ECONOMICS, B.S.

A major in economics gives students a greater understanding of how people, businesses, and governments respond to their economic environments. Many of the issues that fill the newspapers—jobs, wages, taxes, the cost of living, inequality, pollution, poverty, and economic growth—are, in fundamental ways, economic issues. The daily decisions of businesses and consumers are largely economic. Economists seek to understand the decisions of businesses, consumers, and current economic issues by developing a systematic and thorough understanding of precisely how the economic system operates, including the mechanisms by which resources are allocated, prices determined, income redistributed, and economic growth promoted.

The analytical method of economics recognizes that various choices are open to a society in solving its economic problems. Students are often attracted to economics as a discipline precisely because they want to understand the decisions of people and businesses and to better understand and evaluate economic policy. To begin to approach these issues as an economist requires an understanding of economic theory, empirical methodology, and an understanding of the institutional details and advanced practice gained from intensive study of specific subfields of economics. Consequently, the undergraduate economics major is organized around a progression of courses that first provides a broad introduction to economics, then develops the theoretical tools that provide the foundation of modern economic thought, and finishes with advanced courses designed to provide greater in-depth knowledge of specific fields (such as labor markets, industrial organization, international economics, public finance, banking and finance, macroeconomics, microeconomics, and econometrics).

An economics major is valuable in the job market because the major is designed to train people to think analytically and clearly about a wide variety of issues. This skill is valued by many employers. An economics major is also good preparation for graduate work in a number of areas: mathematics, law, public policy, economics, public administration, industrial relations, international relations, urban and regional planning, and environmental studies.

HOW TO GET IN

ADMISSION TO THE MAJOR

1. Completion of two (2) Econ courses on the University of Wisconsin–Madison campus with a 2.000 GPA.
2. A 2.000 GPA in all Econ courses and other major coursework taken at UW–Madison
3. Completion of one (1) calculus course
   - For Option B, Mathematical Emphasis, MATH 221 Calculus and Analytic Geometry 1 or higher is required

REQUIREMENTS

UNIVERSITY GENERAL EDUCATION REQUIREMENTS

All undergraduate students at the University of Wisconsin–Madison are required to fulfill a minimum set of common university general education requirements to ensure that every graduate acquires the essential core of an undergraduate education. This core establishes a foundation for living a productive life, being a citizen of the world, appreciating aesthetic values, and engaging in lifelong learning in a continually changing world. Various schools and colleges will have requirements in addition to the requirements listed below. Consult your advisor for assistance, as needed. For additional information, see the university Undergraduate General Education Requirements (http://guide.wisc.edu/undergraduate/#requirementsforundergraduatesstudytex) section of the Guide.

- General Education
  - Breadth—Humanities/Literature/Arts: 6 credits
  - Breadth—Natural Science: 4 to 6 credits, consisting of one 4- or 5-credit course with a laboratory component; or two courses providing a total of 6 credits
  - Breadth—Social Studies: 3 credits
  - Communication Part A & Part B *
  - Ethnic Studies *
  - Quantitative Reasoning Part A & Part B *

* The mortarboard symbol appears before the title of any course that fulfills one of the Communication Part A or Part B, Ethnic Studies, or Quantitative Reasoning Part A or Part B requirements.

COLLEGE OF LETTERS & SCIENCE BREADTH AND DEGREE REQUIREMENTS:

BACHELOR OF SCIENCE (B.S.)

Students pursuing a bachelor of science degree in the College of Letters & Science must complete all of the requirements below. The College of Letters & Science allows this major to be paired with either a bachelor of arts or a bachelor of science curriculum. View a comparison of the degree requirements here. (https://pubs.wisc.edu/home/archives/ug15/images/babs2009.pdf)

BACHELOR OF SCIENCE DEGREE REQUIREMENTS

- Mathematics Two (2) 3+ credits of intermediate/advanced level MATH, COMP SCI, STAT
- Limit one each: COMP SCI, STAT

<table>
<thead>
<tr>
<th>Foreign Language</th>
<th>Complete the third unit of a foreign language Note: A unit is one year of high school work or one semester/term of college work.</th>
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</thead>
</table>
| L&S Breadth      | Humanities, 12 credits: 6 of the 12 credits must be in literature  
|                  | Social Sciences, 12 credits  
|                  | Natural Sciences, 12 credits: must include 6 credits in biological science; and must include 6 credits in physical science |

- Liberal Arts and Science Coursework 108 credits
- Depth of Intermediate/Advanced work 60 intermediate or advanced credits
- