Economics

Jeremy Piger, Department Head
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Economics addresses the problem of using scarce resources to satisfy society's unlimited wants. The discipline is divided into two general areas —microeconomics and macroeconomics. Microeconomics explores questions about the way society allocates resources; it applies to public policy in such areas as urban, industrial organization, and labor economics. Macroeconomics considers such questions as the causes of inflation and unemployment; it applies to such areas as monetary policy, development and international economics.

Faculty

Bruce A. Blonigen, Philip H. Knight Professor (international trade, industrial organization, applied econometrics); dean for faculty and operations, College of Arts and Sciences. BA, 1988, Gustavus Adolphus; MA, 1992, PhD, 1995, California, Davis. (1995)

Alfredo Burlando, associate professor (development, labor economics, industrial organization). BA, 2003, MA, 2003, California, Davis; PhD, 2010, Boston. (2010)

Jose Carreno, assistant professor (macroeconomics). BA, 2012, Castilla-La Mancha; M.Phil, 2014, CEMFI; MA, 2016, PhD 2020, Northwestern.

Shankha Chakraborty, professor (growth and development, macroeconomics). BS, 1992, Presidency; MA, 1994, Delhi School of Economics; PhD, 1999, California, Los Angeles. (1999)

Mark Colas, assistant professor (public economics and urban economics). BA, 2009, California, Davis; MS, 2013, PhD, 2017, Wisconsin, Madison. (2017)

Anca D. Cristea, associate professor (international economics, industrial organization, applied econometrics). BA, 2003, Babes-Bolyai; MA, 2005, Clemson; PhD, 2010, Purdue, West Lafayette. (2010)

Jonathan M. V. Davis, assistant professor (applied microeconomics, labor economics). BA, 2009, PhD, 2016, Chicago. (2018)

Timothy A. Duy, assistant professor with title of professor of practice (macroeconomics, monetary policy, international finance); director, Oregon Economic Forum. BA, 1991, Puget Sound; MS, PhD, 1998, Oregon. (2002)

Christopher J. Ellis, professor (applied economic theory, public economics, political economy). BA, 1978, Essex; MA, 1979, PhD, 1983, Warwick. (1983)

David Evans, assistant professor (macroeconomics, computational economics, public finance). BS, 2008, Stanford; PhD, 2015, New York. (2015)

George W. Evans, professor (econometrics, macroeconomics); John Hamacher Chair in Economics. BA, 1972, Oxford; BA, 1974, MA, 1976, PhD, 1980, California, Berkeley. (1994)

Benjamin Hansen, W. E. Miner Professor in Economics (labor economics, public economics, econometrics); associate professor. BA, 2004, Brigham Young; MA, 2005, PhD, 2009, California, Santa Barbara. (2010)

William T. Harbaugh, professor (public economics, behavioral economics, neuroeconomics). BS, 1983, MS, 1986, Montana State; PhD, 1995, Wisconsin, Madison. (1995)

Van Kolpin, professor (microeconomic theory, game theory, social choice theory). BA, 1982, Coe; MS, 1983, MA, 1984, PhD, 1986, Iowa. (1986)

Michael Kuhn, assistant professor (behavioral economics, labor, public finance). BA, 2009, California, Los Angeles; PhD, 2014, California, San Diego. (2014)

Grant R. McDermott, assistant professor (environmental and natural resource economics, applied econometrics, uncertainty and Bayesian learning), BS, 2004, Cape Town; MS, 2011, PhD, 2015, Norwegian School of Economics. (2017)

Bruce McGough, professor (macroeconomics). BA, 1991, Reed; MS, 1993, PhD, 2000, Oregon. (2012)

Keaton Miller, assistant professor (industrial organization, health economics, applied econometrics). BS, 2008, Wisconsin, Madison; PhD, 2015, Minnesota, Twin Cities. (2015)

Jeremy M. Piger, professor (macroeconomics, econometrics). BA, 1996, Seattle Pacific; MA, 1998, PhD, 2000, Washington (Seattle). (2006)

Edward A. Rubin, assistant professor (environmental and energy, development economics, econometrics and data science). BS, 2007, MS, 2013, Nebraska, Lincoln; MS, 2015, PhD, 2018, California, Berkeley. (2018)

Michael B. Urbancic, senior instructor (behavioral economics, experimental economics, economic history). BA, BA, BS, 2002, Arizona; MA, 2007, PhD, 2012, California, Berkeley. (2012)

Anne van den Nouweland, professor (game theory, microeconomic theory). BA, 1984, MA, 1989, Nijmegen; PhD, 1993, Tilburg. (1996)

Glen R. Waddell, professor (applied econometrics, industrial organization, labor economics). BS, 1995, Trent; MS, 1996, Miami; PhD, 2000, Purdue. (2001)

Woan Foong Wong, assistant professor (international economics, international trade). BA, 2009, Oberlin; MS, 2013, PhD, 2017, Wisconsin, Madison. (2017)

