ECONOMICS

Chair, Professor Michael Donihue
Associate Chair, Professor Randy Nelson
Professors Debra Barbezat, Michael Donihue, David Findlay, Patrice Franko, Lori Kletzer, Randy Nelson, and Douglas Terp; Associate Professor Andreas Waldkirch; Assistant Professors Nathan Chan, Sahan Dissanayake, Linwood Downs, Samara Gunter, Timothy Hubbard, Daniel LaFave, Robert Lester, James Siodla, and Leonard Wolk; Visiting Assistant Professor Jaya Jha

The Economics Department provides a wide selection of courses analyzing market behavior and the interactions among consumers, firms, and governments. Economic tools, which are applicable to a broad range of topics, are used to investigate how individuals and firms make decisions in private and public spheres and the consequences of resulting resource allocations. As the following courses illustrate, economics is central to the study of poverty, discrimination, growth, unemployment, the environment, international trade, and development, encompassing everything from fertility rates and crime to the cyclical nature of a country's aggregate production.

Economics classes emphasize theoretical modeling, empirical analysis, and critical thinking. After completing core courses in microeconomic and macroeconomic theory, students choose from a wide variety of electives. Both economics and economics-mathematics majors may elect a concentration in financial markets. The economics majors provide undergraduate students with an excellent background for employment and graduate work in numerous fields, including economics, business, law, government, health care, and education.

Requirements for the Major in Economics

Economics 133*, 134*, 223**, 224**, 293, and 393; one economics senior seminar; four additional elective courses in economics at the 200 or 300 level; at least two of the elective courses must be at the 300 level and at least one 300-level elective must be completed at Colby; Mathematics 121* or 161*, or equivalent. The two-course sequence Mathematics 381, Statistics 382 may be substituted for Economics 293.

Requirements for the Major in Economics with a Concentration in Financial Markets

Economics 121, 133*, 134*, 211, 212, 223**, 224**, 293, and 393; one economics senior seminar; four additional elective courses in economics at the 200 or 300 level; at least two of the elective courses must be at the 300 level and at least one 300-level elective must be completed at Colby; Mathematics 121* or 161*, or equivalent. The two-course sequence Mathematics 381, Statistics 382 may be substituted for Economics 293.

Requirements for the Major in Economics-Mathematics

Economics 133*, 134*, 223**, 224**, 293, 336, and 393; one economics senior seminar; two additional elective courses in economics, one of which must be at the 300 level; Mathematics 122* or 162*; Mathematics 253, 311, and one additional 300-level mathematics or statistics course or Mathematics 274. The two-course sequence Mathematics 381, Statistics 382 may be substituted for Economics 293 and the additional 300-level mathematics course.

Requirements for the Major in Economics-Mathematics with a Concentration in Financial Markets

Economics 121, 133*, 134*, 211, 212, 223**, 224**, 293, 336, and 393; one economics senior seminar; four additional elective courses in economics at the 200 or 300 level; at least two of the elective courses must be at the 300 level and at least one 300-level elective must be completed at Colby; Mathematics 122* or 162*; Mathematics 253, 311, and one additional 300-level mathematics or statistics course or Mathematics 274. The two-course sequence Mathematics 381, Statistics 382 may be substituted for Economics 293 and the additional 300-level mathematics course.

A student may elect only one of the majors offered by the Economics Department.

* Beginning with the Class of 2018, students who do not complete Economics 133 and 134 as well as one of the calculus courses required for the majors with a grade of C- or above may not enroll in Economics 223.

** Note: To continue in the major, students must receive a grade of C- or better in Economics 223 and 224. Both economic theory courses (223, 224) must be taken at Colby. Any student who has tried and failed to satisfy an intermediate theory requirement at Colby (i.e., received a grade of D+ or below for the major) may elect to take the same course elsewhere by securing the approval of the department chair on the standard credit transfer approval form. For other students seeking to fulfill the intermediate theory requirement with a course taken elsewhere, approval for the standard credit transfer form can be secured only by petitioning the Economics Department and having the petition approved by majority vote of the Economics Department faculty.

At least one 300-level course must be taken at Colby regardless of the number and level of credits transferred from your study abroad.

Economics 345 may be used to fulfill one of the 200-level elective requirements for any of the economics majors.

Students who wish to do graduate work in economics are encouraged to consider the economics-mathematics major or enroll in Economics 336 and additional courses in mathematics, especially Mathematics 253, 274, 311, 338, 381, and Statistics 382.
The point scale for retention of the major applies to all courses offered toward the major. No economics courses listed for the majors may be taken satisfactory/unsatisfactory.

**Senior Thesis and Honors in Economics and Economics-Mathematics**

Students wishing to further their economics training with a yearlong research project may register for Economics 491 during the fall of their senior year. At the end of the semester, students who are interested in pursuing honors research and who have the Economics Department’s approval, then complete a second semester of research by enrolling in Economics 484. Those completing Economics 484 with at least an A-, and who have maintained a GPA in the major of at least 3.50, are entitled to graduate with honors in the major. Another option, the Senior Thesis, is available to students who want to do a yearlong research project but do not meet the GPA requirement for honors. These students should enroll in Economics 491 followed by Economics 482. Further details can be obtained from the department.

**Requirements for the Minor in Managerial Economics**

Economics 121, 133, 134, 211, 221***, and one elective course in economics at the 200 or 300 level. Also Statistics 212; or Mathematics 381 and Statistics 382; or Psychology 214 and 215; or Sociology 271; or Government 281; or equivalent. Independent studies and Economics 345 cannot be used to fulfill the elective course requirement. No economics courses listed for the minor may be taken satisfactory/unsatisfactory. A faculty-supervised internship experience is recommended. The minor may not be combined with any of the majors offered by the Economics Department.

*** If Economics 223 was taken prior to declaring a managerial economics minor, Economics 221 is not required.

**Course Offerings**

**EC117**  Introduction to Financial Decision Making  Five topical areas: (1) planning, including career planning, financial budgeting, and personal federal taxes, (2) consumer credit, costs of credit, and identity theft, (3) major purchasing decisions including housing and automobiles, (4) insurance such as property, health, disability, and life insurance, and (5) investing in stocks, bonds, and mutual funds for now and retirement. Previously listed as Administrative Sciences 231. Does not count toward the economics majors or minors. **Prerequisite:** Economics 133. **Prerequisite:** Junior or senior standing.  Three credit hours.  LARGAY

**EC121fs**  Financial Accounting  Introduction to financial accounting and financial statement analysis from the stakeholders’ perspective. The statement preparation process is reviewed and analyzed. Accounting concepts, measurement conventions, limitations of financial statements, and the substantive and ethical issues that influence statement preparation and presentation are reviewed. Relates accounting and analysis to microeconomics, finance, and macroeconomic events and public policy, with reference to overlapping concepts and topics. Previously offered as Administrative Science 221. Does not count toward the Economics and Economics-Mathematics majors.  Four credit hours.  DOWNS

**EC133fs**  Principles of Microeconomics  Introduces the fundamental problem in economics: limited resources to satisfy unlimited needs and wants. Concentration on how markets allocate these scarce resources and when they fail to operate efficiently. After analyzing costs, students look at how firms in market structures ranging from perfectly competitive to monopolistic make decisions. Key principles are illustrated by applying them to current economic issues. Students will use standard economic models to describe market structures and the effects of policy interventions, solve problems using graphical or algebraic models of these markets, and choose an appropriate model to analyze economic events described in news articles.  Four credit hours.  S. CHAN, DISSANAYAKE, EDWARDS, FRANKO

**EC134fs**  Principles of Macroeconomics  Introduces the measurement of macroeconomic variables and basic theoretical models of aggregate economic behavior. Focuses on the study of fluctuations in economic activity, long-run economic growth, and the role of monetary and fiscal policy in achieving macroeconomic goals. Students will develop their analytical problem-solving skills, hone their ability to think critically, gain experience in building and understanding theoretical models, and sharpen their capacity to understand and critique macroeconomic policy. **Prerequisite:** Economics 133.  Four credit hours.  S. DONIHUE, FINDLAY, JHA, LIBBY

**EC171j**  Global Financial Markets  An investigation of global financial markets and their effect on the world's domestic economies. We will define and explore the primary components of global financial markets, analyze the roles of the public and private sectors in the markets, and develop recognition of the linkages between financial market events in disparate markets to underlying non-financial economies. We will also provide an introduction to esoteric financial instruments and techniques such as credit default swaps, securities lending, and others. Does not count toward the economics majors or minors. Previously offered as Economics 197 (2014).  Three credit hours.  ATKINSON

