ECONOMICS

The department offers coursework for the degrees of bachelor of science with three different majors: agricultural business, business economics, and economics. A minor in agricultural business and a minor in economics are also possible. 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 College of Business. For programs in economics, see the statement below under College of Liberal Arts and Sciences. Visit our web site at www.econ.iastate.edu (http://www.econ.iastate.edu).

Graduates of the Department of Economics learn 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 develop understanding of the interaction of technology, human activity, and the environment, learn to apply economic and business concepts associated with making “optimal” choices among economic alternatives, and communicate them, using a variety of means, to other professionals, collective organizations, governments, and the general public.

Economics provides a foundation for 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 an informed citizen 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. A major in agricultural business with a minor in economics is not permitted; however, a double major in agricultural business and economics is permitted.

Students majoring in agricultural business often choose elective coursework leading to minors in the College of Business or in the College of Agriculture and Life Sciences, or emphasizing 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.

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/bzbmyv9).
- **U.S. Diversity**: 3 cr. from approved course list (http://tinyurl.com/atq6kpj).
- **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).
- **Ethics**: 3 cr. from approved course list (www.agstudent.iastate.edu/ethics.htm (http://www.agstudent.iastate.edu/ethics.htm))
- **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).

| 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
- STAT 326 Introduction to Business Statistics II

Physical Sciences: 5 cr.
- CHEM 163 & 163L College Chemistry and Laboratory in College Chemistry 5
- PHYS 111 General Physics 5

Agricultural, Food, or Natural Resources Sciences: 6 cr. from approved course list (http://tinyurl.com/lcs25jb).

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

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 a minimum of 42 credits in economics. These include all of the economics courses required for the economics major. To double major in economics, agricultural business majors must also earn an average grade of C or higher in ECON 101 Principles of Microeconomics, ECON 102 Principles of Macroeconomics, and ECON 302 Intermediate Macroeconomics with no grade lower than a C-

2. College of Business
2.1. Major - Business Economics
The major in business economics provides a high-quality education with a balanced emphasis in both business and economics. Graduates from the business economics major possess a unique mix of analytical and applied business skills well-suited for employment in upper level management and public service positions. Graduates also 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 College of Business Economic Major or visit the College of Business web site at http://www.business.iastate.edu/.

3. College of Liberal Arts and Sciences
3.1. Major - Economics
The major in economics prepares students for advanced studies, 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.)

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: 7-8

- MATH 165 Calculus I
- MATH 166 Calculus II

- MATH 165 Calculus I
- & ECON 207 Applied Economic Optimization

- MATH 160 Survey of Calculus
- & ECON 207 Applied Economic Optimization

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

Choose one of the following: 6

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

Electives: 22-24 cr.
Agricultural business majors seeking a double major in economics must take a minimum of 42 credits in economics. These include all of the economics courses required for the economics major. To double major in economics, agricultural business majors must also earn an average grade of C or higher in ECON 101 Principles of Microeconomics, ECON 102 Principles of Macroeconomics, and ECON 302 Intermediate Macroeconomics with no grade lower than a C-.
STAT 341 Introduction to the Theory of Probability and Statistics I  
& STAT 342 and Introduction to the Theory of Probability and Statistics II

Students must complete the following courses in economics:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ECON 101</td>
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<td>ECON 102</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
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<td>ECON 301</td>
<td>Intermediate Microeconomics</td>
<td>3-4</td>
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<td>ECON 302</td>
<td>Intermediate Macroeconomics</td>
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<td>ECON 371</td>
<td>Introductory Econometrics</td>
<td>4</td>
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<tr>
<td>ECON 492</td>
<td>Graduating Senior Survey</td>
<td>R</td>
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<tr>
<td></td>
<td>Three credits of ECON 230-289, 300-389, 400-489 courses.</td>
<td>3</td>
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<tr>
<td></td>
<td>Nine credits of 400-489 level ECON courses.</td>
<td>9</td>
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</tbody>
</table>

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

Communication Proficiency Requirement: The LAS College requires a grade of C or better in ENGL 250. In addition the major in Economics requires a grade of C or better in ENGL 302 or ENGL 314.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENGL 150</td>
<td>Critical Thinking and Communication</td>
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<tr>
<td>ENGL 250</td>
<td>Written, Oral, Visual, and Electronic Composition</td>
<td>3</td>
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<tr>
<td>or ENGL 250H</td>
<td>Written, Oral, Visual, and Electronic Composition: Honors</td>
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<tr>
<td>ENGL 302</td>
<td>Business Communication</td>
<td>3</td>
</tr>
<tr>
<td>or ENGL 314</td>
<td>Technical Communication</td>
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</table>

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 101</td>
<td>Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 102</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 165 or MATH 166</td>
<td>Calculus I</td>
<td>3</td>
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<tr>
<td>MATH 165 or ECON 207</td>
<td>Calculus I</td>
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<tr>
<td>or MATH 165</td>
<td>Survey of Calculus</td>
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<tr>
<td>or ECON 207</td>
<td>Applied Economic Optimization</td>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 165 or MATH 166</td>
<td>Calculus I</td>
<td>3</td>
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<tr>
<td>or MATH 165</td>
<td>Survey of Calculus</td>
<td></td>
</tr>
<tr>
<td>or ECON 207</td>
<td>Applied Economic Optimization</td>
<td></td>
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</tbody>
</table>

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:
   a. Distinguish factual statements from opinions or value judgments.
   b. Summarize, analyze, and interpret research data and policy issues.
   c. Distinguish causal relationships from correlations.
   d. Determine the accuracy of statements.
   e. Understand the usefulness of abstractions and models.
   f. Identify assumptions and detect bias.
   g. Critically evaluate their arguments and those of others.
   h. Distinguish relevant information from irrelevant information.
   i. Establish priorities.
   j. 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

<table>
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<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
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<tr>
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<td>ECON 102</td>
<td>3</td>
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<td>ENGL 150</td>
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<td>ECON 207a</td>
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<td>LIB 160</td>
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<tr>
<td>MATH 160a</td>
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<td>Natural Science</td>
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<td>Arts and Humanities</td>
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<td>Social Science</td>
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<td>Natural Science</td>
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<td><strong>Total</strong></td>
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Sophomore

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<tr>
<td>ECON 301</td>
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<td>3</td>
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<tr>
<td>ENGL 250</td>
<td>3</td>
<td>STAT 326b</td>
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</table>
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.

Students do not have 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.

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<th>Junior</th>
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<tr>
<td>ECON 371</td>
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<td>ECON 400-489</td>
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<td>ECON 400-489</td>
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<td>ENGL 302 or 314</td>
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<td>Electives</td>
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<td></td>
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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).