Jiabin Wu, assistant professor (experimental economics, behavior economics, political economy). BA, 2008, Hong Kong; MS, 2010, PhD, 2014, Wisconsin, Madison. (2014)

Eric Y. Zou, assistant professor (environmental economics, health economics). BS, 2012, East China Normal; MS, 2013, PhD, 2018, Illinois, Urbana-Champaign. (2018)

Emeriti

Trudy Ann Cameron, professor emerita. BA, 1977, British Columbia; PhD, 1982, Princeton. (2001)

Henry N. Goldstein, professor emeritus. BA, 1950, North Carolina, Chapel Hill; MS, 1953, PhD, 1967, Johns Hopkins. (1967)

Jo Anna Gray, professor emerita. BA, 1971, Rockford; AM, 1973, PhD, 1976, Chicago. (1989)

Stephen E. Haynes, professor emeritus. BA, 1968, PhD, 1976, California, Santa Barbara. (1978)

Peter J. Lambert, professor emeritus. PhD, 1971, Oxford. (2002)

Joe A. Stone, professor emeritus. BA, 1970, Texas, El Paso; MA, 1974, PhD, 1977, Michigan State. (1979)

Mark A. Thoma, professor emeritus. BA, 1980, California State, Chico; PhD, 1985, Washington State. (1987)

Wesley W. Wilson, professor emeritus. BS, BA, 1980, North Dakota; MA, 1984, PhD, 1986, Washington State. (1989)

The date in parentheses at the end of each entry is the first year on the University of Oregon faculty.

- **Bachelor of Arts**
- **Bachelor of Science**
- **Minor**

Undergraduate Studies

The Department of Economics offers an undergraduate major leading to a bachelor's degree. Undergraduate courses in economics provide broad knowledge of the field as a part of the program of liberal education offered by the College of Arts and Sciences. They also lay a solid foundation in economics to students interested in professional graduate training in economics or in careers in business, law, government, or journalism.

For more detailed information, students are encouraged to visit the department website.

Preparation

Suggested preparation for freshman students is four years of high school mathematics. Prospective majors are strongly urged to satisfy part of their science group requirement with an introductory calculus sequence and the combination of mathematics and computer science required for the bachelor of science degree, to be taken in the freshman or sophomore year. Suggested preparation for second-year college transfer students is

1. the equivalents of EC 201 Introduction to Economic Analysis: Microeconomics and EC 202 Introduction to Economic Analysis: Macroeconomics and
2. the equivalents of MATH 251 Calculus I, MATH 252 Calculus II—or MATH 241 Calculus for Business and Social Science I, MATH 242 Calculus for Business and Social Science II for students not intending to pursue graduate training in economics—as well as MATH 243 Introduction to Methods of Probability and Statistics.

Career and Advising Services

The Career and Advising Services office in the Department of Economics provides academic planning and career development support for economics majors and minors. This includes advice about courses, minors, and concentrations, as well as assistance with résumés, job and internship search, and interviewing preparation. Career opportunities in economics include technical roles (actuarial, data analyst, financial analyst, researcher, consulting) as well as less technical roles (management, sales, human resources). Common employers include banks, financial institutions, government agencies, corporations, small businesses, and nonprofit organizations.

Online Economics Courses

Code	Title	Credits
EC 201	Introduction to Economic Analysis: Microeconomics	4
EC 202	Introduction to Economic Analysis: Macroeconomics	4
EC 313	Intermediate Macroeconomic Theory	4
EC 320	Introduction to Econometrics	4
EC 380	International Economic Issues	4
EC 421	Introduction to Econometrics	4

These courses are self-paced; the examinations are administered in the Social Sciences Instructional Laboratory for on-campus students and online for off-campus students. The courses, which must be completed within a standard ten-week term, are open to enrolled and community-education students and to high school students who want accredited university course work.

Careers

Career opportunities in economics are found in federal, state, and local government agencies; private industry; various nonprofit organizations; and journalism. A bachelor's degree in economics provides an excellent background for graduate admission in law, business, and public policy. Students with superior undergraduate academic records frequently go on to graduate work in economics, which leads to careers in higher education, economic research organizations in government, and private industry.

Advanced Options

Students interested in pursuing graduate work in economics, or who otherwise wish to pursue a more advanced track, may make any or all of the substitutions displayed to the standard requirements for the major.