**EC211f**  Corporate Finance I  An introduction to financial markets, institutions, and instruments. The tools needed for discounted cash-flow analysis, asset valuation, and capital budgeting are developed. The effects of diversification on risk and the relationship between risk and return are considered. Previously offered as Administrative Science 311. **Prerequisite:** Economics 134.  Four credit hours.
EC212s Corporate Finance II An examination of (1) the issues firms face in obtaining long-term financing and establishing a dividend policy, (2) the effects of capital structure on the cost of capital and the value of the firm, (3) international corporate finance, and (4) the use of financial derivatives, including options, to manage financial risk. Previously offered as Administrative Science 322. Prerequisite: Economics 121 and 211. Four credit hours. NELSON

EC214s Economic Policy and Performance in Contemporary Latin America Analysis of macroeconomic stabilization policies and microeconomic issues such as regional trade, agriculture, health, education, the environment, and labor markets in contemporary Latin America. Prerequisite: Economics 134 and a W1 course. Four credit hours. W2, I. FRANKO

EC215s Managerial Economics The application of economic tools to managerial problems in business, finance, and management. Topics include production theory, firm structure, pricing, competition, strategic behavior, information, risk, and uncertainty. Students will use microeconomic models to think systematically about managerial decisions and gain insight on associated policy implications. Concepts will be grounded in a wide range of applications from the private, public, and nonprofit sectors. Does not count toward the economics majors. Credit cannot be earned for both Economics 221 and 223. Prerequisite: Economics 134. Four credit hours. CHAN

EC223fs Microeconomic Theory The theory of the pricing, distribution, and allocation of resources in a market economy. Emphasis placed on the various meanings of economic efficiency. Prerequisite: Economics 133, and one of Mathematics 102, 121, 122, 161, 162, or equivalent; sophomore standing. Beginning with the Class of 2018, students must complete each prerequisite course with a grade of C- or above. Four credit hours. GUNTER, HUBBARD

EC224fs Macroeconomic Theory Devoted to the development and examination of various theoretical frameworks to explain fluctuations in output, interest rates, exchange rates, unemployment, inflation, and economic growth in a globally interdependent economy. Continued study of the theoretical development of macroeconomic models and further refinement of understanding the effectiveness and optimality of macroeconomic policy. Students gain an understanding of the importance of expectations, the determination of asset prices (e.g., bond and stock prices), the relationship between financial markets and the macroeconomy, and the implications and limitations of models and policies. Prerequisite: Economics 134 and 223. Four credit hours. DONIHUE, LESTER

EC231fs Environmental and Natural Resource Economics The objective is to develop and apply economic tools to current environmental and resource-management issues. Causes of and remedies to environmental and resource-management problems are analyzed through economic modeling. These models in turn serve as the theoretical foundation for designing and evaluating policy instruments and practices. Students will learn to analyze current environmental problems and assess the effectiveness of environmental and resource-management policies using economic tools. Prerequisite: Economics 133 and sophomore or higher standing. Four credit hours. CHAN, DISSANAYAKE

EC235f Organizational Strategy and Economics An integrative introduction to the dynamic, strategic decision-making process as applied in a variety of organizations, including businesses, nonprofits, and NGOs. Through readings, lecture, and case study discussion we explore the process of evaluating organizations, value models, competition, and markets so as to develop strategies that can be successful and adaptive over time. Supporting topics in organizational evolution, innovation effects, competitor response, offensive and defensive tactics, and sources of strategic failure and success are also reviewed. The economic underpinnings of strategy development are reinforced throughout. Prerequisite: Economics 134. Four credit hours. DOWNS

[EC252] Presidential Economics An analysis of key fiscal and monetary policies from the Hoover to the Clinton administrations. Topics include macroeconomic policies of the Great Depression, the gold standard, wage and price controls, the Kennedy tax cuts, and supply-side economics. The effects of economic events on political outcomes (e.g., presidential elections) and the effects of political factors on economic policies (e.g., the political business cycle) will also be examined. Prerequisite: Economics 134. Four credit hours. H.

EC253f Technology, Education, and Labor Markets Introduces students to particular theories from labor economics including the supply and demand for labor, human capital accumulation, and migration. Using these theories we will study the evolution of educational attainment in America over the 20th century and the interaction between technological progress and education. Particular emphasis will be placed on current policy debates such as higher education subsidies, the size and scope of the social safety net, and urban development programs. Prerequisite: Economics 134. Four credit hours. LESTER

[EC254] The Economics of Women, Men, and Work An examination of the past, present, and future economic status of women. Topics include the implications of changing economic and social roles of women for the division of labor in the family; the allocation of time of husband and wife between the household and the labor market; the impact of rising female labor force participation on marriage, childbearing, and divorce; and economic explanations of gender differences in earnings and occupation, including the role of labor market
discrimination in observed gender differences in market outcomes. Prerequisite: Economics 133. Four credit hours. U.

