

ECONOMICS

www.econ.iastate.edu (<http://www.econ.iastate.edu>)

The Department of Economics offers coursework for Bachelor of Science degrees in three majors: Agricultural Business, Business Economics, and Economics. The department also offers a minor in Agricultural Business and a minor in Economics. Qualified Agricultural Business majors may choose to enhance and customize their degree with focused coursework in the Ivy College of Business in one of three business options: finance, marketing, or supply chain management. In addition, the department participates in four interdepartmental programs: international agriculture and global resources systems offered by the College of Agriculture and Life Sciences, and international studies and women's studies offered by the College of Liberal Arts and Sciences. For further discussion of programs in Agricultural Business, see the statement below under College of Agriculture and Life Sciences. For programs in Business Economics, see the statement below under Ivy College of Business. For programs in Economics, see the statement below under College of Liberal Arts and Sciences.

Graduates of the Department of Economics acquire skills that distinguish them from other graduates. Economics teaches the abilities to think and reason clearly, to address complex issues using tools and decision-making models of economics, mathematics, and statistics, as well as concepts from the biological, physical, and social sciences. The study of economics also helps students to develop an understanding of the interaction of technology, human activity, and the environment, to apply economic and business concepts associated with making "optimal" choices among economic alternatives, and to communicate concepts and findings to industry professionals, organizations, governments, and the general public.

Economics provides a foundation for graduate work in law, economics, and business. It also provides students the tools of critical analysis and human relations skills that are essential for being informed citizens and getting and keeping meaningful employment.

1. College of Agriculture and Life Sciences

1.1. Major - Agricultural Business

The major in Agricultural Business prepares students for advanced studies and for careers in agricultural finance, management in agricultural supply and marketing industries, commodity merchandising and research, business research and management, farm and ranch operations, commercial farm management and appraisal, agricultural sales and marketing, agricultural reporting and public relations, agricultural extension, international activities, and government service.

Students majoring in Agricultural Business often choose elective coursework leading to minors in the Ivy College of Business or in the

College of Agriculture and Life Sciences or that emphasize specific areas within agricultural business such as finance, management, commodity analysis, research, agricultural sales and marketing, environmental economics, farm and ranch operations, international economics, agricultural extension, or government service. A double major in Agricultural Business and Economics is permitted. A double major in Agricultural Business and Business Economics is not permitted. A major in Agricultural Business with a minor in Economics is not permitted, and minors in both Agricultural Business and Economics are not permitted.

Customization of the Agricultural Business major is possible. Students may request to pursue one of three business options in finance, marketing, or supply chain management. Electing a business option does not change the overall requirements of the Agricultural Business major. Eligibility and coursework requirements for business options are maintained and approved by the Department of Economics and details are available on the department website.

The major in Agricultural Business requires a minimum of 120 credits and a GPA of 2.00 or higher. Only 65 credits (which may include up to 16 technical credits) from a two-year institution may apply to the degree. At least 18 credits must be earned from courses taught by the Department of Economics at ISU, with at most 9 P-NP credits of free electives. The major in agricultural business requires:

International Perspective: 3 cr. from approved course list (<http://tinyurl.com/bzbmv9>).

U.S. Diversity: 3 cr. from approved course list (<http://tinyurl.com/atq6kjp>).
Communication/Library: 13 cr.

ENGL 150	Critical Thinking and Communication	3
ENGL 250	Written, Oral, Visual, and Electronic Composition	3
One of the following		3
ENGL 302	Business Communication	
ENGL 309	Proposal and Report Writing	
ENGL 314	Technical Communication	
One of the following		3
SP CM 212	Fundamentals of Public Speaking	
AGEDS 311	Presentation and Sales Strategies for Agricultural Audiences	
LIB 160	Information Literacy	1

Communication Proficiency Requirement: A grade of C or better in ENGL 250, a C or better in either ENGL 150 or (ENGL 302 or ENGL 309 or ENGL 314), and a C or better in the speech fundamentals course (SP CM 212 or AGEDS 311).

Total Credits 13

Humanities and Social Sciences: 6 cr.

ECON 102	Principles of Macroeconomics	3
Three credits from approved course list (www.agstudent.iastate.edu/humanities.htm).		3

Ethics: 3 cr. from approved course list: <https://www.cals.iastate.edu/student-services/ethics>**Life Sciences: 6 cr.**

One of the following 3

BIOL 101 Introductory Biology

BIOL 211 Principles of Biology I

Three credits from approved course list (www.agstudent.iastate.edu/life_science.htm). 3

Total Credits 6

Mathematics: 13-14 cr.

One of the following 4

MATH 160 Survey of Calculus

MATH 165 Calculus I

One of the following 3-4

ECON 207 Applied Economic Optimization

MATH 166 Calculus II

STAT 226 Introduction to Business Statistics I 3

STAT 326 Introduction to Business Statistics II 3

Physical Sciences: 5 cr.

CHEM 163 College Chemistry 5
& 163L and Laboratory in College Chemistry

Or

PHYS 111 General Physics 5

Agricultural, Food, or Natural Resources Sciences: 6 cr. from approved course list: <https://www.econ.iastate.edu/files/page/files/ag-food-or-natural-resource-sciences-elective-coursesb.pdf>**General Economics: 9-10 cr.**

ECON 101 Principles of Microeconomics 3

ECON 301 Intermediate Microeconomics 3-4

One of the following 3

ECON 302 Intermediate Macroeconomics

ECON 353 Money, Banking, and Financial Institutions

ECON 492 Graduating Senior Survey R

Business and Agricultural Business: 29 cr.

ACCT 284 Financial Accounting 3

FIN 301 Principles of Finance 3

Six credits from ACCT 285 or any 300-489 ACCT, FIN, MKT, MGMT, MIS, or SCM courses. 6

ECON 110 Orientation in Agricultural Business 1

ECON 235 Introduction to Agricultural Markets 3

ECON 292 Career Seminar 1

Nine credits of ECON 230-289, 300-389, 400-489 courses. 9

Three credits of 400-489 level ECON courses. 3

Electives: 22-24 cr.

Agricultural Business majors seeking a double major in Economics must take an additional 9 credits of economics courses beyond those required for the Economics major for a total of 47 economics credits, and must earn a minimum GPA of 2.0 across ECON 101 Principles of Microeconomics, ECON 102 Principles of Macroeconomics, ECON 301 Intermediate Microeconomics and ECON 302 Intermediate Macroeconomics, with no grade in these lower than a C-.

2. Ivy College of Business**2.1. Major - Business Economics**

The Business Economics major combines training in economics with exposure to applied business skills, including analytics. Graduates from this major are well-suited for employment in upper level management and public service positions and have solid preparation for graduate studies in law, economics, and in Master of Business Administration (MBA) programs. A double major in Business Economics and Agricultural Business is not permitted. A double major in Business Economics and Economics is not permitted. A major in Business Economics with a minor in Economics is not permitted. For the undergraduate curriculum in business economics, see Ivy College of Business Business Economics Major or visit the Ivy College of Business web site at <http://www.business.iastate.edu/>.