Code	Title	Credits
EC 201 & EC 202	Introduction to Economic Analysis: Microeconomics and Introduction to Economic Analysis: Macroeconomics [1]	8
MATH 251–252 or MATH 261–262	Calculus I-II [2] Calculus with Theory I-II	8
EC 423–424	Econometrics [1,3]	8
EC 411 & EC 413	Advanced Microeconomic Theory and Advanced Macroeconomic Theory [4,5]	8
Economics courses numbered 300 or above [3,4]		28
Any upper-division mathematics course in statistics in place of MATH 243		4

1 Should be completed by the end of the sophomore year.

2 In place of Calculus for Business and Social Science I-II (MATH 241–242).

[3] In place of Introduction to Methods of Probability and Statistics (MATH 243), Introduction to Econometrics (EC 320), and Introduction to Econometrics (EC 421). Econometrics (EC 425) is recommended but not required. These can also count as 400-level field courses if one has already taken Introduction to Econometrics (EC 320) and Introduction to Econometrics (EC 421).

[4] Take either course or both courses in place of Intermediate Microeconomic Theory (EC 311) and Intermediate Macroeconomic Theory (EC 313). If Intermediate Microeconomic Theory (EC 311) and/or Intermediate Macroeconomic Theory (EC 313) have already been taken, these 400-level courses may be used as field courses. Should be completed by the end of the junior year.

[5] At least 28 of the 44 required upper-division credits required for the major must be taken at the University of Oregon.

Well prepared undergraduate Economics majors with Junior or Senior status are eligible to apply to the Accelerated Master's Degree Program in Economics (http://catalog.uoregon.edu/archive/2022-2023/arts_sciences/economics/#graduatestudiestext).

Departmental Honors

Qualified students may apply to graduate with honors in economics. Two requirements must be met:

1. Completion of upper-division economics courses with at least a 3.50 grade point average
2. Completion of a research paper, written under the guidance of a faculty member, for 4 credits in EC 401 Research: [Topic]. A copy of the completed paper, approved by the faculty advisor, must be presented to the department by Friday of the week before final examinations during the term the student plans to graduate

Students interested in honors also should consider taking EC 418 Economic Analysis of Community Issues I and EC 419 Economic Analysis of Community Issues II. Instructor approval is required for EC 418–419. Students who intend to satisfy these requirements should notify the director of undergraduate studies early in the term in which they intend to graduate.

Kindergarten through Secondary Teaching Careers

Students who complete a degree in economics are eligible to apply to the College of Education's fifth-year licensure program in middle-secondary teaching or the fifth-year licensure program in elementary teaching. More information is available in the **College of Education** section of this catalog.

Four-Year Degree Plan

The degree plan shown is only a sample of how students may complete their degrees in four years. There are alternative ways. Students should consult their advisor to determine the best path for them.

Bachelor of Arts in Economics

Course	Title	Credits	Milestones
First Year			
Fall			
MATH 111	College Algebra	4	math placement test
WR 121	College Composition I	4	
General-education course in social science		4	
First term of first-year second-language sequence		5	Language placement test
	Credits	**17**	
Winter			
EC 201	Introduction to Economic Analysis: Microeconomics	4	
MATH 241 or MATH 251	Calculus for Business and Social Science I or Calculus I	4	
General-education course in social science		4	
Second term of first-year second-language sequence		5	
	Credits	**17**	
Spring			
WR 122 or WR 123	College Composition II or College Composition III	4	Complete writing req
EC 202	Introduction to Economic Analysis: Macroeconomics	4	EC 201 & 202 complete
MATH 242 or MATH 252	Calculus for Business and Social Science II or Calculus II	4	
Third term of first-year second-language sequence		5	
	Credits	**17**	
	Total Credits	**51**	

Course	Title	Credits	Milestones
Second Year			
Fall			
MATH 243	Introduction to Methods of Probability and Statistics	4	
EC 311	Intermediate Microeconomic Theory	4	
General-education course in social science		4	
First term of second-year second-language sequence		5	
	Credits	**17**	
Winter			
EC 313	Intermediate Macroeconomic Theory	4	
General-education course in science		4	
Multicultural course		4	
Second term of second-year second-language sequence		5	
	Credits	**17**	
Spring			
EC 320	Introduction to Econometrics	4	EC 311, 313, & 320 complete
General-education course in arts and letters		4	
Multicultural course		4	
Third term of second-year second-language sequence		5	
	Credits	**17**	
	Total Credits	**51**	

Course	Title	Credits	Milestones
Third Year			
Fall			
Upper-division EC course		4	
Group-satisfying course in arts and letters		4	
Elective courses		8	
	Credits	**16**	
Winter			
EC 421	Introduction to Econometrics	4	
Upper-division EC course		4	
Group-satisfying course in arts and letters		4	
Elective course		4	
	Credits	**16**	
Spring			
Upper-division EC course		4	
Group-satisfying course in arts and letters		4	
Elective courses		8	
	Credits	**16**	
	Total Credits	**48**	

Course	Title	Credits	Milestones
Fourth Year			
Fall			
Upper-division EC course		4	
Elective courses		8	
	Credits	**12**	
Winter			
Upper-division EC courses		8	
Elective courses		4	
	Credits	**12**	
Spring			
Upper-division EC course		4	
Elective courses		8	
	Credits	**12**	
	Total Credits	**36**	

