ECONOMICS

Chair: Brian Duncan
Program Assistant: Christine Lukvec
Office: Lawrence Street Center, LW-470
Telephone: 303-315-2030

Overview
Economics is the science of human behavior in market and non-market contexts. The rigorous and general scientific approach that characterizes economics lends itself to a remarkably wide field of practical application. Economists regularly apply their methods of analysis in fields such as government policy, international trade and finance, economic development, portfolio management and banking. But economics is increasingly seen as providing important insight into an enormous variety of social issues, including health care provision and health-related behaviors, law, criminal activity, environmental and natural resource problems, political activity, education, marketing and sports. The broad and rigorous training of economics majors accounts for the significant demand for their services in virtually every industry and government agency. Economics provides excellent preparation for advanced graduate study as well. Recent studies indicate that economics is a preferred undergraduate degree for those wishing to move on to prestigious business graduate programs and law schools.

Undergraduate Information
Economics Major
Click here to learn about the requirements for an Economics Major.

Economics Certificate
Click here to learn about the requirements for an Economics Certificate.

Economics Bachelors to Masters programs
Click here to learn about the requirements for the Economics BA to Economics MA.

Click here to learn about the requirements for an Economics BA and Mathematics BS dual degree.

Click here to learn about the requirements for the Economics, BA/Finance, BS in Business Administration - Dual Degree.

Honors in Economics
Students wishing to earn departmental honors in economics should consult with their advisor no later than the beginning of their senior year.

Cum laude will be awarded to students who complete an economics major with a 3.5 GPA in all upper-division (3000+) courses in economics taken at CU Denver, with a minimum of eight such courses, and either two additional electives in economics beyond those required for the major, taken at the 4000 or higher level, or an acceptable honors thesis. The thesis must be approved by a three-member committee of department faculty and will include a presentation of the results to that committee. Students should register for the thesis, using ECON 4850 Honors Independent Study: ECON as the course number, as a 3-semester hour independent study, in addition to the regular requirements for the major.

Magna cum laude will be awarded to students who complete an economics major with a 3.7 GPA in all upper-division (3000+) courses in economics taken at CU Denver, with a minimum of eight courses, and who complete an honors thesis designated as “acceptable” by their thesis committee.

Summa cum laude will be awarded to students who complete an economics major with a 3.88 GPA in all upper-division (3000+) courses in economics taken at CU Denver, with a minimum of eight courses, and who complete an honors thesis designated as “outstanding” by their thesis committee.

In order to be recognized in the graduation program as “Honors Pending,” a draft of the thesis must be submitted to the chair of the committee four weeks prior to the end of the semester. The oral presentation and other requirements must be completed one week before graduation.

In order to be recognized in the graduation program with the specific honors degree being conferred, e.g., summa, magna, etc., students must turn in the completed final copy of the honors thesis four weeks prior to the end of the semester, along with meeting other requirements by the week before graduation. Otherwise, recognition will come with the diploma after graduation.

Students who do not have an advisor should contact the department for assignment to an advisor. Students should meet with their advisor at least twice a year.

Graduate Information
Please go to the Graduate catalog to read about our graduate programs.

Programs
- Economics, 4 + 1 BA/ MA
- Economics, 4 + 1 BA/ Health Economics, MS
- Economics, BA/ Finance, BS in Business Administration - Dual Degree
• Economics, BA ([http://catalog.ucdenver.edu/cu-denver/undergraduate/schools-colleges-departments/college-liberal-arts-sciences/economics/economics-ba/] )
• Economics Minor ([http://catalog.ucdenver.edu/cu-denver/undergraduate/schools-colleges-departments/college-liberal-arts-sciences/economics/economics-minor/] )

Faculty

Professors:
Laura M. Argys, PhD, University of Colorado Boulder
Brian J. Duncan, PhD, University of California at Santa Barbara
Daniel I. Rees, PhD, Cornell University
W. James Smith, PhD, University of Colorado Boulder
Buhong Zheng, PhD, West Virginia University