EC256s  Economics of Crime Proceeds from the assumption that criminals are rational to the extent that higher costs of crime will lower criminal activity. Use of economic models to examine topics such as the criminal justice system, law enforcement, markets for drugs and other illegal goods and services, and organized vs. disorganized crime. Major projects include creation of a data portfolio examining one of several sources of national crime data using tables, graphs, and statistical relationships and policy analysis papers drawing on the economic literature to evaluate the effectiveness of anticrime policies and the efficiency of criminal justice resource allocation. Prerequisite: Economics 134 and sophomore or higher standing. Four credit hours. GUNTER

[EC258] Economic History of the United States Traces the structure and performance of the American economy through time. The focus is on applying the tools and methods of economics to the study of historical events from colonial times to World War II, including the American Revolution, slavery, the westward movement, the Civil War, and the Great Depression. Topics include the roles of agriculture, trade, migration, technology, banking, institutions, transportation, and labor in the development of the American economy. Prerequisite: Economics 134. Four credit hours. H.

[EC273] Economics of Globalization Development and application of economic tools of international trade and finance to understand the puzzle of a globally integrated economy. Lectures and student presented debates on key international economic issues, and weekly case studies, focus on policy dilemmas in the global economy. Through readings and debate students learn to assess the validity of contemporary writing on international economics. Specific topics include the Doha development round, trade pacts, the euro crisis, changing geometries of international economic power, global imbalances, the changing role of multinationals (including emerging market giants), and the role of corporate social responsibility in addressing poverty. Prerequisite: Economics 134. Four credit hours. W2.

[EC278] Joules to Dollars Explores economic issues defined by energy science, focusing on tradeoffs that accompany both renewable and nonrenewable energy systems. Students develop a capacity for the analysis of equivalent units of energy based on an understanding of thermodynamics and fuel types. Armed with a foundational knowledge of energy science, students employ a behavioral framework to evaluate the economics of alternative energy technologies and policy proposals for addressing environmental tradeoffs associated with energy use. Includes fieldwork, project-based cooperative learning, oral and written presentations, in-class homework assignments, quizzes, and exam. Lecture and laboratory. Prerequisite: Economics 133, and Chemistry 131, 141, 145, or 147. Four credit hours. N.

EC279f  Economic Rise and Future of China Explores the historical path, current position, and future prospects of the Chinese economy. Examines the dynamics of China’s recent economic success, drawing on economic analysis and recent research to understand current policy questions related to China and its role in the global economy. Students will engage with pressing issues through readings, debates, written assignments, and in-class discussions. Specific topics include Chinese monetary and trade policy, population change and the environment, science and technology policy, migration and the rural-urban divide, and the sustainability of China’s growth. Prerequisite: Economics 133. Four credit hours. I. LAFAVE

EC293fs  Research Methods and Statistics for Economics Provides students with the fundamental ability to understand and carry out research in economics. Covers the use of basic statistical methods, probability, and regression analysis in the description and interpretation of economic data. Students practice the application of these techniques working with powerful statistical software. Prerequisite: Economics 134 and Mathematics 121, 122, or equivalent. Four credit hours. JHA, WALDKIRCH

EC297f  Indigenous Peoples and Economies Explores the relationship between indigenous groups and the U.S. government, focusing on the effect treaties, settlements, and sovereign arrangements have had on economic development and the well-being of individuals in native communities. Students will become familiar with the history of political interaction of state and U.S. governments with tribal groups through time; use data and economic principles to better understand the consequences of public policies related to indigenous people and to evaluate the well-being of affected communities; and consider development strategies to achieve specific goals of indigenous people. Prerequisite: Economics 133. Four credit hours. EDWARDS

EC297J  Energy Economics and Policy Study of the economics of energy production and distribution. Students will learn the methods used to understand energy markets, while familiarizing themselves with frontier research at the intersection of energy economics and environmental management. In a mock electricity market, they will value firms based on their portfolios, participate in spot markets, and present arguments for and against the regulation of energy producers and the restriction of greenhouse gas emissions. Topics include auction theory, basics of resource economics, common mechanisms for combating greenhouse gas emissions, and modern advancements in the field of energy economics. Prerequisite: Economics 133. Three credit hours. OTTO

