ECONOMICS, APPLIED STATISTICS, AND INTERNATIONAL BUSINESS

Undergraduate Program Information

The Department of Economics, Applied Statistics, and International Business (EASIB) offers undergraduate degrees in two majors in the bachelor of business administration -- one in economics and one in international business. The Department also offers a bachelor of arts in economics. Economics majors work in business, government, and the non-profit sector. The economics major is also a good choice for students who plan to attend graduate school in economics, law, business, and other areas. International business is a good major for those interested in working in the international operations of a business or interested in working outside the United States. International Business graduates often obtain jobs in areas such as management or marketing then work in areas related to international aspects of the business.

Graduate Program Information

Graduate Study in Economics

EASIB cooperates with the Department of Agricultural Economics and Agricultural Business (AEAB) in offering graduate programs in economics, agricultural economics and economic development. The programs are jointly administered by faculty from the two departments. The objective of the master's program is to prepare students for professional positions in business, government, or research institutions. Our master's degrees also are good preparation for those considering applying to a Ph.D. program. EASIB offers a Master of Arts in economics. There are three concentrations: regulatory economics, policy analysis, and econometrics. For more information on the Master of Science degree in agricultural economics, refer to the Agricultural Economics (https://catalogs.nmsu.edu/nmsu/agricultural-consumer-environmental-sciences/agricultural-economics-business/) section in this catalog. The Doctor of Economic Development, also jointly administered by the EASIB and AEAB, is a unique program that provides advanced training in applied economic development. Graduates find jobs in industry and government.

Graduate Study in Applied Statistics

A graduate degree administered directly by EASIB is the Master of Applied Statistics. This degree is designed to produce graduates proficient in current practices in statistics and able to enter directly into positions in industry, government or private business. After completing this degree, a person will have the skills needed to execute data analyses, design experiments, and design and analyze surveys.

Graduate Study in Business Administration

The Department of Economics, Applied Statistics, and International Business cooperates with other departments of the College of Business to offer a Master of Business Administration and a Ph.D. in Business Administration. Within the Ph.D. program, the department offers a minor area of study and provides statistics courses to support the doctoral program. More information about these programs is available in this catalog under the College of Business (https://catalogs.nmsu.edu/nmsu/business/#text).

Degrees for the Department

Bachelor Degree(s)

- Economics (Energy Economics) - Bachelor of Business Administration (https://catalogs.nmsu.edu/nmsu/business/economics-applied-statistics-international-business/economics-energy-economics-bba/)
- Economics (Energy Economics) - Bachelor of Business Administration (Online) (https://catalogs.nmsu.edu/global/nmsu-global/economics-energy-economics-bba-online/)
- Economics - Bachelor of Arts in Economics (https://catalogs.nmsu.edu/nmsu/business/economics-applied-statistics-international-business/economics-bachelor-art-economics/)
- Economics - Bachelor of Business Administration (https://catalogs.nmsu.edu/nmsu/business/economics-applied-statistics-international-business/economics-bachelor-business-administration/)
- International Business - Bachelor of Business Administration (https://catalogs.nmsu.edu/nmsu/business/economics-applied-statistics-international-business/international-business-bachelor-business-administration/)

Master Degree(s)

- Applied Statistics - Master of Science (https://catalogs.nmsu.edu/nmsu/graduate-school/applied-statistics-master-science/)
- Economics (Econometrics) - Master of Arts (https://catalogs.nmsu.edu/nmsu/graduate-school/economics-econometrics-master-arts/)
- Economics (Econometrics) - Master of Arts (Online) (https://catalogs.nmsu.edu/global/nmsu-global/economics-econometrics-ma-online/)
- Economics (Public Policy) - Master of Arts (https://catalogs.nmsu.edu/nmsu/graduate-school/economics-public-policy-master-arts/)
- Economics (Public Policy) - Master of Arts (Online) (https://catalogs.nmsu.edu/global/nmsu-global/economics-public-policy-ma-online/)
- Economics (Public Utility Policy and Regulation) - Master of Arts (https://catalogs.nmsu.edu/nmsu/graduate-school/economics-public-utility-policy-regulation-master-arts/)
- Economics (Public Utility Policy and Regulation) - Master of Arts (Online) (https://catalogs.nmsu.edu/global/nmsu-global/economics-public-utility-policy-regulation-ma-online/)
- Economics - Master of Arts (https://catalogs.nmsu.edu/nmsu/graduate-school/economics-master-arts/)
- Economics - Master of Arts (Online) (https://catalogs.nmsu.edu/global/nmsu-global/economics-ma-online/)

Doctoral Degree(s)

- Applied Statistics - Doctor of Philosophy (https://catalogs.nmsu.edu/nmsu/graduate-school/applied-statistics-phd/)
- Economic Development - Doctor of Economic Development (https://catalogs.nmsu.edu/nmsu/graduate-school/economics-doctor-economic-development/)