3. College of Liberal Arts and Sciences**3.1. Major - Economics**

The Economics major prepares students for advanced studies, for professional degrees such as law and business administration, and for careers in finance, business and economic research, management, insurance, brokerage, real estate, labor relations, international development, and government service. Candidates for the Bachelor of Science degree with a major in Economics must fulfill requirements established by the College of Liberal Arts and Sciences. For details of undergraduate curricula in liberal arts and sciences, see College of Liberal Arts and Sciences, Curriculum. A double major in Economics and Agricultural Business is permitted. A double major in Economics and Business Economics is not permitted. A major in Business Economics with a minor in Economics is not permitted. A minor in Economics cannot be combined with a major in Agricultural Business, and minors in both Agricultural Business and Economics are not permitted.

Students majoring in economics are required to take the following courses within the General Education Area of Natural Sciences and Mathematical Disciplines:

Choose one of the following pairs: 7-8

MATH 165 Calculus I
& MATH 166 and Calculus II

MATH 165 Calculus I
& ECON 207 and Applied Economic Optimization *

MATH 160 Survey of Calculus
& ECON 207 and Applied Economic Optimization ()

*Students who plan to take postgraduate work in economics should take MATH 165 and MATH 166.

Choose one of the following pairs: 6

STAT 226 Introduction to Business Statistics I
& STAT 326 and Introduction to Business Statistics II

STAT 341 Introduction to the Theory of Probability and
& STAT 342 Statistics I
and Introduction to the Theory of Probability and
Statistics II

Students must complete the following courses in economics:

ECON 101 Principles of Microeconomics 3

ECON 102 Principles of Macroeconomics 3

ECON 301 Intermediate Microeconomics 3-4

ECON 302 Intermediate Macroeconomics 3

ECON 371 Introductory Econometrics 4

ECON 492 Graduating Senior Survey R

Three credits of ECON 230-289, 300-389, 400-489 courses. 3

Nine credits of 400-489 level ECON courses. 9

A minimum of 18 credits of economics coursework must be earned at Iowa State University. Economics majors must earn a minimum GPA of 2.0 across ECON 101 Principles of Microeconomics, ECON 102 Principles of Macroeconomics, ECON 301 Intermediate Microeconomics, and ECON 302 Intermediate Macroeconomics, with no grade in these lower than a C-.

Communication Proficiency Requirement: According to the university-wide Communication Proficiency Grade Requirement, students must demonstrate their communication proficiency by earning a grade of C or better in ENGL 250. In addition the Economics major requires a grade of C or better in ENGL 302 or ENGL 314.

ENGL 150 Critical Thinking and Communication 3

ENGL 250 Written, Oral, Visual, and Electronic Composition 3

or ENGL 250H Written, Oral, Visual, and Electronic Composition:
Honors

ENGL 302 Business Communication 3
or ENGL 314 Technical Communication

Optimal progress for an economics major would be to complete the principles sequence

ECON 101 Principles of Microeconomics 3

ECON 102 Principles of Macroeconomics 3

and one of the following sequences in the freshman year: 7-8

MATH 165 Calculus I

or MATH 166 Calculus II

MATH 165 Calculus I

or ECON 207 Applied Economic Optimization

MATH 160 Survey of Calculus

or ECON 207 Applied Economic Optimization

The freshman-year sequences should be followed in the sophomore 6-7
year by the intermediate theory sequence:

ECON 301 Intermediate Microeconomics

& ECON 302 and Intermediate Macroeconomics

STAT 226 Introduction to Business Statistics I and STAT 326 Introduction to Business Statistics II are recommended in the sophomore year.

4. Learner Outcome Goals

The Department of Economics at Iowa State University has general goals for its B.S. graduates. These goals are for students to be able to solve problems and think critically, engage in economic reasoning, demonstrate leadership skills, communicate effectively, make ethical decisions, understand the environmental impacts of human activities, meet the challenges of living and working in a culturally diverse and global community, develop a capacity for innovativeness and creativity, and value the importance of life-long learning. Regarding each of these general goals, there are more specific additional goals, namely:

1. Problem Solving/Critical Thinking:

- Distinguish factual statements from opinions or value judgments.
- Summarize, analyze, and interpret research data and policy issues.
- Distinguish causal relationships from correlations.
- Determine the accuracy of statements.
- Understand the usefulness of abstractions and models.
- Identify assumptions and detect bias.
- Critically evaluate their arguments and those of others.
- Distinguish relevant information from irrelevant information.
- Establish priorities.
- Apply a holistic approach to solving complex, issue-laden, problems.

2. Economic Reasoning:

- a. Distinguish positive ('what is') from normative ('what should be') economics.
- b. Determine the opportunity cost of alternatives.
- c. Apply the concepts of comparative advantage, specialization, and exchange to analyze resource allocation issues.
- d. Identify the conditions under which markets allocate resources efficiently or markets fail.
- e. Apply marginal economic analysis to solve problems.
- f. Conduct comparative static analyses.
- g. Pose and test hypotheses.
- h. Use scientific methods to identify optimal choices among economic alternatives.
- i. Identify decision-makers, objectives, choice variables, incentives, and constraints.
- j. Understand how conclusions depend on assumptions.

3. Leadership:

- a. Organize, facilitate, and participate effectively in a group, team, or organization.
- b. Define a problem or opportunity, implement an action planning process, work toward a goal and justify actions taken.

4. Professional, Interpersonal and Cross-cultural Communications:

- a. Communicate economic and business concepts to professionals, organizations, governments, and the general public.
- b. Obtain information by accessing electronic or traditional media, listening, or by observation.
- c. Read, listen, observe and reflect.
- d. Speak and write clearly and persuasively.
- e. Prepare and present effective visual, oral, written, and electronic presentations.

5. Ethics:

- a. Define and assess their ethical perspectives, sense of moral responsibility, and values.
- b. Identify and critically evaluate contemporary ethical and moral issues in professional and private life.

6. Environmental Awareness:

- a. Explain the physical and biological interactions within ecosystems.
- b. Explain how human activities impact the environment and how societies are affected by environmental change.

7. International/Multi-Cultural Awareness:

U.S. Diversity – Students should achieve two of the following outcomes:

- a. Articulate how their personal life experiences and choices fit within the context of the larger mosaic of U.S. society, indicating how they have confronted and critically analyzed their perceptions and assumptions about diversity-related issues.