Associate Professors:
Andrew I. Friedson, PhD, Syracuse University
Hani Mansour, PhD, University of California at Santa Barbara

Assistant Professors:
Ryan Brown, PhD, Duke University
Chloe East, PhD, University of California Davis
Maulik Jagnani, PhD, Cornell University
Phillip Luck, PhD, University of California Davis
Andrea Velasquez, PhD, Duke University

Clinical Teaching Assistant Professors:
Enoch Cheng, PhD, University of California-Los Angeles
Ernest Boffy-Ramirez, PhD, University of California at Santa Barbara
Soojae Moon-Anderson, PhD, University of Colorado Boulder

Instructors:
Debbie Evercloud, PhD, University of Virginia
Nicholas Golding, MA, Ohio State University
Lawrence Hamelin, MA, University of Colorado Denver
Kyle J. Hurst, MA, Baylor University
Kyle Montanio, PhD, University of Rhode Island
George K. Quansah, MA, University of Colorado Denver
Yue Shen, PhD, Queen’s University
Kawin Thamtanajit, PhD, University of Delaware
Chun-Chieh Hu, PhD, Syracuse University

Economics (ECON)

ECON 1111 - First Year Seminar (3 Credits)
Restriction: Restricted to Freshman level students. Max hours: 3 Credits.
Grading Basis: Letter Grade

ECON 2012 - Principles of Economics: Macroeconomics (3 Credits)
Covers topics of inflation, unemployment, national income, growth and problems of the national economy, stabilization policy, plus others at the discretion of the instructor. Purpose is to teach fundamental principles, to open the field of economics in the way most helpful to further a more detailed study of special problems, and to give those not intending to specialize in the subject an outline of the general principles of economics. Term offered: fall, spring, summer. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS1.
Grading Basis: Letter Grade

ECON 2022 - Principles of Economics: Microeconomics (3 Credits)
Topics include price determination in a market system composed of households and firms: resource allocation and efficiency of various market structures, plus others at the discretion of the instructor. Note: Complementary to and normally taken following ECON 2012. ECON 2012 is not a prerequisite for ECON 2022. Term offered: fall, spring, summer. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS1.
Grading Basis: Letter Grade

ECON 3050 - Decision Making (3 Credits)
This course discusses current research on decision making/behavioral economics, as well as its application to individual well-being and public policy. You will gain insights on how and why people can be irrational in their daily decisions. Cross-listed with PBHL 3050 and PSYC 3050. Max hours: 3 Credits.
Grading Basis: Letter Grade

ECON 3100 - Economics of Race and Gender (3 Credits)
Overview of the determinants of wages, employment and education in the labor market. Emphasizes the investigation of the evidence and theories of differentials that appear to be associated solely with race and sex, and public policies associated with discrimination and poverty. Prereq: ECON 2022 with a C- or higher. Term offered: fall, spring, summer. Max hours: 3 Credits.
Grading Basis: Letter Grade

ECON 3300 - Economics of Crime and Punishment (3 Credits)
Presents the economic approach to crime. Teaches economic reasoning in the analysis of the determinants of criminal activity, provides an in-depth analysis of the importance of socio-economic factors in determining crime. Investigates the relative importance of labor market conditions, deterrence, and other factors in the level of criminal activity. Also covers topics to reduce crime such as, the death penalty, issues around victimless crime and public choices. Prereq: ECON 2022 with a C- or higher. Max hours: 3 Credits.
Grading Basis: Letter Grade

ECON 1010 - Economics of Social Issues (3 Credits)
This course is designed for non-majors. Majors in economics will not receive credit toward departmental degree requirements. The focus of the course is on current issues in the economy, including poverty, social security, airline deregulation, government control of prices, economics of higher education, free trade, race and gender discrimination, unemployment, the role of government, and the national debt. Max hours: 3 Credits.
Grading Basis: Letter Grade

ECON 1020 - Economics of Social Issues (3 Credits)
This course is designed for non-majors. Majors in economics will not receive credit toward departmental degree requirements. The focus of the course is on current issues in the economy, including poverty, social security, airline deregulation, government control of prices, economics of higher education, free trade, race and gender discrimination, unemployment, the role of government, and the national debt. Max hours: 3 Credits.
Grading Basis: Letter Grade