Minors for the Department

- Applied Statistics - Graduate Minor (https://catalogs.nmsu.edu/nmsu/graduate-school/applied-statistics-graduate-minor/)

- Economics - Graduate Minor (https://catalogs.nmsu.edu/nmsu/graduate-school/economics-graduate-minor/)
- Economics - Undergraduate Minor (https://catalogs.nmsu.edu/nmsu/business/economics-applied-statistics-international-business/economics-undergraduate-minor/)
- International Business - Undergraduate Minor (https://catalogs.nmsu.edu/nmsu/business/economics-applied-statistics-international-business/international-business-undergraduate-minor/)

Graduate Certificates

- Public Utility Regulation and Economics - Graduate Certificate (https://catalogs.nmsu.edu/nmsu/graduate-school/public-utility-regulation-economics-graduate-certificate/)
- Public Utility Regulation and Economics - Graduate Certificate (Online) (https://catalogs.nmsu.edu/global/nmsu-global/public-utility-regulation-economics-gr-certificate-online/)

Department Head: Y. F. Lee, Ph.D. (Southern Illinois-Carbondale)-international finance and trade, international monetary system, economic development;

Professors L. Blank, Ph.D. (Tennessee, Knoxville)- microeconomic theory, managerial economics, and regulatory economics; C, Erickson, Ph.D. (Arizona State)-regional (Latin American) economic growth and development; money and banking; R. L. Steiner, Ph.D. (Oklahoma State)-likelihood methods, discrete distributions, and exact tests; B. Widner, Ph.D. (Colorado State)-urban/regional development, managerial economics, and public finance; D. M. VanLeeuwen, Ph.D. (Oregon State)-statistics

Associate Professors J. Caldwell Ph.D. (Illinois)-energy economics, utility rate design, climate policy; C. Gard, Ph.D. (Washington)-biostatistics, and breast cancer risk prediction; L. LaPlue (Tennessee)-international and environmental economics; M. Li, Ph.D.(Pennsylvania State)-labor, urban, and agricultural economics; J. Mamkhezri, Ph.D. (New Mexico)-energy, natural resources, environmental and health economics; C. Sroka (Ohio State)-count data models, and health economics

Assistant Professors J. Dawson Ph.D. (UW-Madison)−statistics, biostatistics; S. Jeon Ph.D. (North Carolina)-environmental statistics, extreme value analysis, and spatio-temporal modeling.

College Assistant, Associate, and Full Professors: (College Associate Prof.) B. Bai, MS (New Mexico State)-applied statistics, behavioral science; (College Assistant Prof.) C. Blume, Master of Accountancy (New Mexico State); (College Full Prof.) M. Downes, Ph.D. (New Mexico)−environmental and natural resources economics, econometries and quantitative economics; (College Associate Prof.) F. Pallares, DED (New Mexico State)−economic development; (College Full Prof.) L. Vargas, DED (New Mexico State)-international development, institutional economics, and border economics.

Emeritus Faculty R. V. Adkisson, Ph.D. (Nebraska)-international, public finance, economic development; K. Brook, Ph.D. (Texas-Austin)-macroeconomic theory, monetary policy; D.L. Clason, Ph.D. (Kansas State); D. L. Daniel, Ph.D. (Southern Methodist)-nonparametric, statistical computing, and environmental research; C. Enomoto, Ph.D. (Texas A&M)-econometrics, economic theory; M. Ellis, Ph.D. (California-Riverside)-economic development; D. A. Gegax, Ph.D. (Wyoming)-public utility economics, industrial organization; W. R. Gould, Ph.D. (North Carolina State)-biological sampling, wildlife and fisheries estimation. B. N. Matta, Ph.D. (Texas-Austin); J. T. McGuckin, Ph.D. (Wisconsin-Madison); J. T. Peach, Ph.D. (Texas-Austin)-quantitative economics, border studies, economic development; A.V. Popp, Ph.D., (Northern Illinois); D.B. Smith, Ph.D., E. S. Willman, Ph.D. (Indiana).

Applied Statistics Courses

A ST 311. Statistical Applications
3 Credits (3)
Techniques for describing and analyzing economic and biological data; estimation, hypothesis testing, regression and correlation; basic concepts of statistical inference. May be repeated up to 3 credits.
Prerequisite: MATH 1215 or higher.
Learning Outcomes
1. Describe a data set with graphical tools and computed measures.
2. Explain the relationship between two numerical variables using correlation and regression.
3. Understand how probability and sampling methods are used to make statistical inferences.
4. Draw inference from a sample to a population using confidence intervals and hypothesis tests.
5. Understand the relationship between population parameters and sample statistics.
6. Understand the basic procedure of data production with sampling and experimental design.

A ST 450. Special Topics
1-4 Credits
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 465. Statistical Analysis I
3 Credits (3)
An analytic introduction to the theory and methods of statistical inference. Sampling, frequency distributions (z, t, x2, F), estimation, testing, and simulation. Crosslisted with: A ST 565.
Prerequisite(s): MATH 2530G or consent of instructor.

A ST 466. Statistical Analysis II
3 Credits (2+2P)
Continuation of A ST 465. An analytic introduction to the theory and methods of statistical inference. Sampling, frequency distributions (z, t, x2, F), estimation, testing, and simulation. Crosslisted with: A ST 566.
Prerequisite(s): A ST 465 or consent of instructor.

A ST 498. Independent Study
1-3 Credits
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.

A ST 503. SAS Basics
3 Credits (2+2P)
An introduction to the statistical software package, SAS, and its utilization in an interactive computing environment, primarily PC/SAS. Provides a fundamental understanding of the structure of SAS, its data management capabilities, and how to invoke a variety of descriptive and simple statistical SAS procedures.
Corequisite(s): A ST 505.

A ST 504. Statistical Software Applications
1 Credit (1)
Optional Computing course to accompany A ST 506. Computer analysis of topics covered in A ST 505 and A ST 506.
Prerequisite(s): A ST 503.
Corequisite(s): A ST 506.

A ST 505. Statistical Inference I
4 Credits (3+2P)

A qualitative introduction to the concepts and methods of statistical inference. Sampling, frequency distributions (z, t, x2, F), estimation, and testing. One-way analysis of variance. Simple linear regression.
Prerequisite: consent of the instructor.

A ST 506. Statistical Inference II
3 Credits (2+2P)
Introduction to multiple regression; the analysis of variance for balanced studies; multiple comparisons, contrasts, factorials, experimental designs through split plots. May be repeated up to 3 credits.
Prerequisite: A ST 505 and the ability to use a standard computer package such as SAS (may be satisfied by A ST 503) or consent of instructor.
Learning Outcomes
1. Formulate models, construct ANOVA tables for balanced designs, and conduct complete analyses accounting for factorial treatment structures, and standard experimental design structures, including the completely randomized design, the randomized complete block design, completely randomized design with subsampling, the completely randomized design with a covariate, and the split-plot design.
2. Assess model adequacy including assessing constancy of variance and normality assumptions.
3. Choose an appropriate multiple comparisons procedure to control the experiment wise or family wise Type I error rate.
4. Use contrasts to conduct pre-planned comparisons.
5. Identify the experimental unit(s) in an experiment; formulate a model and conduct an analysis appropriately accounting for the experimental unit(s).
6. Conduct a complete analysis of data from a designed experiment and interpret findings.

A ST 507. Advanced Regression
3 Credits (3)
Examination of multiple regression; residual analysis, collinearity, variable selection, weighted least squares, polynomial models, and nonlinear regression: linearizable and intrinsically nonlinear models. May be repeated up to 3 credits.
Prerequisite: A ST 503 and A ST 505 or consent of instructor.
Learning Outcomes
1. Understand the fundamental philosophy behind regression.
2. Conduct a proper regression analysis, including making inferences and predictions.
3. Address common pitfalls in regression, including model assumption and collinearity issues.
4. Use the R language to perform regression analysis.

A ST 509. Statistical Models for Complex Data Structures
3 Credits (3)
Statistical models for data that are not normally distributed or data with correlated observations. Covers generalized linear models for discrete and mixed models for correlated data structures. Analysis of data with unbalanced and missing cells.
Prerequisite: A ST 506 with a grade of B or higher, or A ST 507 with a grade of B or higher.
Learning Outcomes
1. Analyze data using classical regression and generalized linear models.
2. Derive quantities of interest from fitted models.
3. Formulate the appropriate hierarchical model for different analytical goals and data structures.

4. Use statistical software to fit hierarchical models and assess the adequacy of the model.
5. Interpret summaries of fitted hierarchical models.

A ST 511. Statistical Methods for Data Analytics
3 Credits (3)
Statistics fundamentals, with an emphasis on inferential methods, linear regression, and practical applications to data analytics. A ST majors should not take this course if they have already completed A ST 505.
Learning Outcomes
1. Understand descriptive and inferential methods commonly used in data analytics
2. Formulate linear regression models and fit models using statistical software
3. Properly interpret the results of statistical analyses
4. Effectively communicate statistical methods and results orally and in writing

A ST 512. Quantitative Analysis for Business Decisions
3 Credits (3)
Identification, collection, and analysis of an organization's data both internal and external, and use of the resultant information in managerial decision making. Crosslisted with: MGMT 512.
Learning Outcomes
1. Understand statistical methods commonly used in business.
2. Identify statistical considerations in the design of studies.
3. Properly interpret the results of statistical analyses and use results to make decisions regarding business problems.
4. Effectively communicate business decisions orally and in writing, using statistics to defend decisions, as appropriate.

