes in research and development of foodborne pathogen detection and control; food product testing, including microbiological analyses, pH, aw; process evaluation of acidified foods, inoculation studies, shelf-life testing, and contracting to establish food safety plans (e.g. HACCP plans, *Listeria* control programs).
3. Veterinary Entomology Research Laboratory provides a state-of-the-art large animal research facility located on 45 acres, with a 5000 sq. ft. large animal laboratory, capable of housing 24 animals individually

in environmentally controlled rooms. The laboratory maintains multiple insect rearing facilities for major ectoparasites including: house flies, stable flies, horn flies, face flies, mosquitoes, lice, mites and ticks. The facility has outdoor housing for 60 large animals in covered, individual outdoor stanchions, in addition to housing for wildlife species including: deer, elk, bighorn sheep and rabbits.

Director: **Dr. Brandon G. Smythe** ([bsmythe@nmsu.edu](mailto:bsmythe@nmsu.edu)) (575-646-1111)

## Center for Latin American and Border Studies

The Center for Latin American and Border Studies (CLABS) was established in 1979 by the College of Arts and Sciences and is located at the Nason House. CLABS supports Frontera NorteSur, an on-line journal about the U.S.-Mexico border. In addition, CLABS supports the collection at the NMSU library, travel for faculty to conferences, language training in Spanish and Portuguese, lectures by visiting speakers, curriculum development for teachers, the student Latin American organization, and other outreach activities. It has a faculty governance organization and helps administer the Nason foundation fund. In recent years the center has pursued an active program of research on U.S.-Mexico border policy issues, in cooperation with several universities in the United States and Mexico.

Contact: Center for Latin American and Border Studies: <https://clabs.nmsu.edu> (<https://clabs.nmsu.edu/>)

## Chemistry and Biochemistry Research Facilities

The Department of Chemistry and Biochemistry has a comprehensive equipment base that supports research in nearly all phases of chemistry. It also has instrumentation dedicated to the department's teaching mission. Major instruments supporting both missions include five nuclear magnetic resonance (NMR) spectrometers ranging from low field (200 MHz) to high field (500MHz), two atomic absorption spectrometers, several UV-Vis spectrometers, two mass spectrometers (LC/MS) and four gas chromatograph instruments. Details about all instruments located in the department's facilities can be accessed at <https://chemistry.nmsu.edu/research/research-facilities.html>

Contact Instrumentation Facilities: [chembche@nmsu.edu](mailto:chembche@nmsu.edu) ()

## Cooperative Extension Service

As a land-grant institution, New Mexico State University has a tripartite mission—instruction, research, and extension. The three parts of this mission are closely interrelated and mutually reinforcing. New Mexico State University's Cooperative Extension Service serves a unique role in New Mexico. As the state's land-grant university, and as mandated by its charter, it is the "leading object" for agriculture, home economics, engineering, business, health sciences, as well as educational programs in the liberal arts and natural sciences. NMSU's uniqueness arises from its vision of teaching/learning, research, and extension/outreach functions—interdependent, mutually supportive and central to its land-grant mission.

The extension aspect of the university's mission is the process of extending the intellectual expertise and resources of the university through teaching and applied research to address the social, civic, economic and environmental challenges and opportunities facing our state, region, nation, and global community. Extension entails an

organized and planned program of activities; these activities bring the resources of the university to bear in a coherent and strategic fashion for the benefit of the citizens of New Mexico and the nation. Many faculty have split appointments with the Agricultural Experiment Station and serve as graduate advisors for students interested in extension as a career. For more information see <http://extension.nmsu.edu/>.

## Core University Research Resources Laboratory

The Core University Research Resources Laboratory (CURRL) is a campus-wide, core facility providing all levels of technical support and consultation for investigators needing analytical and routine transmission, scanning electron microscopy, and light microscopy services. The integrated imaging facility is administered through the Office of the Vice President for Research and is considered a core research facility. The facility was established to furnish state-of-the-art microscopy instrumentation and techniques to investigators and their students for research and training.