ECON 1111 - First Year Seminar (3 Credits)
Restriction: Restricted to Freshman level students. Max hours: 3 Credits.
Grading Basis: Letter Grade

ECON 1202 - Principles of Economics: Macroeconomics (3 Credits)
Covers topics of inflation, unemployment, national income, growth and problems of the national economy, stabilization policy, plus others at the discretion of the instructor. Purpose is to teach fundamental principles, to open the field of economics in the way most helpful to further a more detailed study of special problems, and to give those not intending to specialize in the subject an outline of the general principles of economics. Term offered: fall, spring, summer. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS1.
Grading Basis: Letter Grade

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Covers topics of inflation, unemployment, national income, growth and problems of the national economy, stabilization policy, plus others at the discretion of the instructor. Purpose is to teach fundamental principles, to open the field of economics in the way most helpful to further a more detailed study of special problems, and to give those not intending to specialize in the subject an outline of the general principles of economics. Term offered: fall, spring, summer. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS1.
Grading Basis: Letter Grade

Prereq: ECON 2022 with a C- or higher.

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Topics include price determination in a market system composed of households and firms: resource allocation and efficiency of various market structures, plus others at the discretion of the instructor. Note: Complementary to and normally taken following ECON 2012. ECON 2012 is not a prerequisite for ECON 2022. Term offered: fall, spring, summer. Max hours: 3 Credits. GT: Course is approved by the Colorado Dept of Higher Education for statewide guaranteed transfer, GT-SS1.
Grading Basis: Letter Grade

Prereq: ECON 2022 with a C- or higher.

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Grading Basis: Letter Grade

Prereq: ECON 2022 with a C- or higher.

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Grading Basis: Letter Grade

Prereq: ECON 2022 with a C- or higher.
ECON 3366 - Managerial Economics (3 Credits)
Intelligent business decisions require an understanding of how firms relate to their competitors, customers, and investors. In this course, you will use basic microeconomic theory to distinguish between different competitive markets, to design profitable pricing strategies, and to make management decisions with a problem-solving approach. Brief case studies of actual business decisions are included. Math skills needed are the equivalent of high-school algebra and geometry. Note: Students will not receive credit for ECON 3366 if they take it simultaneously or after successfully completing ECON 4310. Prereq: ECON 2022 with a C- or higher. Term offered: fall, spring, summer. Max hours: 3 Credits.
Grading Basis: Letter Grade
Prereq: ECON 2022 with a C- or higher.
Additional Information: Teikyo.
Typically Offered: Fall, Spring, Summer.

ECON 3400 - Economics of Sex and Drugs (3 Credits)
Examines the political and policy issues surrounding controversial topics in human behavior. Economic models and reasoning are applied to examine issues such as juvenile substance use and abuse, and teen pregnancy. Prereq: ECON 2022 with a C- or higher. Term offered: fall, spring, summer. Max hours: 3 Credits.
Grading Basis: Letter Grade
Prereq: ECON 2022 with a C- or higher.
Typically Offered: Fall, Spring, Summer.

ECON 3415 - Issues in International Trade and Finance (3 Credits)
A survey of International Trade and Finance is provided and then applied to contemporary issues such as gains from trade, global and local economic inequality, trafficking, global capital markets, debt, the Eurozone and transmission of inflations and recessions internationally. This course is for non-economics majors & economics minors. Students may not receive credit if they take it after they have completed ECON 4410 or ECON 4420. Prereq: ECON 2012 and ECON 2022 with a C- or higher. Max hours: 3 Credits.
Grading Basis: Letter Grade
Prereq: ECON 2022 with a C- or higher.
Typically Offered: Fall, Spring, Summer.