A ST 515. Statistical Analysis with R
3 Credits (3)
Introduction to R data types, basic calculations and programming, data input and manipulation, one and two sample tests, ANOVA, regression, diagnostics, graphics, probability distributions, and basic simulations in the R software environment.
Prerequisite(s): A ST 505 or equivalent with consent of instructor.

A ST 540. Predictive Analytics
3 Credits (3)
This course covers data analytic techniques that can be used to predict and classify observations outside of the original data. Material includes linear and nonlinear regression models, linear and nonlinear classification models, and classification and regression trees. Students will gain hands-on experience using modern software packages to build predictive models and quantify the accuracy of these models.
Prerequisite(s): A ST 507 or consent of instructor.

A ST 550. Special Topics
1-4 Credits
Specific subjects to be announced in the Schedule of Classes. Maximum of 4 credits per semester. No more than 9 credits toward a degree.

A ST 554. Practicum in Statistics
3 Credits (3)
Practical experience in data analysis and the reporting of results; selecting and using statistical methods to analyze and interpret real-world problems; written and oral communication of findings
Prerequisite: A ST 503, A ST 506, A ST 507, and A ST 566.
Learning Outcomes
1. Work with real data to gain substantial experience in data analysis, writing, and presentation.

2. Research and apply a variety of statistical methods, some of which students may not have encountered in prior coursework.
3. Apply knowledge and skills gained throughout the program of study, integrating content from across the MS in A ST curriculum.

A ST 555. Applied Multivariate Analysis
3 Credits (3)
Multivariate analysis of linear statistical models, including MANOVA and repeated measures. Analysis of correlation and covariance structures, including principal components, factor analysis, and canonical correlation. Classification and discrimination techniques. May be repeated up to 3 credits.
Prerequisite: A ST 506 and A ST 504.
Learning Outcomes
1. Understand the details of various multivariate techniques, emphasizing connections to univariate techniques where applicable.
2. Select appropriate multivariate techniques for a given data set and problem.
3. Use statistical software to perform multivariate analyses.
4. Correctly interpret, write about, and present the results of multivariate analyses.

A ST 565. Statistical Analysis I
3 Credits (3)
An analytic introduction to the theory and methods of statistical inference. Sampling, frequency distributions (z, t, x2, F), estimation, testing, and simulation. Crosslisted with: A ST 465.
Prerequisite(s): MATH 2530G or consent of instructor.

A ST 566. Statistical Analysis II
3 Credits (2+2P)
Continuation of A ST 565. Crosslisted with: A ST 466.
Prerequisite(s): A ST 565 or consent of instructor.

A ST 568. Applied Linear Models II
3 Credits (3)
The relation of full to less-than-full rank linear models; complex data structures, including messy data, empty cells, and components of variance: extensions to categorical data analysis and nonparametric methods. Continues some emphasis on computational aspects.
Prerequisite: A ST 567.

A ST 596. Independent Study
1-3 Credits
Individual studies directed by consenting faculty with prior approval by department head. May be repeated for a maximum of 3 credits.
Prerequisite: consent of instructor.

A ST 598. Special Research Problems
1-6 Credits
Individual analytical or experimental projects. Restricted to majors. Graded S/U.

A ST 599. Master's Thesis
1-6 Credits
Thesis.

A ST 609. Linear Model Theory
3 Credits (3)
Theoretical treatment of linear models. Covers fixed effects and mixed effects models; models that are full rank, less than full rank, and over-parametrized. Some computational aspects are discussed in relation to statistical packages. Prior to enrollment students should have a basic understanding of undergraduate-level matrix algebra.
Prerequisite: A ST 565, A ST 566, and A ST 509.

Learning Outcomes
1. Derive estimators of model parameters using design matrices, including models that are full rank, less than full rank, and over-parameterized
2. Derive the expectation vector and variance matrix of a linear transformation of a random data vector
3. Derive common test statistics and their distributions for fixed effects and mixed effects models with a balanced design
4. Understand the mathematical properties of variance-covariance matrices and their implications for model estimation and inference
5. Derive and interpret diagnostics for linear models

A ST 616. Computational Statistics
3 Credits (3)
An introduction to topics in computational statistics including: methods for generating random variables, large scale hypothesis testing, resampling, bootstrapping, permutation tests, the Expectation-Maximization algorithm, Markov chain Monte Carlo methods, and computational approaches in Bayesian inference. Includes some applications of computational statistics in the sciences. Previous experience with programming, while helpful, is not required.
Prerequisite: A ST 505 and A ST 566.
Learning Outcomes
1. Conduct large-scale hypothesis testing
2. Generate random numbers and random variables
3. Implement Markov chain Monte Carlo methods for conducting Bayesian inference
4. Import and manipulate data using R
5. Employ bootstrapping methods for making inferences and conduct statistical hypothesis testing using permutation tests