EC298s  Macroeconomic Development Provides a comprehensive understanding of the essence of development and underdevelopment within the context of major economic problems faced by developing countries in Africa, Asia, Latin America, and the Middle East. Students will be introduced to the classical and contemporary theories of economic development and growth. Topics include economic growth, technology and structural transformation; poverty and inequality; agricultural and rural development; education and
health; demographic transition, migration, and urbanization; foreign aid; role of markets, government, and civil society in development policy-making. Prerequisite: Economics 134. Four credit hours. DONIHUE

**EC313f** Behavioral Economics Provides a behavioral approach to economic decision making, with a focus on human decision making and how it relates to economic theory. Topics include the role of beliefs and preferences and how they affect individual decision making, and the use and design of experiments to test economic theory as well as linking individual decision making to market outcomes. Prerequisite: Economics 223. Four credit hours. WOLK

**EC331f** Industrial Organization and Antitrust Economics An examination of the structure, conduct, and performance of American industries to determine if the market process efficiently allocates resources to meet consumer demand. An economic analysis of antitrust laws, and an evaluation of their performances with reference to specific industries and cases. Prerequisite: Economics 223. Four credit hours. HUBBARD

**EC335f** Topics in Economic Development An examination of current economic issues faced by developing countries and an introduction to the study of development economics. Topics covered in detail include the concepts and measurement of economic development, human capital over the life course, gender and household decision making, microcredit and insurance, inequality and development, the role of institutions and the state, debates over the effectiveness of foreign aid, and international migration. For each topic, we seek to understand the factors and constraints influencing economic decision making in developing countries. Prerequisite: Economics 224. Four credit hours. LAFAVE

**EC336f** Mathematical Economics Advanced economic theory designed to give students the fundamental mathematical tools necessary to understand and analyze advanced economic models. Topics include constrained and unconstrained optimization, differential and difference equations, and dynamic optimization. Emphasis will be placed on economic applications including producer theory, consumer choice under certainty and uncertainty, and dynamic models. Prerequisite: Economics 224, Mathematics 253, and either Mathematics 122 or 162. Four credit hours. LESTER

**EC338f** Money, Banking, and Monetary Policy Students are introduced to the interpretation, role, and determination of interest rates, as well as the theory of consumption/saving, the theory of risk aversion, portfolio theory, the risk structure of interest rates, and the term structure of interest rates (i.e., the yield curve). We will then examine the behavior, structure, and regulation of the banking industry. Finally, students will examine monetary theory and policy with particular emphasis on the implementation of policy by the Federal Reserve. Emphasis on the theoretical, empirical, and policy-related aspects of these issues. Prerequisite: Economics 224, and either 293 or Mathematics 231 or 382 or Statistics 382. Four credit hours. FINDLAY

**EC341f** Natural Resource Economics An examination of the supply, demand, and allocation of the Earth's natural resources. Topics include renewable resources, nonrenewable resources, water, pollution, and other contemporary problems. The first half is devoted to learning the principles, reasoning, and techniques required to analyze and solve a wide range of natural resource allocation problems. The second half consists of case studies of contemporary renewable and nonrenewable natural resource problems. Prerequisite: Economics 223. Four credit hours. DISSANAYAKE

**EC345j** Research in Economics An analytical, not descriptive, research paper in economics, to be coordinated with an elective economics course in which the student is concurrently, or previously has been, enrolled. May be used to fulfill one of the 200-level elective requirements for any of the economics majors. Does not count toward the elective requirement for the managerial economics minor. Prerequisite: Economics 224 and permission of the instructor. Three credit hours. FACULTY

**EC348s** Economic Growth Introduces students to the theory of economic growth. We will primarily be concerned with how economists measure differences in living standards across countries and over time and how they explain these differences in living standards. Students will learn how to work with models of economic growth and evaluate these theories by using publicly available data. An important part is devoted to obtaining, preparing, and presenting data on cross-country income differences. Prerequisite: Economics 224. Four credit hours. LESTER