Bachelor of Science in Economics

Course	Title	Credits	Milestones
First Year			
Fall			
BA 101	Introduction to Business	4	
MATH 111 or MATH 112	College Algebra or Elementary Functions	4	
WR 121	College Composition I	4	
General-education course in arts and letters		4	
	Credits	**16**	
Winter			
EC 201	Introduction to Economic Analysis: Microeconomics	4	
MATH 241 or MATH 251	Calculus for Business and Social Science I or Calculus I	4	
General-education course in arts and letters		4	
General-education course in social science		4	
	Credits	**16**	
Spring			
WR 122 or WR 123	College Composition II or College Composition III	4	
EC 202	Introduction to Economic Analysis: Macroeconomics	4	
MATH 242 or MATH 252	Calculus for Business and Social Science II or Calculus II	4	
General-education course in arts and letters		4	
	Credits	**16**	
	Total Credits	**48**	

Course	Title	Credits	Milestones
Second Year			
Fall			
MATH 243	Introduction to Methods of Probability and Statistics	4	
EC 311	Intermediate Microeconomic Theory	4	
General-education course in social science		4	
General-education course in science		4	
	Credits	**16**	
Winter			
EC 313	Intermediate Macroeconomic Theory	4	
General-education course in arts and letters		4	
General-education course in science		4	
Multicultural course		4	
	Credits	**16**	
Spring			
EC 320	Introduction to Econometrics	4	
General-education course in science		4	
Elective courses		8	
	Credits	**16**	
	Total Credits	**48**	

Course	Title	Credits	Milestones
Third Year			
Fall			
Upper-division EC course		4	
Elective courses		8	
Multicultural course		4	
	Credits	**16**	
Winter			
EC 421	Introduction to Econometrics	4	
Upper-division EC course		4	
Elective courses		8	
	Credits	**16**	
Spring			
Upper-division EC course		4	

Elective courses		12
	Credits	**16**
	Total Credits	**48**

Course	Title	Credits	Milestones
Fourth Year			
Fall			
Upper-division elective EC course		4	
Elective courses		8	
	Credits	**12**	
Winter			
Upper-division EC courses		8	
Elective courses		4	
	Credits	**12**	
Spring			
Upper-division EC course		4	
Elective courses		8	
	Credits	**12**	
	Total Credits	**36**	

- **Master of Arts**
- **Master of Science**
- **Doctor of Philosophy**

Graduate Studies

The Department of Economics offers graduate work leading to the degrees of master of arts (MA), master of science (MS), and doctor of philosophy (PhD). Graduate fields include macroeconomics; applied econometrics; game theory; economic growth and development; industrial organization; and international, labor, public, environmental, and behavioral-experimental economics. A detailed description of degree requirements may be obtained from the department website.

General information about graduate work at the University of Oregon is available in the **Division of Graduate Studies** section of this catalog.

Applicants for admission must submit the following:

1. Scores on the general test of the Graduate Record Examinations (GRE), sent by the testing center
2. Letters of recommendation (2 for MA and MS applicants, 3 for PhD applicants)
3. Transcripts of course work sent by all previous degree-granting institutions
4. A brief statement of purpose or personal statement (optional for MA and MS applicants)
5. Curriculum vitae or résumé (optional for MA and MS applicants)

At minimum, doctoral applicants should have substantial knowledge of intermediate economic theory and of mathematics equivalent to:

Code	Title	Credits
EC 311	Intermediate Microeconomic Theory	4
EC 313	Intermediate Macroeconomic Theory	4
MATH 251	Calculus I	4
MATH 252	Calculus II	4
MATH 253	Calculus III	4
MATH 281	Several-Variable Calculus I	4
MATH 341	Elementary Linear Algebra	4
MATH 243	Introduction to Methods of Probability and Statistics	4
or MATH 425	Statistical Methods I	

Strong grades in economics and mathematics courses, in addition to scholarly potential, will be valued by the admissions committee.

Applicants whose native language is not English must also submit their scores on the Test of English as a Foreign Language Internet-Based Test or the International English Language Testing System examination. Applicants to the master's program may waive this requirement if they received a bachelor's degree from an accredited institution in the United States, Australia, Canada (excluding Quebec), Ireland, New Zealand, or the United Kingdom.

Master's Degree

The Department of Economics offers an intensive one-academic-year master's degree. Students gain applied skills in microeconomics, macroeconomics, and econometrics while specializing through elective courses. The program prepares students for consulting, applied research, and data science careers in private industry and government. The program also offers outstanding preparation for students interested in pursuing a PhD in economics.

The master's degree program consists of the following departmental requirements in addition to university and Division of Graduate Studies requirements for the master of arts (MA) or the master of science (MS) degree. Each master's degree candidate chooses either the course work or the research option. The department also offers an Accelerated Master's Program for well-prepared undergraduate Economics majors in their senior year. Students may apply to the program in either their junior or senior year.

Credit Requirements

The course work option requires a minimum of 48 graduate credits. The research option requires a minimum of 45 graduate credits if the candidate writes a research paper or a minimum of 51 graduate credits if the candidate writes a thesis.

Courses

EC 101. Contemporary Economic Issues. 4 Credits.
Examines contemporary public policy using economic principles. Topics may include balanced budgets and tax reform, unemployment, health care, poverty and income redistribution, environmental policy, and international trade policy.

EC 199. Special Studies: [Topic]. 1-5 Credits.
Repeatable.

EC 201. Introduction to Economic Analysis: Microeconomics. 4 Credits.
Examines how consumers, firms, and governments make decisions when facing scarce resources and how those decisions affect market outcomes, such as prices and output. MATH 111 recommended.

EC 202. Introduction to Economic Analysis: Macroeconomics. 4 Credits.
Examines the aggregate activity of a market economy, the problems that arise, such as inflation and unemployment, and how the government can use macroeconomic policy to address these problems. EC 201 recommended.

EC 311. Intermediate Microeconomic Theory. 4 Credits.
Consumer and firm behavior, market structures. General equilibrium theory, welfare economics, collective choice, rules for evaluating economic policy. Students cannot receive credit for both EC 311 and FIN 311.
Prereq: EC 201, MATH 111.

EC 313. Intermediate Macroeconomic Theory. 4 Credits.
Determination of aggregate income, employment, and unemployment; evaluation of macroeconomic policies.
Prereq: EC 202, MATH 111; EC 311 strongly recommended.

EC 320. Introduction to Econometrics. 4 Credits.
Application of classical statistical techniques of estimation, hypothesis testing, and regression to economic models. Includes laboratory section in Social Science Instructional Laboratory.
Prereq: MATH 242, MATH 243.

EC 327. Introduction to Game Theory. 4 Credits.
Introductory course in game theory. Develops game-theoretic methods of rational decision making and equilibriums, using many in-class active games. Ellis.
Prereq: one from EC 101, EC 201.

EC 328. Behavioral Economics and Its Applications. 4 Credits.
This is an introductory course on behavioral economics, which brings together economics and psychology to understand human decision making in a wide range of real life applications.
Prereq: EC 201.

EC 330. Urban and Regional Economic Problems. 4 Credits.
Topics may include urban and metropolitan growth, land use, race and poverty, education systems, slums and urban renewal, transportation, crime, and pollution and environmental quality.
Prereq: EC 201.

EC 333. Resource and Environmental Economic Issues. 4 Credits.
Economic analysis of replenishable and nonreplenishable natural resources; environmental issues and policies.
Prereq: EC 201.

EC 340. Issues in Public Economics. 4 Credits.
Principles and problems of government financing. Expenditures, revenues, debt, and financial administration. Production by government versus production by the private sector. Tax measures to control externalities.
Prereq: EC 201.

EC 350. Labor Market Issues. 4 Credits.
Topics may include the changing structure of employment, the minimum wage, the dual labor market hypothesis, collective bargaining, discrimination, and health and safety regulation.
Prereq: EC 201.

EC 360. Issues in Industrial Organization. 4 Credits.
Topics may include analysis of market power, trends in industrial structure, the role of advertising, pricing policies and inflation, impact of social regulation (e.g., OSHA, EPA), and international comparisons.
Prereq: EC 201.

EC 370. Money and Banking. 4 Credits.
Operations of commercial banks, the Federal Reserve System, and the Treasury that affect the United States monetary system.
Prereq: EC 202.

EC 380. International Economic Issues. 4 Credits.
Exchange across international boundaries, theory of comparative advantage, balance of payments and adjustments, international financial movements, exchange rates and international financial institutions, trade restrictions and policy.
Prereq: EC 201.

EC 390. Problems and Issues in the Developing Economies. 4 Credits.
Topics may include the role of central planning, capital formation, population growth, agriculture, health and education, interaction between economic and cultural change, and the "North-South debate."
Prereq: EC 201.

EC 399. Special Studies: [Topic]. 1-5 Credits.
Repeatable.

EC 400M. Temporary Multilisted Course. 1-5 Credits.
Repeatable.

EC 401. Research: [Topic]. 1-21 Credits.
Repeatable.

EC 404. Internship. 1-4 Credits.
Repeatable for maximum of 4 credits.

EC 405. Reading and Conference: [Topic]. 1-21 Credits.
Repeatable.

EC 407. Seminar: [Topic]. 1-5 Credits.
Repeatable only when the topic changes. Yearly offerings vary depending on interests and needs of students and on availability of faculty members.

EC 408. Workshop: [Topic]. 1-21 Credits.
Repeatable.