A ST 645. Time Series Methods
3 Credits (3)
Theory and methods for analyzing, modeling, and forecasting time series. Covers ARIMA models, spectral analysis, filtering, and state-space models. Previous experience using the R programming language is helpful but not required. Students should have a basic understanding of undergraduate-level matrix algebra and trigonometry.
Prerequisite: A ST 565 and A ST 507.
Learning Outcomes
1. Explore time series datasets for autocorrelation, cross-correlation, and stationarity
2. Select appropriate models for analyzing and forecasting time series data
3. Identify regular patterns and frequencies in time series data
4. Fit time series models using statistical software
5. Understand mathematical theory underlying time series models

A ST 665. Bayesian Theory
3 Credits (3)
Provides an overview of theory underlying Bayesian inference. Topics include Likelihood and Sufficiency Principles, concepts from decision theory, construction of prior distributions, Bayesian point estimation, tests and confidence regions.
Prerequisite: A ST 565 and A ST 566.
Learning Outcomes
1. Understand the theoretical justification for using Bayesian methods as a means of statistical inference
2. Apply decision-theoretic principles to evaluate estimators under different loss functions

3. Develop prior distributions using the concepts of entropy, conjugacy, and non-informativeness
4. Derive basic point estimators using Bayesian principles
5. Understand testing and confidence region methods used for Bayesian inference

A ST 700. Doctoral Dissertation
1-15 Credits (1-15)
Dissertation for the Applied Statistics doctoral program. Students must have advancement to candidacy in order to enroll in this course. May be repeated up to 36 credits.
Learning Outcomes
1. Make substantive progress towards completing a dissertation that fulfills the requirements for the Applied Statistics doctoral degree.

Economics Courses

ECON 1110G. Survey of Economics
3 Credits (3)
This course will develop students' economics literacy and teaches students how economics relates to the everyday life of individuals, businesses and society in general. The course will also introduce students to the roles different levels of governments play in influencing the economy. At the conclusion of the course, students will be able to identify economic causes for various political and social problems at national and international levels, and have a better understanding of everyday economic issues that are reported in media and public forums.
Learning Outcomes
1. Gain and demonstrate a contextual understanding of economic terms and concepts.
2. Recognize and analyze common economic issues which relate to individual markets and the aggregate economy.
3. Learn basic economic principles that influence global trading and challenges relating to globalization.
4. Outline the implications of various economic policies on individuals and on economies.
5. Demonstrate ability to use diagrams and graphs to explain economic principles, policies and their applications.
6. Appreciate and understand how individual decisions and actions, as a member of society, affect economies locally, nationally and internationally.
7. Explain the roles of governments in influencing buyer and seller behavior in the market and how government failure occurs when intervention fails to improve or actually worsens economic outcomes.
8. Be able to apply course concepts to interpret, evaluate and think critically about economic events and policies, especially as regularly reported in the media and other public forums.

ECON 2110G. Macroeconomic Principles
3 Credits (3)
Macroeconomics is the study of national and global economies. Topics include output, unemployment and inflation; and how they are affected by financial systems, fiscal and monetary policies.
Learning Outcomes
1. Explain the concepts of opportunity cost, comparative advantage and exchange.
2. Demonstrate knowledge of the laws of supply and demand and equilibrium and use supply and demand curves to analyze responses of markets to external events.
3. Explain the circular flow model and use the concepts of aggregate demand and aggregate supply to analyze the response of the economy to disturbances.
4. Explain the concepts of gross domestic product, inflation and unemployment and how they are measured.
5. Describe the determinants of the demand for money, the supply of money and interest rates and the role of financial institutions in the economy.
6. Define fiscal policy and monetary policies and how these affect the economy.
7. Students will be able to identify the causes of prosperity, growth, and economic change over time and explain the mechanisms through which these causes operate in the economy.

ECON 2120G. Microeconomics Principles
3 Credits (3)
This course will provide a broad overview of microeconomics. Microeconomics is the study of issues specific to households, firms, or industries with an emphasis on the role of markets. Topics discussed will include household and firm behavior, demand and supply, government intervention, market structures, and the efficient allocation of resources.
Learning Outcomes
1. Explain the concept of opportunity cost.
2. Demonstrate knowledge of the laws of supply and demand and equilibrium.
3. Use supply and demand curves to analyze responses of markets to external events.
4. Use supply and demand analysis to examine the impact of government intervention.
5. Explain and calculate price elasticity of demand and other elasticities.
6. Demonstrate an understanding of producer choice, including cost and break-even analysis.
7. Compare and contrast the following market structures: perfect competition, monopoly, monopolistic competition, and oligopoly.

ECON 2120H. Principles of Microeconomics Honors
3 Credits (3)
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. Must be a Crimson Scholar.
Prerequisite(s): MATH 1220G.
Learning Outcomes
1. Explain the concept of opportunity cost.
2. Demonstrate knowledge of the laws of supply and demand and equilibrium.
3. Use supply and demand curves to analyze responses of markets to external events.
4. Use supply and demand analysis to examine the impact of government intervention.
5. Explain and calculate price elasticity of demand and other elasticities.
6. Demonstrate an understanding of producer choice, including cost and break-even analysis.
7. Compare and contrast the following market structures: perfect competition, monopoly, monopolistic competition, and oligopoly.

ECON 304. Money and Banking
3 Credits (3)
Income measurement and determination, monetary and fiscal policies.
Prerequisite(s): ECON 2110G or ECON 2110H or equivalent.

ECON 311. Intermediate Macroeconomic Theory
3 Credits (3)
Analysis of gross domestic product, the Classical, Keynesian, and Neo-Keynesian theories of income, employment, inflation and growth.
Prerequisite: ECON 2110G or ECON 2110H.
Learning Outcomes
1. Learn the uses and abuses of macroeconomic data
2. Learn the role of economic theory in understanding economic issues and forecasting economic behavior
3. Learn the causes and consequences of short-run economic fluctuations and long-run economic growth
4. Learn the role of government in the macroeconomy
5. By the end of the class, you should be able to describe the state of the macroeconomy and analyze the consequences of economic policy actions from several perspectives

ECON 312. Intermediate Microeconomic Theory
3 Credits (3)
Contemporary economic theory with emphasis upon value and distribution.
Prerequisite: ECON 2120G or ECON 2120H or equivalent.
Learning Outcomes
1. Gain an understanding of the language of Intermediate Microeconomics.
2. Know the underlying structure of economic models such as supply and demand, consumer theory, producer theory and market structure.
3. Understand the assumptions of economic models.
4. Be able to solve a supply and demand model.
5. Demonstrate critical thinking skills by applying economic models to a wide variety of policy questions.

ECON 324V. Developing Nations
3 Credits (3)
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 Credits (3)
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. May be repeated up to 3 credits.
Learning Outcomes
1. Identify the basic components of economic growth and development
2. Understand how Latin America fell behind other regions in terms of economic development
3. Compare various policies implemented to support economic development in Latin America, as well as the successes and failures of these policies
4. Gain a basic understanding of how to conduct independent research to be demonstrated by the completion of a term paper addressing an issue related to economic development in a nation or region of Latin America

ECON 332. Public Finance
3 Credits (3)
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 2120G or ECON 2120H

ECON 335V. Business and Government
3 Credits (3)
Relation of government to business through regulation; political, legal, and social implications. Crosslisted with: MGMT 335G

ECON 337V. Natural Resource Economics
3 Credits (3)
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. Same as AEEC 337V.
Prerequisite: ECON 1110G or ECON 2120G or ECON 2120H.

ECON 345. Energy Economics
3 Credits (3)
Examines the economics of energy production including oil, coal, natural gas, renewables, and conservation as a substitute for energy production. Emphasis is on federal and state regulatory framework, and resulting public policy issues from a regional and national perspective.
Prerequisite(s): (ECON 2110G or ECON 2110H), (ECON 2120G or ECON 2120H).

ECON 384V. Water Resource Economics
3 Credits (3)
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. Same as AEEC 384V.
Prerequisite: AEEC 1110 or ECON 2120G or ECON 2120H.

ECON 405. Introductory Econometrics
3 Credits (3)
Multiple regression and correlation applied to economics and business; inference techniques; significance tests; simultaneous equations, estimation, and problems.
Prerequisite: MATH 1350G or A ST 311 (or equivalent).
Learning Outcomes
1. Demonstrate knowledge of probability and statistics and basic expected value theory.
2. Define the relationship between population statistics and sample statistics.
3. Explain the method of ordinary least squares.
4. Understand multiple regression, correlation, inference techniques, and significance tests.
5. Interpret basic econometric results.

ECON 445. Oil and Natural Gas Economics
3 Credits (3)

Examines the economics of oil and gas production. Topics covered include transportation, refining, federal and state regulatory framework, and resulting public policy issues from a regional and national perspective.
Prerequisite: (ECON 2110G or ECON 2110H), (ECON 2120G or ECON 2120H).
Learning Outcomes
1. Oil and Natural Gas Production
2. Oil and Natural Gas Transportation and Storage
3. Advanced oil and gas market analysis
4. Economic analysis of government energy policy and regulation

ECON 449. Open Economy Macroeconomics
3 Credits (3)
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): BFIN 341 OR ECON 311.