**EC351s** Public Finance Public finance is the branch of economics concerned with government expenditure and taxation. On the expenditure side, we will model externality and social insurance justifications for government intervention and examine several government policies including Social Security and health-care reform. On the tax side, we will model tax incidence of consumption, income, and wealth taxes and behavioral responses to them. Students will apply their understanding of the models in exams, policy presentations, and writing assignments and will be expected to read and interpret empirical research papers that evaluate the impacts of government policy. Prerequisite: Economics 223 and a W1 course. Four credit hours. GUNTER

**[EC353]** Urban and Regional Economics Provides an in-depth perspective on the economic activity of cities and regions. The focus is
on the use of economic theory to explain various urban phenomena with an emphasis on the role cities play in greater economic development. Specific topics include economic reasons for the existence of cities and specialized regions, urban spatial structure, urban sprawl, housing, local public goods and services, pollution, and urban quality of life. Prerequisite: Economics 223. Four credit hours.

[EC355] Labor Market Economics Wage determination and allocation of human resources in union and nonunion labor markets. Theories of labor supply, labor demand, and human capital investment; related public-policy issues such as minimum wage laws, income maintenance, and discrimination. The operation of labor markets in the macroeconomy, with particular emphasis on the role of implicit and explicit labor contracts in explaining aggregate wage stickiness, inflation, and unemployment. Prerequisite: Economics 223. Four credit hours.

[EC373] Open-Economy Macroeconomics Develops basic concepts, analytical framework, and relevant policy issues in an open-economy setting: price level and income determination, the choice of exchange rate regime and its impacts on macroeconomic stability, constraints on the formulation and implementation of monetary and fiscal policy. Emphasizes some key topics on monetary and international capital markets including cyclicality of fiscal and monetary policies, central bank independence, exchange rate regimes, capital flows, and dollarization. Students will further develop their analytical problem-solving skills and will sharpen their capacity to become critical consumers and critical producers of knowledge. Prerequisite: Economics 224. Four credit hours.

EC378f International Trade An introduction to international trade theory and policy. Topics include the determinants of international trade patterns, the gains from trade, distributional effects, increasing returns and scale economies, outsourcing, commercial policy, factor movements, trade agreements, and labor and environmental standards. Students will understand and be able to manipulate the major international trade models and analyze current trade policy issues in the context of these models both orally and in writing. Prerequisite: Economics 224. Four credit hours.

EC379s Game Theory Introduction to the concepts and applications of game theory, the behavior of rational, strategic agents: “players” who must take into account how their opponents will respond to their own actions. It is a powerful tool for understanding individual actions and social institutions in economics, business, and politics. Students will enhance their analytical thinking and reasoning skills, develop their ability to engage in quantitative analysis and formal problem solving, and hone their ability to think and write with precision and rigor. Specific topics include strategic dominance, Nash equilibrium, subgame perfection, and incomplete information. Prerequisite: Economics 223. Four credit hours.

EC393fs Econometrics An introduction to quantitative methods used for the analysis of economic phenomenon, covering the theoretical development of the ordinary least squares regression framework, tools for model specification and estimation, hypothesis testing, methods for correcting errors in parameter estimation, and the analysis of econometric results in the context of a wide range of empirical applications. Through lab exercises and a final empirical project, develops model-building skills, builds confidence in applying econometric methods to real-world data, deepens the understanding of statistical inference, and improves the capacity for communicating econometric results. Prerequisite: Economics 223, and either 293, Mathematics 231 or 382, or Statistics 231 or 382. Four credit hours.

[EC470] Seminar: Institutions in Economic History Institutions are the formal and informal rules that constrain individual and group behavior. We will study how institutions have helped influence the development paths of Western Europe and the United States over time. The focus is on understanding the historical role of institutions in such areas as technology, financial markets, and urban and regional development. General themes include the roles of laws, property rights, and transaction costs in shaping economic development. Students will analyze and present academic articles, as well as write a research paper in the area of institutions. Prerequisite: Economics 224, 393 (may be taken concurrently), and senior standing. Four credit hours.

EC471f Seminar: Global Production Many goods and services include components that are produced in multiple countries. Global production chains are organized within multinational enterprises or may take place through contractual arrangements. Studies the determinants of cross-border investment and production and their implications for the welfare of people in all countries. Readings are drawn largely from recent original research papers. An original empirical research project provides a deeper understanding of how economic research is conducted and evolves. Oral communication skills are developed through class discussion, presentations, and debates. Prerequisite: Economics 224, 393 (may be taken concurrently), and senior standing as an economics or global studies major. Four credit hours.