ECON 3770 - Issues in Economic Development (3 Credits)
This is a survey course in development economics intended to provide a basic understanding of the economies of developing nations. Topics include issues and policies in economic development, comparative economic growth, demographic change, poverty, inequality, and migration. This course is for non-economics majors & economics minors. Students may not receive credit if they take it after they have completed ECON 4770. Prereq: ECON 2012 or ECON 2022 with a C- or higher. Term offered: spring, summer. Max hours: 3 Credits.
Grading Basis: Letter Grade
Prereq: Econ 2012 or Econ 2022 with a C- or higher
Typically Offered: Spring, Summer.

ECON 3801 - Introduction to Mathematical Economics (3 Credits)
Introduces the use of mathematics in micro- and macro-economic analysis. Emphasis on model-building techniques, solution methods, and economic interpretations. Prereq or Coreq: ECON 2012 with a C- or higher, prereq: ECON 2022 and College Algebra or higher (MATH 1110 or MATH 1070 or MATH 1401 or MATH 1130 or MATH 2411 or MATH 2421) with a C- or higher. Term offered: fall, spring. Max hours: 3 Credits.
Grading Basis: Letter Grade
Prereq or coreq: ECON 2012 with a C- or higher, prereq: ECON 2022 and College Algebra or higher (MATH 1110 or MATH 1070 or MATH 1401 or MATH 1130 or MATH 2411 or MATH 2421) with a C- or higher
Typically Offered: Fall, Spring.

ECON 3811 - Statistics with Computer Applications (4 Credits)
Introduces statistical methods and their application to quantitative problems in economics and social sciences. Note: Recitation is required. Prereq or Coreq: ECON 2022 AND Prereq: College Algebra or higher (MATH 1110, MATH 1070, MATH 1401, MATH 2411, MATH 2421, MATH 1130, or ECON 3801) with a C- or higher. Term offered: fall, spring. Max hours: 4 Credits.
Grading Basis: Letter Grade
Prereq or coreq: ECON 2022 AND Prereq: College Algebra or higher (MATH 1110, MATH 1070, MATH 1401, MATH 2411, MATH 2421, MATH 1130, or ECON 3801) with a C- or higher.
Typically Offered: Fall, Spring.

ECON 3812 - Topics in Economics (3 Credits)
Studies special topics in economics to be selected by the instructor. Note: May be repeated for credit when topics vary. Repeatable. Max hours: 9 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 9.
Prereq: Junior standing or higher and at least a 2.75 cumulative GPA
Typically Offered: Fall, Spring.

ECON 4011 - Special Economic Problems (1-8 Credits)
Provides students the opportunity to critically evaluate some practical and theoretical problems under supervision, and to present results of their thinking to fellow students and instructors for critical evaluation. Prereq: ECON 2012 and ECON 2022 with a C- or higher. Note: ECON 4050 for majors in economics, others by permission of instructor. Cross-listed with ECON 5050. Repeatable. Max Hours: 9 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 9.

ECON 4030 - Data Analysis with SAS (3 Credits)
Covers techniques for handling and interpreting economic data and conducting econometric analyses using SAS programming. Provides hands-on data management and analyses with large data sets with applications to business and economics, and prepare students for SAS Base Programmer certification exam. Prereq: ECON 3811 with a C- or higher. Cross-listed with ECON 5030. Term offered: fall, spring. Max hours: 3 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 9.

ECON 4040 - Internship (1-3 Credits)
Designed experiences involving application of specific, relevant concepts and skills in supervised employment situations. Prereq: Students must have junior standing and at least a 2.75 GPA and must work with Experiential Learning Center advising to complete a course contract and gain approval. Term offered: fall, spring, summer. Repeatable. Max hours: 9 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 9.
Prereq: Junior standing or higher and at least a 2.75 cumulative GPA
Typically Offered: Fall, Spring.

ECON 4050 - Special Economic Problems (1-8 Credits)
Provides students the opportunity to critically evaluate some practical and theoretical problems under supervision, and to present results of their thinking to fellow students and instructors for critical evaluation. Prereq: ECON 2012 and ECON 2022 with a C- or higher. Note: ECON 4050 for majors in economics, others by permission of instructor. Cross-listed with ECON 5050. Repeatable. Max Hours: 9 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 9.
Prereq: ECON 2012 or Econ 2022 with a C- or higher
Typically Offered: Spring, Summer.