ECON 450. International Economics
3 Credits (3)
Trade and capital flows between countries, international payments, government policy in balance-of-payments and tariff matters, international organizations. Crosslisted with: I B 450
Prerequisite(s): ECON 2110G or ECON 2110H and ECON 2120G or ECON 2120H.

ECON 457. Mathematical Economics
3 Credits (3)
Application of mathematical tools, especially the calculus, to economic theory.
Prerequisite(s): MATH 1430G or equivalent.

ECON 471. Electricity Economics
3 Credits (3)
Regulatory policy and economic analysis related to the Electric Industry. Topics include characteristics of a utility and legal justification for regulation; characteristics and functions of a regulatory commission; history and structure of the industry; technology and network design; revenue requirements; cost allocation; and basic retail rate design. Crosslisted with: ECON 571.
Prerequisite(s): ECON 345.

ECON 489. Senior Economics Seminar
3 Credits (3)
Seminar primarily for economics majors in their final semester. Provides an opportunity to apply economic theory to a broad variety of topics.
Prerequisite(s): ECON 311 or ECON 312.

ECON 490. Selected Topics
1-3 Credits
Current topics in economics. Subject matter to be designated for each semester.

ECON 498. Independent Study
1-3 Credits
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.

ECON 503. Managerial Economics
3 Credits (3)

Theory and application of microeconomics to the management of organizations.
Prerequisite(s): MATH 1350G or A ST 311 or equivalent with B or better.

ECON 545. Econometrics II
3 Credits (3)
Application of statistical techniques to estimation of economic relationships: demand functions, production and cost functions, and macroeconomic equations.
Prerequisite(s): ECON 457 and AEEC 540.

ECON 550. Special Topics
1-3 Credits
Seminars in selected current topics in the various areas of economics. Prerequisites vary according to the topic being offered.

ECON 571. Regulatory Policy and Industry Analysis: Electricity I
3 Credits (3)
Regulatory policy and economic analysis related to the Electric Industry. Topics include: characteristics of a utility and legal justification for regulation; characteristics and functions of a regulatory commission; history and structure of the industry; technology and network design; revenue requirements; cost allocation; and basic retail rate design.

ECON 572. Regulatory Policy and Industrial Analysis: Water and Natural Gas
3 Credits (3)
Regulatory policy and economic analysis related to the Natural Gas and Water industries. Topics include: history and structure of the industry; technology and network design; revenue requirements; cost allocation; and retail rate design.

ECON 573. Regulatory Policy and Industry Analysis: Electricity II
3 Credits (3)
Regulatory policy and economic analysis related to the Electric industry. Topics include: optimal generation mix; ancillary services; environmental policies; rate case procedures and strategies for effective testimony; advanced retail rate design; wholesale exchanges; unbundled transmission tariffs; market institutions and how different markets function; state and federal deregulation policies; Federal Energy Regulatory Commission orders and policies; demand-side management; and regulatory treatment of non-traditional retail services. Consent of instructor required.
Prerequisite(s): ECON 571 or consent of instructor.

ECON 574. Advanced Seminar Regulatory Policy and Industry Analysis
3 Credits (3)
Advanced seminar and writing course specializing in regulatory policy and regulatory casework. Topics Include: special policy & regulatory issues in telecommunications, electricity, natural gas, and water; preparation of written testimony; expert witness effectiveness including cross-examination; and contested case management. This course involves extensive reading and writing assignments. Consent of instructor required.
Prerequisite(s): ECON 571 or consent of instructor.

ECON 596. Independent Study
3 Credits (3)
Individual study program. Each offering will cover a subtitle. Maximum of 3 credits in a semester and 6 credits in a program. Consent of instructor required.

Economic Development Courses

ECDV 550. Introduction to Local and Regional Development
3 Credits (3)

Serves as the introductory course in the Doctor of Economic Development program. Overview of the economic development field.

ECDV 590. Special Topics
1-3 Credits (1-3)
Selected topics in the area of Economic Development. Subtitle reflects content. May be repeated up to 9 credits. Consent of instructor required.

ECDV 596. Individual Study
1-3 Credits (1-3)
Individual studies directed by consenting faculty with the prior approval of the Department Head. May be repeated up to 6 credits.

ECDV 602. Microeconomics II
3 Credits (3)
This course covers advanced microeconomics, including decision-making under uncertainty, the role of information, game theory, general equilibrium, market power and market failures. May be repeated up to 3 credits.
Prerequisite: AEEC 502.
Learning Outcomes
1. Understand the complications that arise when decisions involve uncertainty.
2. Be able to demonstrate an understanding of the properties and application of the theories of information and information asymmetries.
3. Be able to demonstrate an understanding of the basics of game theoretic applications to microeconomics.
4. Be able to demonstrate an understanding of the implications of market failures as a result of externalities and potential corrective policies.
5. Be able to demonstrate an ability to extend partial equilibrium analysis to a general equilibrium framework.