Director: Dr. Tanner Schaub ([tschaub@nmsu.edu](mailto:tschaub@nmsu.edu))

<https://research.nmsu.edu/RCP.html>

## DISSECT Laboratory

DISSECT (Discovering Science through Computational Thinking) is a laboratory established by a joint team of researchers from the Department of Computer Science and the College of Education. The lab is housed in Computer Science on the second floor of the Science Hall. DISSECT provides physical space and facilities to nurture interactions between computational scientists and educational researchers in order to develop innovative technologies that will expose K-12 students to fundamental principles of computing. The laboratory provides workspaces and high-performance workstations for graduate students as well as a dedicated network and offices for researchers and visitors.

<https://www.cs.nmsu.edu/gk-12/>

Program Coordinator: Raena Cota [gk12@cs.nmsu.edu](mailto:gk12@cs.nmsu.edu)

## Engineering Research Center

The mission of the College of Engineering's Engineering Research Center (ERC) is to support the faculty and staff of the college in building research programs of nationally and internationally recognized excellence. The ERC assist faculty and staff in their pursuit of research funding, management of their research, and in ensuring research activities are in compliance with all relevant laws and regulations.

The ERC disseminates information to the college regarding state, national and international research trends, programs and policies. The ERC identifies potential funding opportunities and calls for proposals that may be a fit for college faculty and staff. The ERC works with the Office of the Vice President for Research and the other NMSU colleges to bring together multi-disciplinary teams.

Engineering Research Center for Bio-Mediated and Bio-Inspired Geotechnics (CBBG), Engineering Research Center for Re-inventing the Nation's Urban Water Infrastructure (ReNUWit), Tran-Set: Transportation Consortium of South-Central States, and iCREDITS: Interdisciplinary Center of Research Excellence in Design of Intelligent Technologies for Smart Grids.

For proposal preparation, the ERC pre-award team assists the faculty with interpretation of sponsor guidelines, development of the proposal budget, completion of standardized forms, review of the proposal for adherence to sponsor requirements, and submission to the NMSU Office of Grants and Contracts for their review and final submission. The post-award staff assist the faculty and staff with award management, including working with the NMSU Sponsored Projects Accounting office. The ERC is responsible for financial management of college grants and contracts.

Contact: Dr. Phillip DeLeon ([pdeleon@nmsu.edu](mailto:pdeleon@nmsu.edu))

<https://engr.nmsu.edu/Research/page-five.html>

## Freeport-McMoran Copper & Gold Water Quality Laboratory

The Water Quality Laboratory in the College of Engineering was established by a gift from Freeport-McMoRan. It is located in ECIII rooms 106 and 110. Current capabilities of the lab include:

- Dionex ICS-2100 Ion Chromatographic System (ICS) with an AS-DV autosampler, the ICS-2100 is configurable for either anions or cations;
- PerkinElmer Elan DRC-e Inductively Coupled Plasma for Mass Spectrometry (ICP/MS) with dynamic reaction cell (DRC) capability;
- Perkin Elmer Series 200 High-Performance Liquid Chromatography (HPLC) with UV/Vis Detection;
- Gas Chromatography (Agilent model 7890) using a mass spectrometer detector (Agilent model 5975C) (GC/MS) using an Agilent 7693 autosampler;
- A 16-vessel Multiwave 3000 Microwave Reaction System by Anton Paar;
- Micromeritics ASAP 2050 High Pressure Sorption Analyser that uses a dewar with liquid nitrogen or antifreeze for temperature control. The antifreeze temperature is controlled from -20° to +75° Celsius using a PolyScience PD15R-30 recirculator bath;
- Shimadzu TOC-Vcsh Total Organic Carbon Analyser (TOC) with a Total Nitrogen Measurement Unit (TNM-1) option;
- Malvern Zetasizer Nano ZS for zeta potential and size measurement of suspended particles;
- Anton Paar Surpass for zeta potential measurement of membranes, granules, or fiber particles; and
- A Millipore Direct Q3 water purification system.

Analyses may be performed by a researcher after receiving training on the device.