- b. Analyze and evaluate the contributions of various underrepresented social groups in shaping the history and culture of the U.S.
- c. Analyze individual and institutional forms of discrimination based on factors such as race, ethnicity, gender, religion, sexual orientation, class, etc.
- d. Analyze how cultural diversity and cooperation among social groups affect U.S. society.

International Perspectives – Students should achieve two of the following outcomes:

- a. Analyze the accuracy and relevancy of their own worldviews and anticipate how people from other nations may perceive that worldview.
- b. Describe and analyze how cultures and societies around the world are formed, are sustained, and evolve.
- c. Analyze and evaluate the influence of global issues in their own lives.
- d. Describe the values and perspectives of cultures other than their own and discuss how the influence individuals' perceptions of global issues or events.
- e. Communicate competently in a second language.

8. Entrepreneurship:

- a. Demonstrate innovativeness and creativity regardless of context.
- b. Identify and pursue opportunities that produce value.
- c. Be persistent in shepherding necessary resources and managing associated risk to facilitate change.

9. Life-long Learning:

- a. Articulate how continued learning after graduation will enrich their lives.
- b. Identify and participate in new areas for learning beyond the classroom and after graduation.

1. College of Agriculture and Life Sciences

1.1. Minor - Agricultural Business

Courses to be included in the minimum of 15 credits include the following:

ECON 101	Principles of Microeconomics	3
ECON 230	Farm Business Management	3
ECON 235	Introduction to Agricultural Markets	3
ECON 301	Intermediate Microeconomics	3-4
Three credits of ECON 300-389, 400-489 courses.		3

2. College of Liberal Arts and Sciences

2.1 Minor - Economics

Courses to be included in the minimum of 15 credits are:

ECON 101	Principles of Microeconomics	3
ECON 102	Principles of Macroeconomics	3

ECON 301	Intermediate Microeconomics	3-4
Six credits of ECON 230-289, 300-389, 400-489 courses.		6

Economics, B.S.

Freshman

Fall	Credits Spring	Credits
ECON 101	3 ECON 102	3
ENGL 150	3 ECON 207 ^a	3
LIB 160	1 Arts and Humanities	3
MATH 160 ^a	4 Natural Science	3
Arts and Humanities	3 Social Science	3
Natural Science	3	
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		17
		15

Sophomore

Fall	Credits Spring	Credits
ECON 301	4 ECON 302	3
ENGL 250	3 STAT 326 ^b	3
STAT 226 ^b	3 Elective or Foreign Language	4
LAS 201 or Elective	1 Social Science	3
Elective or Foreign Language	4 Natural Science	2
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		15
		15

Junior

Fall	Credits Spring	Credits
ECON 371	4 ECON 400-489	3
ECON 230-289, 300-389, or 400-489	3 Electives	9
Arts and Humanities	3 International or Diversity	3
Elective	2	
International or Diversity	3	
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		15
		15

Senior

Fall	Credits Spring	Credits
ECON 400-489	3 ECON 400-489	3
ENGL 302 or 314	3 ECON 492	0
Arts and Humanities	3 Electives	10
Electives	6	
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		15
		13

Students in all ISU majors must complete a three-credit course in both U.S. Diversity and in International Perspectives. The two courses may simultaneously meet the following graduation requirements: Social Science, Arts/Humanities, ECON 400-489, or Econ courses from approved list. Please discuss with our advisor.

LAS majors require a minimum of 120 credits, **including a minimum of 45 credits at the 300/400 level**. Three of the required 45 credits at the 300+ level must be earned in a general education group outside the group of your major. Econ majors must meet or complete the LAS foreign language requirement. In addition, Econ majors must earn a minimum of 18 credits from courses taught by the Department of Economics at ISU.

a MATH 165 (Calculus I) and MATH 166 (Calculus II) may be substituted for MATH 160 and ECON 207.

b STAT 341 (Introduction to Theory of Probability & Stats I) and STAT 342 (Introduction to Theory of Probability & Stats II) may be substituted for STAT 226 and 326.

Also see Agricultural Business.

Graduate Study

The department offers work toward the degrees master of science and doctor of philosophy with majors in economics and agricultural economics. The department also offers minors to students with majors in other departments. Visit our web site at www.econ.iastate.edu (<http://www.econ.iastate.edu>).

Students do not need to have an undergraduate major in economics or agricultural economics in order to qualify for graduate work in the department. However, students must have completed undergraduate coursework in macroeconomics, microeconomics, statistics, calculus, and matrix algebra. Some background in Math courses emphasizing logic and proofs is preferred, particularly for the Ph.D.

Candidates for the degree master of science (thesis option) are required to complete satisfactorily 30 credits of acceptable graduate work, including preparation of a thesis.

Candidates for the degree master of science (non-thesis option) may fulfill requirements by satisfactorily completing 32 credits of coursework, including preparation of a creative component.

Programs of study for the doctorate are organized by each student in consultation with the major professor and the individual's committee. Subject to staffing constraints, the department offers coursework to support the following fields of concentration: applied econometrics, agricultural economics, financial economics, industrial organization, international economics, human resources, macroeconomics, and environmental and resource economics. Each student must complete advanced courses in microeconomic and

macroeconomic theory, quantitative methods and econometrics, and two fields from the list above. Students must demonstrate competence in theory by passing qualifying examinations. Students must also participate in workshops.

Courses primarily for undergraduates:

ECON 101: Principles of Microeconomics

(3-0) Cr. 3. F.S.SS.

Resource allocation, opportunity cost, comparative and absolute advantage. Supply and demand. Marginal analysis. Theories of production and consumption, pricing, and the market system. Perfect and imperfect competition and strategic behavior. Factor markets. Present discounted value.

ECON 101H: Principles of Microeconomics: Honors

(3-0) Cr. 3.

Prereq: Honors program students only

Resource allocation, opportunity cost, comparative and absolute advantage. Supply and demand. Marginal analysis. Theories of production and consumption, pricing, and the market system. Perfect and imperfect competition and strategic behavior. Factor markets. Present discounted value.

ECON 101L: Laboratory in Principles of Microeconomics

(0-2) Cr. 1. F.

Prereq: Concurrent enrollment in the appropriate section of ECON 101

Discussion of material typically covered in Econ 101. Application of economic principles to real world problems. Economic principles and basic business management concepts applied to decision-making in agribusiness operations.

ECON 102: Principles of Macroeconomics

(3-0) Cr. 3. F.S.SS.

Prereq: ECON 101 recommended

Measurement of macro variables and general macro identities. Classical models of full employment. Production and growth. Savings and investment. Employment and unemployment. Money, inflation, and price levels. Operation of the U.S. banking system. Fiscal and monetary policy. Elements of international finance.

ECON 102H: Principles of Macroeconomics: Honors

(3-0) Cr. 3.

Prereq: ECON 101 recommended; admission to the Honors program.

Measurement of macro variables and general macro identities. Classical models of full employment. Production and growth. Savings and investment. Employment and unemployment. Money, inflation, and price levels. Operation of the U.S. banking system. Fiscal and monetary policy. Elements of international finance.

ECON 110: Orientation in Agricultural Business

(1-0) Cr. 1. F.

Orientation course for freshman and new transfer students in agricultural business.

ECON 207: Applied Economic Optimization

(2-2) Cr. 3. F.S.

Prereq: MATH 151, MATH 160, MATH 165 or equivalent

Application of linear algebra, calculus and unconstrained and constrained optimization techniques to economic problems. Learning outcomes include the ability to (i) identify the objective, decision variables and constraints in economic decision problems, (ii) represent elements of an economic problem in simple mathematical models, (iii) identify and apply mathematical tools that can be used to solve the problems, (iv) identify the strengths and limitations of the solution method, and (v) interpret the economic meaning and implications of the solution.

ECON 230: Farm Business Management

(2-2) Cr. 3. F.S.

Prereq: ECON 101; ACCT 284

Business and economic principles applied to decision making and problem solving in the management of a farm business. Cash flow, partial, enterprise, and whole farm budgeting. Information systems for farm accounting, analysis, and control. Obtaining and managing land, capital, and labor resources. Alternatives for farm business organization and risk management.

ECON 234: Small Business Management

(3-0) Cr. 3.

Prereq: ECON 101

An introduction to small business management, entrepreneurship, and economics utilizing a series of case studies. Exploration of issues related to starting or acquiring a new business and development of knowledge and skills for successful management of a small business, with an emphasis on agricultural business.

ECON 235: Introduction to Agricultural Markets

(3-0) Cr. 3. F.S.

Prereq: ECON 101

Basic concepts and economics principles related to markets for agricultural inputs and products. Overview of current marketing problems faced by farms and agribusinesses, farm and retail price behavior, structure of markets, food marketing channels, food quality and food safety, and the role of agriculture in the general economy. The implications of consumer preferences at the farm level. Introduction to hedging, futures, and other risk management tools.

ECON 292: Career Seminar

(1-0) Cr. 1.

Prereq: Classification in economics or agricultural business

Career opportunities in the various industries and government institutions. Required training and skills needed to perform successfully in different types of careers. Factors important in finding and obtaining employment either before or after graduation including personal resumes, interviewing, and letter writing. Only one of ECON 292, 292A, and 292B can be used toward graduation.

ECON 292A: Career Seminar: Agricultural Business

(1-0) Cr. 1.

Prereq: Classification in economics or agricultural business

Career opportunities in the various industries and government institutions. Required training and skills needed to perform successfully in different types of careers. Factors important in finding and obtaining employment either before or after graduation including personal resumes, interviewing, and letter writing. Only one of ECON 292, 292A, and 292B can be used toward graduation.

ECON 292B: Career Seminar: Economics and Business Economics

(1-0) Cr. 1.

Prereq: Classification in economics or agricultural business

Career opportunities in the various industries and government institutions. Required training and skills needed to perform successfully in different types of careers. Factors important in finding and obtaining employment either before or after graduation including personal resumes, interviewing, and letter writing. Only one of ECON 292, 292A, and 292B can be used toward graduation.

ECON 297: Internship

Cr. 2. Repeatable, maximum of 4 credits.

Prereq: Permission of instructor and classification in agricultural business or economics

Students complete a research report, based on their internship or approved work experience, that examines chosen topics in management, marketing or finance. Offered on a satisfactory-fail basis only.

ECON 298: Cooperative Education

Cr. R. Repeatable.

Prereq: Permission of the department cooperative education coordinator; sophomore classification

Required of all cooperative education students. Students must register for this course prior to commencing each work period.

ECON 301: Intermediate Microeconomics

(3-0) Cr. 3-4. F.S.SS.

Prereq: ECON 101; ECON 207 or MATH 166

Theory of consumer and business behavior; optimal consumption choices and demand; theory of firm behavior; costs, production, and supply; competitive and imperfectly competitive markets; theory of demand for and supply of factors of production; general equilibrium analysis. Recitation required for 4 credits.

ECON 301H: Intermediate Microeconomics: Honors

(3-0) Cr. 3-4.

Prereq: ECON 101; ECON 207 or MATH 166

Theory of consumer and business behavior; optimal consumption choices and demand; theory of firm behavior; costs, production, and supply; competitive and imperfectly competitive markets; theory of demand for and supply of factors of production; general equilibrium analysis. Recitation required for 4 credits.

ECON 302: Intermediate Macroeconomics

(3-0) Cr. 3. F.S.

Prereq: ECON 101, ECON 102; MATH 160 or MATH 165

Theory of income, employment, interest rates, and the price level; fiscal and monetary policy; budget and trade deficits; money and capital inflows, interest rates, and inflation.

ECON 302H: Intermediate Macroeconomics: Honors

(3-0) Cr. 3.

Prereq: ECON 101, ECON 102; MATH 160 or MATH 165

Theory of income, employment, interest rates, and the price level; fiscal and monetary policy; budget and trade deficits; money and capital inflows, interest rates, and inflation.

ECON 313: Economics of Sports

(3-0) Cr. 3.

Prereq: ECON 101

Application of economics to issues in sports, including franchising; rival leagues and barriers to entry; cooperative, competitive, and collusive behavior; player productivity and compensation; contracts, unions, and discrimination; antitrust, taxation, and subsidies. Economic concepts include supply and demand, labor economics, pricing, public finance, production, game theory, and industrial organization.

ECON 320: Labor Economics

(3-0) Cr. 3.

Prereq: ECON 101

Economic analysis of contemporary domestic and international labor market issues including labor supply and demand, unemployment, and employment in the U.S. and elsewhere; investments in and returns to education, training, health, immigration and migration; income inequality; labor productivity; out-sourcing and global competitiveness; work incentives; compensation including benefits; and labor policies such as minimum wages, over-time pay, discrimination, unions, and immigration. Examples drawn from the U.S. and other developed countries with reference to developing countries where relevant.

Meets International Perspectives Requirement.

ECON 321: Economics of Discrimination

(Cross-listed with WGS). (3-0) Cr. 3.

Prereq: ECON 101

Economic theories of discrimination. Analysis of the economic problems of women and minorities in such areas as earnings, occupations, and unemployment. Public policy concerning discrimination. Poverty measurement and antipoverty programs in the U.S.

Meets U.S. Diversity Requirement

ECON 330: Advanced Farm Business Management

(3-0) Cr. 3.

Prereq: ECON 230

Effective use of strategic planning, decision methods, and computer assistance for solving farm problems. Applications of economic and management theory to analyze farm business decisions using efficiency measures to assess current resource use and direct the farm business analysis, planning, and tax process.

ECON 332: Cooperatives

(3-0) Cr. 3.