ECON 4071 - Intermediate Microeconomic Theory (3 Credits)
Production, price and distribution theory. Study of value and distribution theories under conditions of varying market structures, with special references to the contribution of modern theorists. Prereq: ECON 2022 and ECON 3801 or Calculus II or Calculus III with a C- or higher. Term offered: fall, spring. Max hours: 3 Credits.
Grading Basis: Letter Grade
Prereq: ECON 2022 and ECON 3801 or (MATH 2411 or MATH 2421 with a C- or higher)
Typically Offered: Fall, Spring.
ECON 4010 - Intermediate Macroeconomic Theory (3 Credits)
National income and employment theory. Primary emphasis placed on determination of employment and prices. Problems of unemployment and inflation analyzed and appropriate policies considered. Prereq: ECON 2012 and ECON 3801 or MATH 2411 or MATH 2421 with a C- or higher. Term offered: fall, spring. Max hours: 3 Credits.
Grading Basis: Letter Grade
Prereq: ECON 2012 and ECON 3801 or (MATH 2411 or MATH 2421 with C- or higher) Typically Offered: Fall, Spring.
ECON 4090 - History of Economic Thought (3 Credits)
Traces the development of economic thought from ancient times to the 20th century. Considers the context in which these ideas were developed and their relationship to modern economic thought and contemporary economic problems. Note: Students may not receive credit for this course if they have already received credit for ECON 4091. Prereq: ECON 2012 and ECON 2022 with a C- or higher. Cross-listed with ECON 5090. Term offered: spring, fall. Max hours: 3 Credits.
Grading Basis: Letter Grade
Prereq: ECON 2012 or ECON 2022 with a C- or higher
Typically Offered: Fall, Spring.
ECON 4110 - Money and Banking (3 Credits)
Surveys major monetary and fiscal institutions such as commercial banks, the federal reserve system, savings institutions, and the structure of debt. The relationships between households, firms and financial intermediaries are explored, and the tools available to macroeconomic policy makers are described and evaluated. Prereq: ECON 4081 with a C- or higher. Term offered: fall. Max hours: 3 Credits.
Grading Basis: Letter Grade
Prereq: ECON 4081 with a C- or higher
Typically Offered: Fall.
ECON 4150 - Economic Forecasting (3 Credits)
Teaches forecasting techniques used in business and government to project trends and short-term fluctuations. Actual data are employed in instruction and labs. State-of-the-art spreadsheet and algorithms are introduced as part of the course work. Prereq: ECON 4811 with a C- or higher. Cross-listed with ECON 5150. Term offered: spring. Max hours: 3 Credits.
Grading Basis: Letter Grade
Prereq: ECON 4811 with a C- or higher
Typically Offered: Fall.
ECON 4210 - Public Finance (3 Credits)
Surveys topics dealing with the economics of government activity, including the provision of public goods; the economics of the political process; welfare programs; pollution externalities; benefit-cost analysis; the U.S. tax structure; and the effects of taxes on economic behavior, economic performance and the distribution of income. Prereq: ECON 2022 with a C- or higher. Term offered: spring. Max hours: 3 Credits.
Grading Basis: Letter Grade
Prereq: ECON 2022 with a C- or higher
Typically Offered: Spring.
ECON 4240 - Economic Policy Analysis (3 Credits)
Deals with the application of economic analysis to the government policy-making process. Topics include public goods provision, externalities, cost-benefit analysis, judicial decision making, the economic analysis of the political process, government regulation of business, and tax incidence. Prereq: ECON 2012, ECON 2022 with a C- or higher and ECON 3801 with a C- or higher or (MATH 2411 or MATH 2421 with B or higher). Max hours: 3 Credits.
Grading Basis: Letter Grade
Prereq: ECON 2012, ECON 2022 with a C- or higher and ECON 3801 with a C- or higher or (MATH 2411 or MATH 2421 with B or higher)
ECON 4310 - Managerial Economics (3 Credits)
The course adapts standard theory to more realistically discuss enterprise structure, firm and managerial behavioral incentives, and strategic behavior. Once a foundation is laid, successful and unsuccessful strategies and case studies are presented. Note: Students will not receive credit for ECON 3366 if they take it simultaneously or after successfully completing ECON 4310. Prereq: ECON 2022 with a C- or higher. Cross-listed with ECON 5310. Max hours: 3 Credits.
Grading Basis: Letter Grade
Prereq: ECON 2022 with a C- or higher.
ECON 4318 - Urban Economics (3 Credits)
Why do cities form and why are they so productive? How does the value of land change as the urban landscape develops? How do we address the difficulties that challenge modern cities, such as affordable housing, congestion, and crime? Prereq: ECON 3811 and ECON 4071 with a C- or higher. Term offered: fall. Max hours: 3 Credits.
Grading Basis: Letter Grade
Prereq: ECON 3811 and ECON 4071 with a C- or higher.
ECON 4320 - Financial Economics (3 Credits)
This course focuses on the economics of decision-making under conditions of risk and uncertainty. Topics include theories of efficient markets, rational expectations, speculative bubbles, random walks, portfolio analysis, options, derivatives and future markets. Emphasis is on the application of basic theories to economic agents’ behavior and case studies. Prereq: ECON 2022 with a C- or higher and ECON 3801 with a C- or higher or (MATH 2411 or MATH 2421 with B or higher), and ECON 3811 with a C- or higher. Term offered: spring. Max hours: 3 Credits.
Grading Basis: Letter Grade
Prereq: ECON 2022 with a C- or higher and ECON 3801 with a C- or higher or (MATH 2411 or MATH 2421 with B or higher), and ECON 3811 with a C- or higher
Typically Offered: Fall.
ECON 4410 - Managerial Economics (3 Credits)
The course adapts standard theory to more realistically discuss enterprise structure, firm and managerial behavioral incentives, and strategic behavior. Once a foundation is laid, successful and unsuccessful strategies and case studies are presented. Note: Students will not receive credit for ECON 3366 if they take it simultaneously or after successfully completing ECON 4310. Prereq: ECON 2022 with a C- or higher. Cross-listed with ECON 5310. Max hours: 3 Credits.
Grading Basis: Letter Grade
Prereq: ECON 2022 with a C- or higher.
ECON 4411 - International Trade (3 Credits)
Trade theory identifies who wins and loses from trade and why there are usually overall gains. Explores issues in immigration, globalization, income inequality, tariffs, dumping, the WTO, the environment, wages, and growth strategies among others. Prereq: ECON 3811 with a C- or higher. Cross-listed with ECON 5410. Term offered: fall, spring. Max hours: 3 Credits.
Grading Basis: Letter Grade
Prereq: ECON 3811 with a C- or higher
Typically Offered: Fall, Spring.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Offered Terms</th>
<th>Grading Basis</th>
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</thead>
<tbody>
<tr>
<td>ECON 4420</td>
<td>International Finance (3 Credits)</td>
<td>3</td>
<td>ECON 2022, 3811 with a C- or higher</td>
<td>Fall, Spring</td>
<td>Letter Grade</td>
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<td>The international adjustment process, including the foreign exchange market, balance of payments disequilibria, price and income adjustment, fiscal and monetary policy, and the international monetary system. Prereq: ECON 3811 with a C- or higher. Term offered: spring, fall. Max Hours: 3 Credits.</td>
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<td>ECON 4430</td>
<td>Economic Growth (3 Credits)</td>
<td>3</td>
<td>ECON 2022 and 3811 with a C- or higher</td>
<td>Fall, Spring</td>
<td>Letter Grade</td>
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<td>Explores causes of rapid growth or decline over long periods for different regions of the world. Inequality, sustainability, culture, climate, technology and resources all play significant roles. Data and examples are used to determine the important influences. Prereq: ECON 2022 and ECON 3811 with a C- or higher. Term offered: spring. Max hours: 3 Credits.</td>
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<td>ECON 4461</td>
<td>Economic Incentives (3 Credits)</td>
<td>3</td>
<td>ECON 2022 and 3811 with a C- or higher</td>
<td>Spring</td>
<td>Letter Grade</td>
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<td>A free market can fail with poorly designed economic incentives. The course examines incentives at work in a wide range of markets and investigates the market conditions that lead to a high level of welfare for the society. One such condition is the incentive for every participant to reveal his/her true preference. The incentive environments examined in this course include the principal-agent problems, job market signaling, mandatory retirement, professor's tenure, auctions of artifacts and assets, private provision of public goods, marriage matching, matching of organ donation (kidneys and lungs), school admissions, and majority voting. Prereq: ECON 3811, ECON 4071 and (ECON 3801 or MATH 2411 or MATH 2421) with a B+ or higher, or instructor permission. Max hours: 3 Credits.</td>
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<td>ECON 4530</td>
<td>Economics of Natural Resources (3 Credits)</td>
<td>3</td>
<td>ECON 2022 with a C- or higher</td>
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<td>Examines economic models of renewable resource management and models of exhaustible resource depletion. Analyzes decisions made by private firms and governments affecting the methods and rate of resource development. Examines the effects of resource development on economic growth and environmental quality and the effects of economic development on resource scarcity. Prereq: ECON 2022 with a C- or higher. Cross-listed with ECON 5530. Max Hours: 3 Credits.</td>
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<td>ECON 4540</td>
<td>Environmental Economics (3 Credits)</td>
<td>3</td>
<td>ECON 2022 with a C- or higher</td>