EC472s Seminar: Third Wave of Environmental Management Voluntary and information-based approaches (VIBAs) to environmental management are the third wave of environmental policy, following the first and second waves of command-and-control regulations and market-based instruments. We will investigate the interface between behavioral economics and environmental management and will examine how VIBAs arise and how they affect behavior and environmental outcomes, both in theory and in practice. Topics include public disclosure strategies for pollution control, responses to environmental information, conservation behavior, green markets, product labeling, and corporate social responsibility. Prerequisite: Economics 224, 393 (may be taken concurrently), and senior standing as an economics
EC473s  Seminar: Economic Forecasting  An introduction to forecasting methods with an emphasis on macroeconomic time series analysis. Topics include exploratory data analysis, exponential smoothing, time series decomposition, ARIMA modeling, econometric modeling, and the analysis of forecast errors. **Prerequisite:** Economics 224, 393 (may be taken concurrently) and senior standing as an economics major.  Four credit hours.  W3.  EDWARDS

EC475s  Seminar: Economics of Global Health  Exposes students to emerging issues in the economics of global health. By integrating economic theory and recent empirical work using detailed survey data and experiments, we analyze problems facing developing populations and policies aimed at their solutions. We consider extreme poverty and hunger, child mortality, health-care delivery and provider quality, and the relationship between income, poverty, and health. Attention will also be given to global health policy and empirical evidence of the success or failure of policies that target maternal and infant health, anemia, HIV, and malaria. Relies heavily on applying concepts covered in statistics, econometrics, and intermediate microeconomics to reading, discussing, and conducting empirical research. **Prerequisite:** Economics 224, 393 (may be taken concurrently), and senior standing as an economics major.  Four credit hours.  LAFAVE

EC476s  Seminar: Economics of Ecosystem Services and Biodiversity  Ecosystem services and biodiversity face growing threats, and their loss affects human welfare. We will study the economics of providing, valuing, protecting, and restoring ecosystem services and biodiversity. Students will become familiar with the frontier of research at the intersection of ecosystem services and economics. Students will undertake an individual research project that will enable them to demonstrate skills in identifying research questions and in using current economic methods to answer the research question. **Prerequisite:** Economics 224, 393 (may be taken concurrently), and senior standing as an economics major.  Four credit hours.  DISSANAYAKE

EC478f  Seminar: U.S. Social Safety Net  Many domestic spending programs have a goal of improving the well-being of low-income citizens. What challenges does the government face when designing these programs and how do they alter behavior? Students will read and discuss scholarly research on topics including welfare, Medicaid, education, Social Security, the earned income tax credit, and personal income taxation. Students will also write an original empirical research paper. Emphasis on analyzing existing research and developing new research ideas using differences-in-differences methodology. **Prerequisite:** Economics 224, 393 (may be taken concurrently), and senior standing as an economics major.  Four credit hours.  GUNTER

EC479f  Seminar: Auctions  A successfully designed auction depends on the idiosyncrasies of the market being studied. While this makes it difficult to achieve general results, it opens the door to endless applications in need of customized policy advice. Students will learn the core auction formats and some classic theoretical results that provide a benchmark for even the most recent auctions research. They will learn simple empirical strategies that allow these models (and the behavior they predict) to be married with real-world data. Students will develop the tools needed for conducting, and will be required to produce, original auctions research. **Prerequisite:** Economics 224, 393 (may be taken concurrently), and senior standing as an economics major.  Four credit hours.  HUBBARD

EC482s  Senior Thesis  A continuation of a year-long research project, beginning with Economics 491 in the fall semester. The completed research is to be presented in written form. **Prerequisite:** Economics 491, senior standing as an economics major, and permission of the sponsor.  Four credit hours.  DISSANAYAKE, DONIHUE, LESTER

EC484s  Senior Thesis/Honors  First semester of a year-long thesis or honors project to develop a well-articulated proposal, including a testable hypothesis and evidence of data availability. **Prerequisite:** Senior standing as an economics major, and permission of the department.  Four credit hours.  FACULTY

EC484s  Senior Honors Thesis  A continuation of a year-long research project, beginning with Economics 483 in the fall semester. The completed research is to be presented in written form and as part of the Colby Liberal Arts Symposium. **Prerequisite:** Economics 491 and successful proposal defense.  Four credit hours.  FACULTY

EC491f, 492s  Independent Study  Independent study devoted to a topic chosen by the student with the approval of the department. **Prerequisite:** Permission of the sponsor.  One to four credit hours.  FACULTY