Prereq: ECON 101

Survey of cooperative business structure, including historical developments in the United States, principles of cooperation, state and federal authorization for cooperative activity, economic motivations and foundations, governance, marketing and pricing strategies, and financing, capitalization and taxation considerations. Students will learn how the cooperative model is applied in a variety of markets.

ECON 334: Entrepreneurship in Agriculture

(3-0) Cr. 3. F.S.

Prereq: ECON 101

Introduction to the process of entrepreneurship within the agricultural and food sectors. Emphasis on opportunity recognition and assessment, resource acquisition and feasibility analysis for both private and social enterprises. Students will develop a comprehensive feasibility study for a new business or non-profit organization.

ECON 335: The Economics of Global Agricultural Food and Bio-energy

(Cross-listed with GLOBE). (3-0) Cr. 3.

Prereq: ECON 101

Applied economic analysis of the determinants of world agricultural production, marketing, and use in feed, food, fiber, biofuel, and other applications, and global food processing and consumption. Analysis of market case studies and various data on global agricultural production and transformation, land and resource use, demography, economic activity, nutrition and health trends.

Meets International Perspectives Requirement.

ECON 336: Agricultural Selling

(3-0) Cr. 3.

Prereq: ECON 101

Principles of selling with application to agricultural and food related businesses. Attitudes, value systems, and behavioral patterns that relate to agricultural sales. Electronic marketing, selling strategies, preparing for sales calls, making sales presentations, handling objections, and closing sales. Analysis of the buying or purchasing process. Evaluation of agri-selling as a possible career choice.

ECON 337: Agricultural Marketing

(3-0) Cr. 3.

Prereq: ECON 101 required, ECON 235 recommended

Understanding of agricultural commodity markets for grain, livestock and dairy with emphasis on marketing decisions and risk management for farmers and processors. Hands-on applications of marketing and management tools via market simulations.

ECON 344: Public Finance

(3-0) Cr. 3.

Prereq: ECON 101

The economic role of governments in market economies. Public goods, externalities, income distribution, and income maintenance programs. The effect of taxes on economic behavior, descriptions of the structure of the principal U.S. taxes, and current reform proposals.

ECON 353: Money, Banking, and Financial Institutions

(3-0) Cr. 3. F.S.

Prereq: ECON 101, ECON 102

Theoretical and applied analysis of money, banking, and financial markets; interest rates and portfolio choice; the banking industry in transition; the money supply process; the Federal Reserve System and the conduct of monetary policy; macro implications of monetary policy; international finance.

ECON 355: International Trade and Finance

(3-0) Cr. 3.

Prereq: ECON 101, ECON 102

Explanations of causes of international trade and the impact of trade on welfare and employment patterns. Analysis of government policies towards trade, such as tariffs, quotas, and free trade areas. Theory of balance of payments and exchange rate determination, and the role of government policies. Examination of alternative international monetary arrangements.

Meets International Perspectives Requirement.

ECON 362: Applied Ethics in Agriculture

(Cross-listed with SOC). (3-0) Cr. 3.

Prereq: ECON 101 or SOC 134, junior or senior status in the College of Agriculture

Identify major ethical issues and dilemmas in the conduct of agricultural and agribusiness management and decision making. Discuss and debate proper ethical behavior in these issues and situations and the relationship between business and personal ethical behavior.

ECON 364: Rural Property Appraisal

(3-0) Cr. 3.

Prereq: ECON 101

Use of income capitalization, sales comparison and cost appraisal concepts in appraising agricultural resources. Application of underlying economic/business/management principles, especially present value, as they relate to farmland appraisal. Determination and estimation of economic impacts of special consideration and property use factors. Evaluate feasibility and profitability of investment in rural property.

ECON 371: Introductory Econometrics

(4-0) Cr. 4. F.S.

Prereq: ECON 301, ECON 302 OR ECON 353, STAT 326

Introduction to the models and methods used to estimate relationships and test hypotheses pertaining to economic variables. Among the topics covered in the course are: Single and multiple regression analysis; functional forms; omitted variable analysis; multicollinearity; heteroskedasticity; autocorrelation; simultaneous equations; and dynamic models.

ECON 376: Rural, Urban and Regional Economics

(Cross-listed with C R P). (3-0) Cr. 3.

Prereq: ECON 101

Firm location with respect to regional resources, transport, scale economies, externalities, and policies. Measures of local comparative advantage and specialization. Spatial markets. Population location considering jobs, wages, commuting, and local amenities. Business, residential, and farm land use and value. Migration. Other topics may include market failure, regulation, the product cycle, theories of rural and urban development, developmental policy, firm recruiting, local public goods and public finance, schools, poverty, segregation, and crime.

ECON 378: Retirement Planning and Employee Benefits

(Cross-listed with GERON, HD FS). (3-0) Cr. 3. S.

Prereq: 3 credits in introductory economics

Economic well-being in the context of demographic change, the present and future of Social Security, family retirement needs analysis, investment strategies and characteristics of retirement plans, helping others to work towards financial security, family economic issues for retired persons. Overview of employee and retirement benefits.

Meets U.S. Diversity Requirement

ECON 380: Energy, Environmental and Resource Economics

(Cross-listed with ENV S). (3-0) Cr. 3.

Prereq: ECON 101

Natural resource availability, use, conservation, and government policy, with emphasis on energy issues. Environmental quality and pollution control policies.

ECON 385: Economic Development

(Cross-listed with GLOBE). (3-0) Cr. 3.

Prereq: ECON 101, ECON 102

Current problems of developing countries, theories of economic development, agriculture, and economic development, measurement and prediction of economic performance of developing countries, alternative policies and reforms required for satisfying basic needs of Third World countries, interrelationships between industrialized countries and the developing countries, including foreign aid.

Meets International Perspectives Requirement.

ECON 387: Economies of China and India

(3-0) Cr. 3.

Prereq: ECON 101

The economic development of China and India within the larger historical, political, and socioeconomic contexts. The characteristics of the development paths of major industries. The drivers of and impediments for future economic development. The two economies' connections with the world economy.

Meets International Perspectives Requirement.

ECON 398: Cooperative Education

Cr. R.

Prereq: Permission of the department cooperative education coordinator; junior classification

Required of all cooperative education students. Students must register for this course prior to commencing each work period.

ECON 401: Topics in Microeconomics

(3-0) Cr. 3.

Prereq: ECON 301, STAT 226

Advanced treatment of selected topics from one or more of the following areas: household production models, factor markets, game theory and imperfect competition, general equilibrium, intertemporal choice, asset markets, income distribution, externalities and public goods, etc.

ECON 402: Topics in Macroeconomics

(3-0) Cr. 3.