ECDV 661. Regional Economic Modeling
3 Credits (3)
Introduction to the tools and methods of regional economic development analysis. May be repeated up to 3 credits. Restricted to: ECDV majors.
Prerequisite(s): AEEC 501, AEEC 502, and AEEC 540.

ECDV 664. Population Economics
3 Credits (3)
Examines the causes and consequences of demographic change. Examines theories of basic demographic processes, population projection and estimation. Consent of instructor required.

ECDV 668. Economic Development Finance
3 Credits (3)
Focuses on the tools and methods of economic development finance.

ECDV 670. Research in Economic Development
3 Credits (3)
Intense examination of the academic literature on economic development at all levels.
Prerequisites: ECDV 651, ECDV 661 and ECDV 662.

ECDV 671. Sustainable Economic Development
3 Credits (3)
Focuses on the interconnections between economic development and the environment. Provides a broad set of tools and ideas related to the impacts of human activities on the environment.
Prerequisites: AEEC 501, AEEC 502 and AEEC 540.

ECDV 673. Research Methods
3 Credits (3)

An overview of alternative research methods and tools. Students explore quantitative and qualitative research methods as alternatives and complements to statistical methods. Research design, ethics, and presentation are emphasized.
Prerequisites: AEEC 501, AEEC 502 and AEEC 540.

ECDV 681. Urban Economic Development
3 Credits (3)
Examines causes and consequences of economic change in urban and metropolitan areas. Covers both theory and tools for analysis.
Prerequisites: ECDV 651, ECDV 661 and ECDV 662.

ECDV 682. Rural Development
3 Credits (3)
Examines causes and consequences of economic change in rural areas, communities and small, open economies. Covers both theory and tools for analysis.
Prerequisites: ECDV 651, ECDV 661 and ECDV 662.

ECDV 683. Seminar in National Economic Development
3 Credits (3)
Explores specific examples and cases of rural and urban economic development. Involves applied analysis of specific rural and/or urban economic issues/projects.
Prerequisites: ECDV 681 and ECDV 682.

ECDV 692. Seminar in Economic Development
3 Credits (3)
Seminars in selected topics in economic development. Subtitle reflects content. May be repeated up to 9 credits.
Prerequisite: Completion of at least nine semester hours of ECDV courses.

ECDV 694. Internship
1-9 Credits (1-9)
Internship in Economic Development. May be repeated up to 9 credits. Restricted to: ECDV majors. Graded: S/U Grading (S/U, Audit).
Prerequisite(s): Completion of core requirements of Doctor of Economic Development.

ECDV 699. Doctoral Project
1-9 Credits (1-9)
Doctoral Project. May be repeated up to 9 credits. Completion of all DED coursework and successful completion of comprehensive exams.

International Business Courses

I B 317. International Marketing
3 Credits (3)
Focuses on decisions relating to entering markets, market segmentation, marketing strategies, and tactics in the international arena. Same as MKTG 317.
Learning Outcomes
1. Develop understanding about what is involved in making international marketing decisions, including product, price, promotion, and place decisions to create a marketing mix.
2. Acquire an overview on the contemporary issues in global marketing and the unique challenges faced by marketing managers in the dynamic global environment.
3. Develop insights into how differences in global economic, cultural, social, political, and legal environments can affect marketing decisions.
4. Develop strategic thinking in the context of complex problems and challenges faced by the contemporary global executives and managers.

5. Develop ability to integrate the important global societal dimensions of diversity, environmental concerns, ethics, and technological change into their thinking.
6. Develop knowledge and skills to analyze cross-cultural variables and their impact on international marketing.
7. Discover sources of information for researching and evaluating international markets.
8. Communicate effectively about marketing issues in group discussions, oral presentations and written reports.
9. Work effectively as a team member in analyzing marketing issues. 1
10. Develop leadership skills necessary to deal with the uncertainty and changes faced by today's global marketers.

I B 351. International Business
3 Credits (3)
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 Credits (3)
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 Credits (3)
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): BFIN 341 OR ECON 311.

I B 450. International Economics
3 Credits (3)
Trade and capital flows between countries, international payments, government policy in balance-of-payments and tariff matters, international organizations. Crosslisted with: ECON 450G
Prerequisite(s): ECON 2110G or ECON 2110H and ECON 2120G or ECON 2120H.

I B 475. International Finance
3 Credits (3)
International aspects of financial transactions, decision-making, banking and financial markets. Crosslisted with: BFIN 475 and BFIN 575.
Prerequisite(s): BFIN 341.

I B 489. Senior Seminar in International Business
3 Credits (3)
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.

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