Contact: Dr. Phillip DeLeon ([pdeleon@nmsu.edu](mailto:pdeleon@nmsu.edu))

<https://wordpress.nmsu.edu/mchidest/>

## Geochemistry Research Laboratory

The Department of Geological Sciences houses a number of analytical instruments, all of which are available for use by graduate students, undergraduate researchers, and faculty. The department houses a Laser-Ablation Multi-Collector Inductively Coupled Plasma Mass Spectrometer (LA-MC-ICPMS) for analysis of isotopic ratios of microsamples, an X-ray fluorescence spectrometer for geochemical analysis of rocks and other solid materials, a thermal ionization mass spectrometer for analysis of isotopic ratios of solids and liquids, and a laser-induced breakdown

spectrometer for the analysis of solid materials. Sample preparation equipment is available to support research on these instruments. In addition, mineral separation equipment including a jaw crusher, Gemini shaker table, Franz magnetic separator, and heavy liquids, is available for geochronologic or other mineralogic research projects.

Contact: Dr. Nancy McMillan ([nmcmilla@nmsu.edu](mailto:nmcmilla@nmsu.edu))

## ICredits: Interdisciplinary Center of Research Excellence in Design of Intelligent Smartgrids Technologies

The Center, funded through a grant from the National Science Foundation, is focused on the development of novel hardware/software technologies and methodologies to enable the design, development, deployment and evaluation of microgrids and smartgrids. The Center is housed in Science Hall; it supports research activities at the boundaries between power systems and computer science. The Center also promotes the development of educational and outreach activities aimed at enhancing the awareness and training in all areas relevant to the smartgrids vision.

Contact: Dr. Enrico Pontelli ([epontell@nmsu.edu](mailto:epontell@nmsu.edu))

## Institute for Energy and the Environment

The Institute for Energy & the Environment (IEE) is a unit within the Engineering Research Center IEE's programmatic efforts focus on interdisciplinary research, education, and outreach to develop comprehensive solutions for environmental, energy and water challenges in the southwestern United States and worldwide. IEE offers opportunity for conducting research to the graduate and undergraduate students at NMSU. IEE's major objectives include renewable energy, biofuel, advanced water treatment and desalination, and advancing education, training and outreach in areas of environment, energy and water.

Director: Dr. Phillip DeLeon ([pdeleon@nmsu.edu](mailto:pdeleon@nmsu.edu))

## Knowledge Discovery and Data Mining (KDD) Research Lab

The Knowledge Discovery and Data Mining (KDD) research lab aims at advancing techniques for the effective management and analysis of complex data (e.g., sequence data, graph data, semi-structured data). The laboratory conducts research in modeling, storing, querying, and mining large amount of complex data at both theory and application levels. The laboratory keeps active collaborations with scientists from other Computer Science areas and scientific disciplines to broaden the usage of data management and data mining techniques. The laboratory is located in Science Hall, Rm. 153.

Director: Huiping Cao

## Knowledge Representation, Logic and Advanced Programming Laboratory (KLAP)

The KLAP lab was established in 1994 through an RIMI grant from the National Science Foundation and has developed into a focal research laboratory of international reputation. It is housed in the Department of Computer Science. KLAP's research focus is to advance state-of-the-art knowledge in Artificial Intelligence and High Performance Computing and

its application in diverse interdisciplinary domains such as bioinformatics and assistive technologies.

The lab provides a full meeting space (with multimedia projection capabilities), access to eight high performance work stations, a dedicated high performance computing server and a 40-core Infiniband Beowulf cluster. The lab has hosted international researchers and has graduated approximately 100 graduate students with MS and Ph.D. degrees. It has attracted almost \$10,000,000 in external funding.

Director: Dr. Enrico Pontelli ([epontell@cs.nmsu.edu](mailto:epontell@cs.nmsu.edu))

## Networks and Systems Optimization Lab (NSOL)

The Networks and Systems Optimization Laboratory (NSOL) supports research in networking and communication including, but not limited to: wireless networks, the Internet, supercomputing networks, and online social networks. This research includes optimization problems, protocol design and development, hardware design and development, and mechanisms for improving security and privacy of communications (including cybersecurity). The lab has a 24 core blade server (RAID-10) that is used for extended simulations and back-up, five desktops, five laptops, and four smartphones, which form a networking testbed.