<td>Letter Grade</td>
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<td>Economic approach to environmental problems: relationship between ownership structures, externalities and environmental damage; poverty, population pressure, and environmental degradation; valuation of environmental amenities; sustainability of economic activity; cost-benefit analysis applied to the environment; evaluation of alternative instruments for environmental control. Prereq: ECON 2022 with a C- or higher. Cross-listed with ECON 5540. Term offered: spring. Max hours: 3 Credits.</td>
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<td>ECON 4550</td>
<td>Game Theory and Economic Applications (3 Credits)</td>
<td>3</td>
<td>ECON 4071 with a C- or higher</td>
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<td>An introduction to economic applications of game theory. Concepts such as strategic and extensive form games, existence and selection of equilibrium will be covered. These concepts will be applied to understand market structure, location decisions, price competition, contracting, and auctions. Prereq: ECON 4071 with a C- or higher. Term offered: fall. Max hours: 3 Credits.</td>
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<td>ECON 4610</td>
<td>Labor Economics (3 Credits)</td>
<td>3</td>
<td>ECON 4071 with a C- or higher</td>
<td>Fall</td>
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<td>Studies problems associated with the determination of wages, hours, and working conditions in the American economy. Strong emphasis placed on current research in such areas as welfare reform, minimum wage, return to schooling, immigration, labor market discrimination, and trade unions. Prereq: ECON 4811 with a C- or higher. Term offered: fall. Max hours: 3 Credits.</td>
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<td>ECON 4640</td>
<td>Sports Economics (3 Credits)</td>
<td>3</td>
<td>ECON 4071 with a C- or higher</td>
<td>Fall</td>
<td>Letter Grade</td>
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<td>Applies economic analysis to sports. Explores topics such as competition, on-field performance, players’ compensation, profits in professional sports, anti-trust and labor law, the impact of sports on local communities and the links between athletics and education. Prereq: ECON 2022 with a C- or higher. Term offered: spring. Max hours: 3 Credits.</td>
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<td>ECON 4660</td>
<td>Health Economics (3 Credits)</td>
<td>3</td>
<td>ECON 4071 with a C- or higher</td>
<td>Spring</td>
<td>Letter Grade</td>
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<td>Focuses on the analysis of current health care markets. Topics include the production of health, demand for health care, physician and hospital behavior, health insurance, medical malpractice, health externalities, managed care and the affordable care act. Prereq: ECON 3811 and 2022. Term offered: fall, spring. Max hours: 3 Credits.</td>
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<td>ECON 4670</td>
<td>Economics of Population and Growth (3 Credits)</td>
<td>3</td>
<td>ECON 4071 with a C- or higher</td>
<td>Spring</td>
<td>Letter Grade</td>
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<td>Theoretical modeling and data analysis will be used to analyze the economic causes, consequences and policy responses to population change through changes in fertility, marriage, health, mortality and migration. Prereq: ECON 2022 and (ECON 3811 or ECON 4811) with a C- or higher or instructor approval. Term offered: fall. Max hours: 3 Credits.</td>
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<td>ECON 4740</td>
<td>Industrial Organization (3 Credits)</td>
<td>3</td>
<td>ECON 4071 with a C- or higher</td>
<td>Letter Grade</td>
<td>Letter Grade</td>
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<td>Examines the determinants of, and linkages between, market structure, firm conduct, and industrial performance. Topics include: determinants of the market size; impact of different market structures on prices and outputs; strategic behavior of firms to prevent entry or induce exit of rival firms; collusion; price discrimination; advertising; competition, monopoly and innovation; implications for economic efficiency and public policy. Prereq: ECON 4071 with a C- or higher. Cross-listed with ECON 5740. Term offered: spring. Max hours: 3 Credits.</td>
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</table>
ECON 4770 - Development Economics (3 Credits)
This course provides a theoretical and empirical framework for analyzing economic problems in developing countries focusing on the role of individuals, families and institutions. Topics include poverty traps, human capital accumulation, gender discrimination, microcredit and violent conflict. Prereq: ECON 4811 with a C- or higher. Cross-listed with ECON 6770. Term offered: fall. Max hours: 3 Credits.
Grading Basis: Letter Grade
Prereq: ECON 4811 with a C- or higher.
Typically Offered: Fall.