EC 410. Experimental Course: [Topic]. 1-5 Credits.
Repeatable only when the topic changes.
Prereq: EC 311; EC 313; one from EC 320, EC 423.

EC 411. Advanced Microeconomic Theory. 4 Credits.
Advanced theory of consumer and firm behavior, market structures.
Prereq: one from MATH 253, MATH 263.

EC 412. Foundations of Economic Policy Analysis. 4 Credits.
Advanced theoretical foundations of economic policy design and analysis.
Prereq: EC 411.

EC 413. Advanced Macroeconomic Theory. 4 Credits.
Advanced theory about the determination of aggregate income, employment, unemployment; evaluation of macroeconomic policies.
Prereq: one from MATH 253, MATH 263.

EC 418. Economic Analysis of Community Issues I. 2 Credits.
Hands-on experience applying economic analysis and econometrics to problems that face local community nonprofits and government agencies.
Prereq: EC 311, EC 313; one from EC 320, EC 423.

EC 419. Economic Analysis of Community Issues II. 4 Credits.
Hands-on experience applying economic analysis and econometrics to problems that face local community nonprofits and government agencies.
Prereq: EC 311, EC 320.

EC 421. Introduction to Econometrics. 4 Credits.
Application of classical statistical techniques of estimation, hypothesis testing, and regression to economic models.
Prereq: one from EC 320, EC 423.

EC 422. Economic Forecasting. 4 Credits.
Basic techniques of economic forecasting that are typically used in a business environment.
Prereq: one from EC 320, EC 423; coreq: one from EC 421, EC 424.

EC 423. Econometrics. 4 Credits.
Introductory topics in probability theory and statistical inference; regression problems of autocorrelation, heteroskedasticity, multicollinearity, and lagged dependent variables; special single-equation estimating techniques; the identification problem in a simultaneous equation setting; development of simultaneous equation estimating procedures.
Prereq: MATH 281, MATH 341; MATH 282 and MATH 461 strongly recommended.

EC 424. Econometrics. 4 Credits.
Introductory topics in probability theory and statistical inference; regression problems of autocorrelation, heteroskedasticity, multicollinearity, and lagged dependent variables; special single-equation estimating techniques; the identification problem in a simultaneous equation setting; development of simultaneous equation estimating procedures.
Prereq: one from EC 423, EC 523.

EC 425. Econometrics. 4 Credits.
Introductory topics in probability theory and statistical inference; regression problems of autocorrelation, heteroskedasticity, multicollinearity, and lagged dependent variables; special single-equation estimating techniques; the identification problem in a simultaneous equation setting; development of simultaneous equation estimating procedures.
Prereq: one from EC 424, EC 524.

EC 427. Games and Decisions. 4 Credits.
Game-theoretic methods of decision-making. Topics may include extensive-form games, noncredible threats, subgame perfect equilibrium, strategic-form games, undominated strategies, Nash equilibrium, coalitional games, and the core.
Prereq: EC 311; one from EC 320, EC 423.

EC 428. Behavioral and Experimental Economics. 4 Credits.
Investigates the "rational choice" model and behavioral alternatives, using laboratory experiments. Topics may include altruism, auctions, bargaining, behavioral finance, hyperbolic discounting, and decision-making under uncertainty.
Prereq: EC 311; one from EC 320, EC 423.

EC 430. Urban and Regional Economics. 4 Credits.
Location theory; urbanization and metropolitan growth; regional analysis; intraurban rent, location and land use, size distribution of urban areas; welfare economics, political economy, and urban problems.
Prereq: EC 311,FIN 311 or equiv; one from EC 320, EC 423.

EC 434. Environmental Economics. 4 Credits.
Introduction to the field that includes theoretical environmental policy, issues in environmental regulation, and empirical techniques used by practitioners.
Prereq: EC 311; one from EC 320, EC 423.

EC 435. Natural Resource Economics. 4 Credits.
Applications of economic theory and empirical methods to natural resources problems: ecosystems and renewable resources (land, water, fisheries, forests); exhaustible resources (energy, minerals).
Prereq: EC 311, EC 320.

EC 440. Public Economics. 4 Credits.
Theory of public goods and their optimal provision. Collective choice versus private choice and implications for resource allocation and efficiency.
Prereq: EC 311; one from EC 320, EC 423.

EC 443. Health Economics. 4 Credits.
Includes moral hazard and adverse selection; incentives faced by health care providers through reimbursement, managed care, and malpractice; rationale for government intervention in the health care sector.
Prereq: EC 311; one from EC 320, EC 423.

EC 448. Political Economy. 4 Credits.
Covers the economic problems that arise when the government is a self-interested actor in the economy. We study political agency, voting, the economic origins of political institutions and the size and number of nations.
Prereq: EC 311, EC 313, EC 320.

EC 450. Labor Economics. 4 Credits.
Supply and demand for labor, wage determination under various market structures, minimum wage and worker exploitation, human capital investments, labor market signaling and sorting, discrimination, uncertainty, and job matching.
Prereq: EC 311; one from EC 320, EC 423.