Director: Satyajayant "Jay" Misra

<https://computerscience.nmsu.edu/research/groups-labs.html>

## New Mexico Department of Agriculture

The New Mexico Department of Agriculture (NMDA), under the control of the NMSU Board of Regents, is responsible for administering laws and regulations that daily affect the lives of every citizen of the state. These laws and regulations (concerning the production, preparation, processing, sale, and use of agricultural products; weights and measures; and petroleum products) are designed to assist producers, processors, and consumers. NMDA's marketing program provides guidance to commodity groups in the promotion of agricultural products. A broad consumer service in many areas other than agriculture is provided by the department. NMDA's director is New Mexico's secretary of agriculture and serves on the governor's cabinet as a liaison between state government and the agricultural industry. For further information, e-mail: [pjo@nmda.nmsu.edu](mailto:pjo@nmda.nmsu.edu). NMDA's web site is at <http://www.nmda.nmsu.edu>

## 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>.

## New Mexico Water Resources Research Institute

The New Mexico Water Resources Research Institute (WRRI) at NMSU, established in 1963, was one of the first of 54 water institutes in the United States. The WRRI program encompasses all state universities in New Mexico and public agencies sponsoring water research. The institute serves as a coordinator, assisting researchers in obtaining funds, working with granting agencies, and serving as the administrator for projects. The annual budget of approximately \$1.5 million is made available from federal, state, and/or private sources through a variety of grants and contracts. All research projects administered by the institute encourage graduate student participation. As a result, about 30 students a year receive scientific training through institute-sponsored projects. WRRI also sponsors the Annual New Mexico Water Conference, which has provided a public forum for state water issues since 1956. Public participation helps the institute focus its research program on areas of greatest need. The WRRI publishes research results of every project it administers and other miscellaneous reports. The WRRI also maintains a water resources reference room with 2,000 books and documents and the ability to link to 10,000 water-related documents on water issues facing the state and the nation. E-mail may be sent to [nmwrrri@nmsu.edu](mailto:nmwrrri@nmsu.edu). The WRRI's homepage address is <http://nmwrrri.nmsu.edu/>.

## Oak Ridge Associated Universities Program (ORAU)

Since 1991, students and faculty of New Mexico State University benefited from its membership in Oak Ridge Associated Universities (ORAU). ORAU is a consortium of 98 colleges and universities and a contractor for the U.S. Department of Energy (DOE) located in Oak Ridge, Tennessee. ORAU works with its member institutions to help their students and faculty gain access to federal research facilities throughout the country; to keep its members informed about opportunities for fellowship, scholarship, and research appointments; and to organize research alliances among its members.

Through the Oak Ridge Institute for Science and Education (ORISE), the DOA facility that ORAU operates, undergraduates, graduates, postgraduates, as well as faculty enjoy access to a multitude of opportunities for study and research. Students can participate in programs covering a wide variety of disciplines including business, earth sciences, epidemiology, engineering, physics, geological sciences, pharmacology, ocean sciences, biomedical sciences, nuclear chemistry, and mathematics. Appointment and program length range from one month to four years. Many of these programs are especially designed to increase the numbers of underrepresented minority students pursuing degrees in science- and engineering-related disciplines. A comprehensive listing of these programs and other opportunities, their disciplines, and details on locations and benefits can be found in the ORISE Catalog of Education and Training Programs, which is available at <http://www.ornl.gov>.

ORAU's Office of Partnership Development seeks opportunities for partnerships and alliances among ORAU's members, private industry, and major federal facilities. Activities include faculty development programs, such as the Ralph E. Powe Junior Faculty Enhancement Awards, the Visiting Industrial Scholars Program, consortium research funding initiatives, faculty research and support programs as well as services to chief research officers.

For more information about ORAU and its programs, contact:

Dr. Luis Cifuentes - Vice President for Research (575) 646-2481

ORAU Corporate Secretary (865) 576-3306; or Visit the ORAU Home Page (<http://www.ornl.gov>)

## Physics Research Facilities

The Department of Physics operates a PANalytical Empyrean x-ray diffractometer for low-resolution powder diffraction, high-resolution diffraction, reciprocal space mapping with a triple-axis crystal, and x-ray reflectance. It also operates a J.A. Woollam variable angle of incidence ellipsometer (VASE) with a computer-controlled Berek waveplate compensator for measurements from 190 to 2500 nm, at room temperature and from 80 to 800 K. Both instruments are integrated into CURRL and available to the campus community and off-campus users for a fee. See <https://phys.nmsu.edu/research/research-programs.html> for more information.