ECON 4803 - Mathematical Economics (3 Credits)
Application of mathematical techniques in micro-and macro-economic analysis. Topics include single and multivariable differentiation, basic matrix algebra, optimization, and integration with applications to economic models of consumption, production, market equilibrium, national accounting, and growth. Prereq: ECON 3801 or MATH 2411 or MATH 2421 and ECON 4071 with a C- or higher. Cross-listed with ECON 5803. Term offered: fall, spring. Max hours: 3 Credits.
Grading Basis: Letter Grade
Prereq: ECON 3801 or MATH 2411 or MATH 2421 and ECON 4071 with a C- or higher.
Typically Offered: Fall, Spring.

ECON 4811 - Introduction to Econometrics (3 Credits)
Introduces econometric methods and their applications to quantitative economic problems. Simple and multiple regression models and problems encountered in their applications are developed in lectures and applied computer projects. Prereq: ECON 3811 or MATH 3382 with a C- or higher. Term offered: fall, spring. Max hours: 3 Credits.
Grading Basis: Letter Grade
Prereq: ECON 3811 or MATH 3382 with a C- or higher.
Typically Offered: Fall, Spring.

ECON 4812 - Advanced Econometric Methods (3 Credits)
This course will focus on econometric methods used to generate causal inference in experimental and non-experimental settings. Topics covered will include the potential outcomes framework, randomized experiments, natural experiments, difference-in-differences, fixed effects, matching, instrumental variables, and regression discontinuity. Prereq: ECON 4811 with a C- or higher. Max hours: 3 Credits.
Grading Basis: Letter Grade
Prereq: ECON 4811 with a C- or higher.

ECON 4840 - Independent Study: ECON (1-3 Credits)
Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Repeatable. Max hours: 12 Credits.
Grading Basis: Letter Grade
Repeatable. Max Credits: 12.
Typically Offered: Fall, Spring, Summer.

ECON 4850 - Honors Independent Study: ECON (1-3 Credits)
Note: Students must submit a special processing form completely filled out and signed by the student and faculty member, describing the course expectations, assignments and outcomes, to the CLAS undergraduate advising office for approval. Term offered: fall, spring, summer. Max hours: 3 Credits.
Grading Basis: Letter Grade
Additional Information: Report as Full Time.
Typically Offered: Fall, Spring, Summer.