EC 451. Issues in Labor Economics. 4 Credits.
Topics may include the determination of wages, employment, and unemployment; globalization and immigration; income inequality; internal labor markets; the role of unions; human capital, education, and schools.
Prereq: EC 311; one from EC 320, EC 423.

EC 460. Theories of Industrial Organization. 4 Credits.
Theories, quantitative measures, and institutional descriptions of the structure, conduct, and results that characterize American industry. Emphasis is on the determinants and consequences of market power.
Prereq: EC 311; one from EC 320, EC 423.

EC 462. Economics of Transportation. 4 Credits.
Examines economic transportation issues and models, including regulation, demand-cost modeling, productivity analysis, random utility and choice modeling, and spatial economics.
Prereq: EC 311; one from EC 320, EC 423.

EC 470. Monetary Policy. 4 Credits.
Federal Reserve System strategies and methods of monetary and credit control. Effects of federal policies on prices, output, and employment.
Prereq: EC 313; one from EC 320, EC 423.

EC 471. Monetary Theory. 4 Credits.
Money creation, deficit finance, and taxation in monetary economies. Topics may include the government budget constraint, causes and consequences of inflation, Richardian equivalence, and seigniorage.
Prereq: EC 311, EC 313; one from EC 320, EC 423.

EC 480. International Finance. 4 Credits.
Foreign exchange markets, interaction between spot and forward markets, speculation and interest arbitrage, balance-of-payments accounting, measures of deficits and surpluses, "open-economy" macroeconomic issues.
Prereq: EC 311, EC 313; one from EC 320, EC 423.

EC 481. International Trade. 4 Credits.
Theories of international trade, direction of trade flows, determination of prices and volumes in international trade, tariffs, quotas, customs unions, free versus restricted trade.
Prereq: EC 311; one from EC 320, EC 423.

EC 482. Economics of Globalization. 4 Credits.
Applications of economic theories and empirical methods to globalization issues: market integration of goods and factors, international labor and environmental standards, economic growth and income inequality, financial stability, global governance.
Prereq: EC 311, EC 320.

EC 484. Multinational Corporations. 4 Credits.
Economist's perspective of multinational corporations. Explores the policies governments use to influence corporate behavior and patterns of investment; taxation as a tool for implementing public policy.
Prereq: EC 311; one from EC 320, EC 423.

EC 490. Economic Growth and Development. 4 Credits.
Experience of developed countries and theories of development. Analysis of specific development programs, role of agriculture, sources of investment, techniques and strategies of investment planning.
Prereq: EC 311, EC 313; one from EC 320, EC 423.

EC 491. Issues in Economic Growth and Development. 4 Credits.
Economic issues in developing countries, including use of central planning or markets, capital formation, agriculture, population growth, health and education systems, and the "North-South debate."
Prereq: EC 311, EC 313; one from EC 320, EC 423.

EC 503. Thesis. 1-16 Credits.
Repeatable.

EC 507. Seminar: [Topic]. 1-5 Credits.
Repeatable only when the topic changes. Yearly offerings vary depending on interests and needs of students and on availability of faculty members.

EC 508. Workshop: [Topic]. 1-21 Credits.
Repeatable.

EC 510. Experimental Course: [Topic]. 1-5 Credits.
Repeatable only when the topic changes.

EC 511. Advanced Microeconomic Theory. 4 Credits.
Advanced theory of consumer and firm behavior, market structures.

EC 512. Foundations of Economic Policy Analysis. 4 Credits.
Advanced theoretical foundations of economic policy design and analysis.

EC 513. Advanced Macroeconomic Theory. 4 Credits.
Advanced theory about the determination of aggregate income, employment, unemployment; evaluation of macroeconomic policies.

EC 522. Economic Forecasting. 4 Credits.
Basic techniques of economic forecasting that are typically used in a business environment.

EC 523. Econometrics. 4 Credits.
Introductory topics in probability theory and statistical inference; regression problems of autocorrelation, heteroskedasticity, multicollinearity, and lagged dependent variables; special single-equation estimating techniques; the identification problem in a simultaneous equation setting; development of simultaneous equation estimating procedures.
Prereq: MATH 281, MATH 341; MATH 282 and MATH 461 strongly recommended.

EC 524. Econometrics. 4 Credits.
Introductory topics in probability theory and statistical inference; regression problems of autocorrelation, heteroskedasticity, multicollinearity, and lagged dependent variables; special single-equation estimating techniques; the identification problem in a simultaneous equation setting; development of simultaneous equation estimating procedures.
Prereq: EC 523.

EC 525. Econometrics. 4 Credits.
Introductory topics in probability theory and statistical inference; regression problems of autocorrelation, heteroskedasticity, multicollinearity, and lagged dependent variables; special single-equation estimating techniques; the identification problem in a simultaneous equation setting; development of simultaneous equation estimating procedures.
Prereq: EC 524.