Contact Dr. Stefan Zollner ([zollner@nmsu.edu](mailto:zollner@nmsu.edu)).

## Play and Interactive Experiences for Learning Lab (PlxL)

The Play and Interactive Experiences for Learning (PlxL) Lab works at the intersection of games, human-computer interaction, and mixed reality, developing game experiences that educate and function as scientific experiments in HCI. Projects center around the best means of interfacing with games, including keyboard and mouse and controllers all the way to gesture-based input, wearable systems and mixed reality. Prior research has investigated the use of games for training firefighters, and ongoing research applies this to disaster response in general and military projects. The lab provides space for students, as well as access to workstations, a modular wearable computer, tracking sensors and games.

Director: Zachary O. Toups ([ztoups@nmsu.edu](mailto:ztoups@nmsu.edu))

## Programming Languages Environments and Software Engineering (PLEASE) Laboratory

The PLEASE lab pursues research in the practical aspects of software development, including programming languages, programming environments, and software engineering. The lab is housed in Science Hall 167 and includes workstations and work space for graduate students pursuing research in relevant areas.

Director: Jonathan Cook  
<http://www.cs.nmsu.edu/please>

## Psychology Research Facilities

The Department of Psychology emphasizes research in social psychology, engineering psychology, and cognitive psychology. Faculty investigate such issues as mother-infant interactions and the impact of cortisol responses to stress upon development; visual search; human factors research; auditory perception; prospective memory; emotion and social decision-making; evolutionary psychology; skill acquisition; social cognition; perception and action; embodied cognition; cognitive neuroscience (control of attention, neural dynamics; and brain-computer interfaces); and research and statistical analysis methods.

All faculty have designated labs with a large central area and 3-4 smaller adjacent rooms. This facilitates data collection from small groups or individuals. Research using the department's subject pool is managed with an online system.

The department has specialist facilities that include an EyeLink 1000 eye tracking system with experiment builder software; two 128 channel Biosemi ActiView-2 EEG systems and two shielded rooms; eight analysis workstations; and a Neuroconn DC Stimulator Plus tDCS stimulator. The lab collaborates with the Mind Research Network that has access to a Siemens 3T Trio research MR scanner, a Magvis 132 channel MEG system, and Biosemi and Geodysics EEG systems. The Auditory Perception Lab has a remote-controlled robot with binocular vision and stereo audition that is used to assess auditory performances in applied settings; another remote controlled robot to test perceptual interfaces for remotely-operated vehicles; a 30-element speaker array to simulate real-world auditory environments; and two portable eye trackers housed in the PACMANE (Perception, Action and Cognition in Mediated, Artificial and Naturalistic Environments) lab.

For more information: <https://psychology.nmsu.edu/>

## Research Initiatives in the College of Health, Education and Social Transformation

The College of Education has research initiatives and labs in the following areas:

- The Kinesiology and Dance Department offers lab space for the study of biomechanics, sport psychology & motor learning, applied and basic physiology, healthy aging, physical education curriculum and kinesthetic learning.
- The Speech and Hearing Center's Benfer for voice and speech science research.
- The Special Education/Communication Disorders Department's Autism Research Initiative.
- Alliance for the Advancement of Teaching and Learning in collaboration with the Southwest Regional Educational Lab REL (Institute for Educational Services, IES) provides research for partner school district practitioners on accountability, special education/response to intervention, literacy, leadership development, math and science achievement, and program evaluation.
- The Institute for Mathematics and Science Education oversees multiple mathematics and science grants as well as serving as the STEM Outreach Center for K-12 education.
- The Counseling and School Psychology Training and Research Center provides counseling services for students, training for graduate students in counseling, school psychology and counseling psychology, and conducts research on counseling outcomes and processes.
- A Reading Research Center is housed in the NMSU Children's Village and provides reading diagnostic services including analysis of reading using eye-tracking software.

## Southwest Institute for Health Disparities Research

To address the substantial health disparities that exist in Southern New Mexico and the U.S./Mexican Border Region, New Mexico State University has recently established the Southwest Institute for Health

Disparities Research within the College of Health and Social Services. The purpose of the Institute is to assist faculty to secure external funding and conduct research which has the potential to reduce health disparities and improve minority health, provide health related community outreach programming, provide training for researchers, lay groundwork for additional funded research, and attract highly qualified minority faculty and graduate students to NMSU.

