ECONOMICS

Chair, Professor Michael Donihue
Associate Chair, Professor Randy Nelson
Professors Michael Donihue, David Findlay, Patrice Franko, Lori Kletzer, Randy Nelson, and Douglas Terp; Associate Professors Samara Gunter, Timothy Hubbard, and Andreas Waldkirch; Assistant Professors Linwood Downs, Daniel LaFave, Robert Lester, Lindsey Novak, and James Siodla; Visiting Assistant Professors Rachel Bouvier, Youngseok Park, and Jean Paul Rabanal.

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 finance 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. Economics majors may elect a concentration in financial markets. The economics major provides 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; three additional elective courses in economics at the 200 or 300 level; at least two of these 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; two additional elective courses in economics at the 300 level; 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
Note that the Economics-Mathematics major will no longer be offered for the Class of 2021 and beyond.
Economics 133*, 134*, 223**, 224**, 293, 336, and 393; one economics senior seminar; one 300-level elective course, Mathematics 122* or 162*; Mathematics 253 and two additional elective courses selected from Mathematics 274 or any 300-level mathematics or statistics courses. The two-course sequence Mathematics 381, Statistics 382 may be substituted for Economics 293 and one of the additional 300-level mathematics courses.

Requirements for the Major in Economics-Mathematics with a Concentration in Financial Markets
Note that the Economics-Mathematics major with a Concentration in Financial Markets will no longer be offered for the Class of 2021 and beyond.
Economics 121, 133*, 134*, 211, 212, 223**, 224**, 293, 336, and 393; one economics senior seminar; one 300-level elective course; Mathematics 122* or 162*; Mathematics 253 and two additional elective courses selected from Mathematics 274 or any 300-level mathematics or statistics course. The two-course sequence Mathematics 381, Statistics 382 may be substituted for Economics 293 and one of the additional 300-level mathematics courses.

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 elective course must be taken at Colby regardless of the number and level of credits transferred from your study
abroad.

Students who wish to do graduate work in economics are encouraged to consider enrolling in Economics 336 and taking 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**

**EC117j  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:** 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.  FRANKO, NOVAK, PARK, RABANAL

**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.  FINDLAY, LIBBY, SIODLA

**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.

NELSON

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 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  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.

EC258s 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. SIODLA

[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.

EC278s 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. DONIHUE, KING

[EC279] 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. DONIHUE, KING

EC293s 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. NOVAK, WALDKIRCH

EC297f Economics as Experimental Science The methodology and advantage of using experimental methods in economics. We will review the main findings pertaining to markets, human social behavior, and rationality. Students participate in classroom demonstration experiments, study lab techniques, survey recent applications in many fields, and design an original experiment. Prerequisite: Economics 133. Four credit hours. RABANAL

EC318s Economics of Global Health Explores global healthcare and health insurance markets from a consumer's perspective. Applies health insurance theory to systems across the globe. We will read and discuss current literature about health phenomena in both developed and developing countries. Students will learn to analyze behaviors from an economic perspective by, for example, evaluating how responsive demand for health inputs is to changes in the price of those inputs, exploring how information affects health behaviors, and determining the value of health insurance. Students will apply their understanding to in-class exams and to a final research paper. Prerequisite: Economics 223; and 293 (may be taken concurrently). Four credit hours. NOVAK

[EC331] 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.

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 223 and 293.  

**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.  

**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.  

**EC341 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.  

**EC345f 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. **Prerequisite:** Economics 224 and permission of the instructor.  

**EC348f 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.  

**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.  

**EC353f 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.  

**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.  

**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.  

**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. HUBBARD

**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. DONIHUE, LAFAVE

**EC398s Experimental Finance** Exploration of how classical and modern financial theory can be analyzed using experimental methods. Students will review asset pricing models in complete and incomplete markets, consumer/investor financial decisions, and management decisions in corporate finance. Students will participate in classroom demonstration experiments, study lab techniques, and design an original financial experiment. Prerequisite: Economics 211 and 223. Four credit hours. RABANAL

**EC470f Seminar: The City in Economic History** Since its founding, the United States has steadily become urbanized. What economic forces have caused people to move to cities? Can history explain today's urban locations and spatial patterns? Focusing primarily on U.S. urban growth since 1800, students will read, present, and discuss academic articles on topics such as suburbanization, zoning, local infrastructure investment, urban quality of life, housing, and racial and economic inequality. Students will build the economic models and tools necessary to complete an original empirical research paper in urban economic history. Prerequisite: Economics 224, 393 (may be taken concurrently), and senior standing as an economics or global studies major. Four credit hours. SIODLA

**EC471s 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. WALDKIRCH

**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. DONIHUE

**EC475f 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

**EC478s 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
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 and as part of the Colby Liberal Arts Symposium.  

Prerequisite: Economics 491, senior standing as an economics major, and permission of the sponsor.  

Four credit hours.  

LESTER, SIODLA

EC484s  Senior Honors 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 and as part of the Colby Liberal Arts Symposium.  

Prerequisite: Economics 491, senior standing as an economics major, permission of the sponsor, 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

EC497f  Economics Research  A collaborative research seminar for students engaged in senior theses, honors projects, or Economics 345 research experiences.  

Prerequisite: Concurrent enrollment in Economics 345, 483, or 491, and permission of instructor.  

One credit hour.  

GUNTER

EC498s  Economics Research  A collaborative research seminar for students engaged in senior theses, honors projects, or Economics 345 research experiences.  

Prerequisite: Concurrent enrollment in Economics 482 or 484, and permission of instructor.  

One credit hour.  

GUNTER