EC 527. Games and Decisions. 4 Credits.
Game-theoretic methods of decision-making. Topics may include extensive-form games, noncredible threats, subgame perfect equilibrium, strategic-form games, undominated strategies, Nash equilibrium, coalitional games, and the core.

EC 528. Behavioral and Experimental Economics. 4 Credits.
Investigates the "rational choice" model and behavioral alternatives, using laboratory experiments. Topics may include altruism, auctions, bargaining, behavioral finance, hyperbolic discounting, and decision-making under uncertainty.

EC 530. Urban and Regional Economics. 4 Credits.
Location theory; urbanization and metropolitan growth; regional analysis; intraurban rent, location and land use, size distribution of urban areas; welfare economics, political economy, and urban problems.

EC 534. Environmental Economics. 4 Credits.
Introduction to the field that includes theoretical environmental policy, issues in environmental regulation, and empirical techniques used by practitioners.

EC 535. Natural Resource Economics. 4 Credits.
Applications of economic theory and empirical methods to natural resources problems: ecosystems and renewable resources (land, water, fisheries, forests); exhaustible resources (energy, minerals).

EC 540. Public Economics. 4 Credits.
Theory of public goods and their optimal provision. Collective choice versus private choice and implications for resource allocation and efficiency.
Prereq: EC 311.

EC 543. Health Economics. 4 Credits.
Includes moral hazard and adverse selection; incentives faced by health-care providers through reimbursement, managed care, and malpractice; rationale for government intervention in the health-care sector.

EC 548. Political Economy. 4 Credits.
Covers the economic problems that arise when the government is a self-interested actor in the economy. We study political agency, voting, the economic origins of political institutions and the size and number of nations.

EC 550. Labor Economics. 4 Credits.
Supply and demand for labor, wage determination under various market structures, minimum wage and worker exploitation, human capital investments, labor market signaling and sorting, discrimination, uncertainty, and job matching.

EC 551. Issues in Labor Economics. 4 Credits.
Topics may include the determination of wages, employment, and unemployment; globalization and immigration; income inequality; internal labor markets; the role of unions; human capital, education, and schools.

EC 560. Theories of Industrial Organization. 4 Credits.
Theories, quantitative measures, and institutional descriptions of the structure, conduct, and results that characterize American industry. Emphasis is on the determinants and consequences of market power.

EC 562. Economics of Transportation. 4 Credits.
Examines economic transportation issues and models, including regulation, demand-cost modeling, productivity analysis, random utility and choice modeling, and spatial economics.

EC 571. Monetary Theory. 4 Credits.
Money creation, deficit finance, and taxation in monetary economies. Topics may include the government budget constraint, causes and consequences of inflation, Richardian equivalence, and seigniorage.

EC 580. International Finance. 4 Credits.
Foreign exchange markets, interaction between spot and forward markets, speculation and interest arbitrage, balance-of-payments accounting, measures of deficits and surpluses, "open-economy" macroeconomic issues.

EC 581. International Trade. 4 Credits.
Theories of international trade, direction of trade flows, determination of prices and volumes in international trade, tariffs, quotas, customs unions, free versus restricted trade.

EC 582. Economics of Globalization. 4 Credits.
Applications of economic theories and empirical methods to globalization issues: market integration of goods and factors, international labor and environmental standards, economic growth and income inequality, financial stability, global governance.

EC 584. Multinational Corporations. 4 Credits.
Economist's perspective of multinational corporations. Explores the policies governments use to influence corporate behavior and patterns of investment; taxation as a tool for implementing public policy.

EC 590. Economic Growth and Development. 4 Credits.
Experience of developed countries and theories of development. Analysis of specific development programs, role of agriculture, sources of investment, techniques and strategies of investment planning.

EC 591. Issues in Economic Growth and Development. 4 Credits.
Economic issues in developing countries, including use of central planning or markets, capital formation, agriculture, population growth, health and education systems, and the "North-South debate."

EC 601. Research: [Topic]. 1-16 Credits.
Repeatable.

EC 602. Supervised College Teaching. 1-5 Credits.
Repeatable.

EC 603. Dissertation. 1-16 Credits.
Repeatable.

EC 605. Reading and Conference: [Topic]. 1-16 Credits.
Repeatable.

EC 606. Practicum: [Topic]. 1-16 Credits.
Repeatable. Graduate teaching fellows may earn 3 credits a term; available to other graduate students with department head's consent.

EC 607. Seminar: [Topic]. 1-5 Credits.
Repeatable. Recent topics are Econometrics, Game Theory, Labor Economics, and Public Finance.

EC 608. Workshop: [Topic]. 1-16 Credits.
Repeatable.

EC 609. Terminal Project. 1-12 Credits.
Repeatable.