Dr. Jill McDonald ([jillmcd@nmsu.edu](mailto:jillmcd@nmsu.edu))

<https://swihdr.nmsu.edu> (<https://swihdr.nmsu.edu/>)

## Southwest Technology Development Institute (SWTD)

SWTDI, formally the Southwest Regional Experimental Station or SWRES, was established in 1977 under DOE funding as a Photovoltaic research center. Over the last 30 years SWTDI has conducted extensive long term panel, inverter, and systems testing providing significant contribution to the field. One substantial consequence of the system testing has been the accumulation of knowledge related to the safety, installation methodology, design, and development industry standards in PV. Today SWTDI continues to be a leader in education and development of article 690 of the National Electric Code (NEC), Solar Photovoltaic Systems and continues its research in long term panel and inverter testing. However, in 2012 SWTDI integrated with the Electrical and Computer Engineering Department of NMSU to broaden the research focus and has developed a microgrid for expanded research into renewable integration into the electric grid and demonstration of ongoing collaborative research with the ECE department on industry partners.

<https://ece.nmsu.edu> (<https://ece.nmsu.edu/>)

## Spatial Applications and Research Center (SpARC)

The SpARC laboratory was established in 1982 as an applied contract research laboratory for the NMSU Geography Department. SpARC provides a variety of services including planning and research, GIS, image processing, modeling and training. The original purpose of the laboratory was to undertake externally funded projects under the direction of geography faculty and employ students within the department. Thirty-four years later, the laboratory continues to do project related work. It has employed more than 150 students and provided assistance to more than 35 faculty members inside and outside Geography. The primary clients of the lab have been federal state and local government agencies, with an emphasis on applied transportation, water resource, and environmental research projects. The lab houses 11 high performance workstations, a range of mapping grade GPS units, and a large scanner/plotter. Software available for use includes database software, ENVI image processing software, TransCAD, and the entire suite of Esri GIS software. [http://smiley.nmsu.edu/SparcWebsite/BGIS2Index\\_2012.html](http://smiley.nmsu.edu/SparcWebsite/BGIS2Index_2012.html)

Director: Dr. Christopher Brown ([brownchr@nmsu.edu](mailto:brownchr@nmsu.edu); (575) 646-1892)

## Crimson Research

Crimson Research is designed to assist researchers, agency directors, business leaders, and policy makers in all aspects of survey research and program evaluation. Housed in the College of Health, Education and Social Transformation, the Center has state-of-the-art hardware and software for conducting phone and internet surveys of any type and length as well as facilities for conducting face-to-face interviews

and focus groups. Crimson Research provides a wide array of services: questionnaire design, sampling, data collection, and statistical analysis for telephone, mail, and internet surveys. Center staff are also able to assist and conduct all forms of program evaluation from formative to summative approaches, including process, outcome and impact evaluations. Bilingual (Spanish/English) questionnaire translation and interviewing are also available.

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[https://publichealth.nmsu.edu/research\\_and\\_outreach/crimson\\_research.html](https://publichealth.nmsu.edu/research_and_outreach/crimson_research.html)

## University Museum

Established in 1959, the New Mexico State University Museum has provided 50 years of service to the university and community. The University Museum assists NMSU in providing quality education, advancing knowledge through research, and celebrating the culture and history of the southwest and the University. The Museum serves the community as a repository and exhibitor of local and regional history and culture. Through its care and maintenance of donated ethnographic, historic and prehistoric objects, it preserves an important part of Southwestern and Border region culture and history. The Museum encourages faculty and student research using our diverse cultural materials.

The Museum's collections are primarily anthropological (archaeological and ethnographic) with secondary collections in history and the natural sciences. Anthropological collections document the cultural diversity of the border in the Greater Southwest and northern Mexico. The Museum preserves and catalogs collections to promote research and access to cultural materials. Exhibits are developed by students and staff as well as brought in from other institutions.

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<https://univmuseum.nmsu.edu> (<https://univmuseum.nmsu.edu/>)