Prereq: ECON 301, ECON 302, STAT 226

Advanced treatment of selected topics from one or more of the following areas: business cycle theory, growth theory, fiscal and monetary policy, coordination issues, open economy macroeconomics, and financial economics.

ECON 416: Industrial Organization

(3-0) Cr. 3.

Prereq: ECON 301

Study of the structure of firms and markets and of their interaction, with emphasis on imperfectly competitive markets. Behavior of firms in strategic settings and insights of basic game-theoretic models. Welfare implications of alternative market organizations, consequences of market power, and scope for government regulation and antitrust/competition policies. Topics include monopoly and price discrimination, oligopoly models, product quality, product differentiation, vertical integration, information and advertising, patents, R&D and innovation, and regulation.

ECON 418: Introduction to Game Theory

(3-0) Cr. 3.

Prereq: ECON 301

Systematic introduction to game theory and its uses in economics. Develops the basic framework, models and tools necessary to analyze games of strategy, including: Strategic and extensive-form representations of games; best response functions and Nash equilibrium, mixed strategies backward induction and subgame-perfect equilibrium, imperfect and incomplete information, Bayesian and sequential equilibria. Examples and applications taken from economics, business, political science, law and biology.

ECON 431: Managerial Economics

(3-0) Cr. 3.

Prereq: ECON 301

Theory of the firm; organizational incentives and efficiency; moral hazard; role of information and decision making under uncertainty; ownership and control; business investment.

ECON 435: Analysis of Food Markets

Cr. 3. S.

Prereq: STAT 226, ECON 235, ECON 301.

Food market analysis from an economics perspective; food markets and consumption; methods of economic analysis; food industry structure and organization; food and agriculture regulations; labeling; consumer concerns; agricultural commodity promotion. Final project required.

ECON 437: Commodity Marketing and Risk Management

(3-0) Cr. 3.

Prereq: ECON 235, ECON 301, STAT 326

The purpose and performance of commodity markets. How commodity marketing institutions function. Merchandising arrangements. Distinguishing features of agricultural commodities. Hedging, arbitrage, and speculation in commodity spot, forward, futures, and options markets. Valuation theory.

ECON 455: International Trade

(3-0) Cr. 3.

Prereq: ECON 301

Rigorous treatment of theories of international trade and international factor movements. Examination of the impact of trade and labor migration on domestic and world welfare and on the distribution of income. Theoretical analysis of government policies towards trade and factor movements, including quotas, tariffs, free trade areas and immigration restrictions. Discussion of contemporary issues and controversies concerning globalization, including multinational firms and labor migration.

Meets International Perspectives Requirement.

ECON 457: International Finance

(3-0) Cr. 3.

Prereq: ECON 302

National income accounting and balance of payments; foreign exchange rates and exchange rate markets; money, interest rates, and exchange rate determination; prices, exchange rates, and output in the short run; international monetary arrangements; fixed versus flexible exchange rates; optimal currency areas; international capital flows; currency and financial crises in emerging markets.

Meets International Perspectives Requirement.

ECON 458: Economic Systems for Electric Power Planning

(Cross-listed with E E). (3-0) Cr. 3.

Prereq: E E 303 or ECON 301

Evolution of electric power industry. Power system operation and planning and related information systems. Linear and integer optimization methods. Short-term electricity markets and locational marginal prices. Risk management and financial derivatives. Basics of public good economics. Cost recovery models including tax treatment for transmission investments.

ECON 460: Agricultural, Food, and Trade Policy

(Dual-listed with ECON 560). (3-0) Cr. 3.

Prereq: ECON 301 or ECON 501

Description and analysis of economic problems of U.S. agriculture. Explanation and economic analysis of government policies and programs to develop agriculture, conserve agricultural resources, address consumer food concerns, stabilize farm prices, and raise farm incomes. The influence of macropolicy, world economy, international trade, and bioenergy on U.S. agriculture.

ECON 466: Agricultural Finance

(3-0) Cr. 3.

Prereq: ECON 301, STAT 226, FIN 301 and ECON 353 (recommended)

Financial analysis of agricultural businesses; liquidity, capital structure, and growth and risk of agricultural firms; capital budgeting methods; analysis of land investments, leasing, and costs of credit; financial intermediation and major financial institutions for agriculture; borrower-lender relationships, and asset-liability management techniques by financial intermediaries; public policies affecting agricultural credit markets.

ECON 480: Intermediate Environmental and Resource Economics

(Dual-listed with ECON 580). (3-0) Cr. 3.

Prereq: ECON 301 or ECON 501

Theories of natural resource utilization and allocation. Externalities, public goods, and environmental quality. Renewable energy, biofuels, land use change and life cycle analysis of carbon, and sustainability and resource conservation. Methodologies for analyzing natural resource and environmental problems and evaluating resource policies.

ECON 490: Independent Study

Cr. 1-5. Repeatable, maximum of 6 credits.

Prereq: Junior or senior classification, 14 credits in economics

Offered on a satisfactory-fail basis only. No more than 9 credits of Econ 490 may be used toward graduation

ECON 490E: Independent Study: Entrepreneurship

Cr. 1-5. Repeatable, maximum of 6 credits.

Prereq: Junior or senior classification, 14 credits in economics

Offered on a satisfactory-fail basis only. No more than 9 credits of Econ 490 may be used toward graduation

ECON 490H: Independent Study: Honors

Cr. 1-5. Repeatable, maximum of 6 credits.

Prereq: Junior or senior classification, 14 credits in economics

Offered on a satisfactory-fail basis only. No more than 9 credits of Econ 490 may be used toward graduation

ECON 492: Graduating Senior Survey

Cr. R.

Prereq: Graduating senior

Final preparations for graduation. The final stages of job searching, interviewing, letter writing, and resume preparation. Outcomes assessment information from graduating seniors including opinion surveys, instructor/advisor/course evaluations, exit interviews, student accomplishment surveys, job placement surveys, and comprehensive skills examinations. Departmental recognition of graduating seniors. Life as an alumnus - expectations and obligations. Convocation and commencement information. Offered on a satisfactory-fail basis only.

ECON 495: Economics Domestic Travel Course

Cr. 1-3.

Prereq: Sophomore status. Permission of instructor

Tour and study of domestic businesses, markets, and economic institutions located outside Iowa to expose students to the diversity of activities within the U.S. economy. Pre-trip sessions arranged. Locations and duration of tours will vary.

ECON 496: Economics International Travel Course

Cr. 1-3. Repeatable.

Prereq: Sophomore status; permission of instructor.

Tour and study of international agricultural and/or nonagricultural economies, markets, and institutions. Locations and duration of tours will vary. Limited enrollment. Meets International Perspectives Requirement.

ECON 498: Cooperative Education

Cr. R.

Prereq: Permission of the department cooperative education coordinator; senior classification

Required of all cooperative education students. Students must register for this course prior to commencing each work period.

Courses primarily for graduate students, open to qualified undergraduates:

ECON 500: Quantitative Methods in Economic Analysis I

(4-0) Cr. 4. F.

Prereq: ECON 301, 1 year of calculus, STAT 401, and permission of Director of Graduate Education

Economic applications of selected mathematical and statistical concepts: linear models and matrix algebra; differential calculus and optimization; integral calculus and economic dynamics; probability distributions, estimation, and hypothesis testing in the analysis of economic data.

ECON 501: Microeconomics

(4-0) Cr. 4. F.

Prereq: ECON 301, credit or enrollment in ECON 500 or equivalent background in calculus and statistics

The theory of the consumer, theory of the firm, perfect and imperfect competition, welfare economics, and selected topics in general equilibrium and uncertainty.

ECON 502: Macroeconomics

(4-0) Cr. 4. F.

Prereq: ECON 302, credit or enrollment in ECON 500 or equivalent background in calculus and statistics

Models of aggregate supply and demand, theories of consumption and investment, money supply and demand, inflation, rational expectations, stabilization policy, financial markets, and international finance.

ECON 509: Applied Numerical Methods in Economics

(3-0) Cr. 3.

Prereq: ECON 500, ECON 501; or ECON 600, ECON 601

Use of numerical techniques to solve economic problems. Numerical differentiation and integration numeric solutions of systems of equations, static and dynamic optimization problems including unconstrained optimization, maximum likelihood methods, general nonlinear programming methods, dynamic programming and optimal control, numerical methods for solving functional equations.

ECON 510: Experimental Economics

(3-0) Cr. 3.

Prereq: ECON 501 or ECON 601

Introduction to experimental economics and major subject areas addressed by laboratory and field experiments. Exploration of experimental methods by concentrating on series of experiments. Applications include individual decision-making, behavioral game theory, markets, behavioral labor, public and development economics, social network, and neuroeconomics. Research project.

ECON 520: Labor Supply and Human Capital Formation

(3-0) Cr. 3.

Prereq: ECON 501 or ECON 601

Labor supply decisions and empirical analysis for agricultural operators and other self-employed and wage-earning households; multiple job holding; resource allocation in productive households; human capital formation by households, firms, and public institutions, which includes schooling, on-the-job training, migration, health, research, raising of children, and implications for household income and welfare; applications to problems in rural areas of developing and developed countries.

ECON 521: Labor Markets

(3-0) Cr. 3.

Prereq: ECON 501 or ECON 601

Analysis of labor demand and market determination of wages and employment; analysis of distortions in labor markets due to non-competitive forces, legislation, and discrimination; wage inequality, compensation and work incentives; compensating differentials; microeconomic analysis of unemployment and job search.

ECON 532: Managerial Economics for the Global Organization

(3-0) Cr. 3.

Prereq: ECON 101 and enrollment in MBA or BAS program; not for economics majors

Applications of microeconomic theory and decision analysis for firms operating in U.S. and internationally. Topics include demand & supply, consumer choice theory, production and cost theory, short run and long run business decisions, input cost and human capital differences across countries, empirical estimation of demand and supply, pricing, exchange rates, government and business, market structures and strategy.

ECON 537: Commodity Markets: Analysis and Strategy

(3-0) Cr. 3.

Prereq: ECON 501 or ECON 532 or ECON 601, ECON 571 or STAT 326

Analysis of exchange-traded and over-the-counter commodity markets, their functions and performance. Evaluation of hedging, speculation, and arbitrage strategies. Commodity transformation over space and time. Valuation of derivatives and comparison with derivatives on financial assets. Efficiency and the role of information in commodity markets. Market regulation.

ECON 545: Public Economics

(3-0) Cr. 3.

Prereq: ECON 501 or ECON 601

Economic justifications for government activities; illustrative theoretical and empirical analyses of expenditure programs; foundations of excess burden, incidence analysis, and optimal taxation; effects of taxation on labor supply; public goods and externalities; social insurance; introduction to economics of the health sector with an emphasis on the role of market failures.

ECON 560: Agricultural, Food, and Trade Policy

(Dual-listed with ECON 460). (3-0) Cr. 3.

Prereq: ECON 301 or ECON 501

Description and analysis of economic problems of U.S. agriculture. Explanation and economic analysis of government policies and programs to develop agriculture, conserve agricultural resources, address consumer food concerns, stabilize farm prices, and raise farm incomes. The influence of macropolicy, world economy, international trade, and bioenergy on U.S. agriculture.

ECON 571: Intermediate Econometrics

(3-0) Cr. 3. S.

Prereq: ECON 500

Single and multiple equation regression models; dummy explanatory variables; serial correlation; heteroskedasticity; distributed lags; qualitative dependent variables; simultaneity. Use of econometric models for tests of economic theories and forecasting.

ECON 576: Spatial Economics

(3-0) Cr. 3.

Prereq: ECON 501 or ECON 601

Analysis of location choice by firms, employees, and households emphasizing the role of spatial variations in agglomeration economies, economies of scale, distance, transport, endowments, amenities, and local government. Models of land use, urban form, spatial competition, central place theory, and migration. Techniques of discrete choice analysis, statistical analysis of categorical data, urban system modeling, and interregional computable general equilibrium.

ECON 580: Intermediate Environmental and Resource Economics

(Dual-listed with ECON 480). (3-0) Cr. 3.

Prereq: ECON 301 or ECON 501

Theories of natural resource utilization and allocation. Externalities, public goods, and environmental quality. Renewable energy, biofuels, land use change and life cycle analysis of carbon, and sustainability and resource conservation. Methodologies for analyzing natural resource and environmental problems and evaluating resource policies.

ECON 581: Advanced Environmental Economics

(3-0) Cr. 3.

Prereq: ECON 501 or ECON 601

Interrelationships of natural resource use and the environment. Applied welfare and benefit-cost analyses. Externalities and pollution abatement. Nonmarket valuation of resources. Property rights. Legal and social constraints. Policy approaches.

ECON 590: Special Topics

Cr. 1-5. Repeatable.

Offered on a satisfactory-fail basis only.

ECON 599: Creative Component

Cr. 1-5.

Offered on a satisfactory-fail basis only.

Courses for graduate students:**ECON 601: Microeconomic Analysis I**

(4-1) Cr. 4. F.

Prereq: ECON 301, previous or concurrent enrollment in 600 and permission of Director of Graduate Education

Economic theory and methodology; theory of consumer behavior, theory of the competitive firm, supply and factor demand; duality relations in consumer and producer theory, welfare change measures; partial equilibrium analysis, perfect competition, monopoly; choice under uncertainty, the expected utility model, risk aversion; insurance, portfolio and production decisions under risk.

ECON 602: Macroeconomic Analysis

(4-1) Cr. 4. S.

Prereq: ECON 301, ECON 302, previous or concurrent enrollment in 600 and permission of Director of Graduate Education

Neoclassical aggregate growth models; the overlapping generations model; endogenous growth models; equilibrium business cycle theories; equilibrium job search and matching; models of money; fiscal and monetary policy; income and wealth distribution.

ECON 603: Microeconomic Analysis II

(4-1) Cr. 4. S.

Prereq: ECON 601, ECON 602 and permission of Director of Graduate Education

General equilibrium analysis, efficiency, and welfare; market failures, externalities, and the theory of the second best; introduction to game theory; adverse selection, signaling, screening and moral hazard.

ECON 604: Advanced Macroeconomic Analysis

(4-1) Cr. 4. F.

Prereq: ECON 601, ECON 602 and permission of Director of Graduate Education

Topics will be selected from: new Keynesian approaches to business cycle theory; endogenously generated business cycles; models of credit and financial intermediation; mechanism design and time inconsistency issues; political economy models; heterogeneous-agent models with strategic interaction; path dependence, network effects, and lock-in; economies as evolving self-organizing systems.

ECON 606: Advanced Topics in Macroeconomics

(3-0) Cr. 3.

Prereq: ECON 603, and credit or current enrollment in ECON 604

Selected topics in macroeconomic theory of current significance to the profession.

ECON 615: Theoretical Industrial Organization

(3-0) Cr. 3.

Prereq: ECON 603

Theoretical analysis of traditional topics in industrial organization. Review of game theory. Monopoly and oligopoly theory, price discrimination, product differentiation, research and development, diffusion of innovation, network externalities, and asymmetric information.

ECON 618: Game Theory

(3-0) Cr. 3.

Prereq: ECON 603, or ECON 501 and permission of instructor

Theoretical analysis and applications of strategic games, extensive form games, and cooperative games. Nash equilibrium, correlated equilibrium, Bayesian games, subgame perfect equilibrium, the core, evolutionary equilibrium, repeated games with finite automata, and common knowledge.

ECON 641: Agricultural Economics I

(3-0) Cr. 3.

Prereq: ECON 603

Demand and supply for agricultural products, market equilibrium models, implications of government policies on the agricultural sector, evaluation of research and development policies in agriculture, and biofuel and energy policy analysis. Commodity promotion programs, food safety and consumers' valuation of product attributes.

ECON 642: Agricultural Economics II

(3-0) Cr. 3.

Prereq: ECON 603

Advanced treatment of topics and models in agricultural economics with emphasis on stochastic models. Topics will include analysis of risk in decision making by consumers, firms and farms; analysis of risk management strategies for farmers; the economics of commodity storage; analysis of the impact of biofuels on commodity prices; and models of agricultural inputs and outputs.

ECON 653: Financial Economics

(3-0) Cr. 3.

Prereq: ECON 603, ECON 672. Recommended: ECON 674, StAT 551

Review of decision-making under uncertainty. Portfolio Theory. Theoretical foundations of asset valuation models: capital asset pricing model (CAPM), arbitrage pricing theory (APT), representative agent models, pricing of derivative securities. Complete and incomplete asset markets, credit markets, financial intermediaries, the role of government in the financial sector. Market frictions, crashes, bubbles. Applications of asset valuation models, with emphasis on their testable implications.

ECON 655: International Trade

(3-0) Cr. 3.

Prereq: ECON 603

Theories of international trade; welfare and distributional aspects of trade and commercial policies. Optimal trade policies in the presence of domestic distortions; strategic trade policy; international trade and economic growth.

ECON 657: International Finance

(3-0) Cr. 3.

Prereq: ECON 602

The intertemporal approach to current account determination; non-traded goods and the real exchange rate; fiscal policy in the open economy; monetary approach to balance of payments and exchange rate determination; sticky price models of the open economy; exchange-rate based stabilizations; capital inflows; financial and balance of payments crises; international business cycles.

ECON 671: Econometrics I

(4-1) Cr. 4. F.

Prereq: ECON 501 and STAT 447 or STAT 542

Probability and distribution theory for univariate and multivariate normal random variables, introduction to the theory of estimators for linear models, hypothesis testing and inference, introduction to large sample properties of estimators; derivation of common estimators and their properties for the classical and general multiple regression models, hypothesis testing, forecasting, implications of specification errors - missing data, left-out regressors, measurement error, stochastic regressors.

ECON 672: Econometrics II

(4-1) Cr. 4. S.

Prereq: ECON 671

Identification, estimation, and evaluation of systems of simultaneous equations; qualitative choice and limited dependent variable models; introduction to time series methods and applications, including alternative variance specifications.

ECON 673: Microeconometrics

(3-0) Cr. 3.

Prereq: ECON 672, ECON 601

Econometric treatment of models arising in microeconomic applications. Methods are primarily concerned with the analysis of cross-section data. Topics may include: systems of demand equations in panel data settings, random utility models of discrete choices, production possibilities frontier estimation, and discrete/continuous models of participation and consumption.

ECON 674: Macroeconometrics

(3-0) Cr. 3.

Prereq: ECON 672, ECON 602

Time-series econometric techniques and their application to macroeconomics and financial markets. Techniques may include GARCH and ARCH-M models, unit-root tests, nonlinear adjustment models, structural VARs, and cointegration tests.

ECON 680: Advanced Resource Economics

(3-0) Cr. 3.

Prereq: ECON 603

Dynamic allocation of scarce, exhaustible, and renewable natural resources, including minerals and energy, soil, water, forests, and fish. Social versus private decisions. Market and nonmarket considerations. Technological change. Regulation. Dynamics and uncertainty.

ECON 690: Advanced Topics

Cr. 1-5. Repeatable.

Offered on a satisfactory-fail basis only.

ECON 691: Third-Year Paper

Cr. 3.

Under the direction of the major professor, Ph.D. students write a formal research paper as an introduction to the dissertation research process.

Offered on a satisfactory-fail basis only.

ECON 693: Workshops

Cr. 3.

Workshop in economics. Offered on a satisfactory-fail basis only.

ECON 694A: Research Workshop

Cr. 3. F.

Prereq: Third year status in the Economics Ph.D. program or permission of instructor.

Instruction in basic and applied research methods commonly used in economics. Survey methodologies, critique written work, summarize and evaluate data, prepare and present work orally, and develop an original research paper. Satisfactory-fail only. Offered on a satisfactory-fail basis only.

ECON 694B: Research Workshop

Cr. 3. S.

Prereq: Econ 694A

Writing and communicating economic research. Continuation of Econ 694A, resulting in completion of an original research paper. Satisfactory-fail only. Offered on a satisfactory-fail basis only.

ECON 699: Research for Thesis or Dissertation

Cr. arr. Repeatable.

Offered on a satisfactory-fail basis only.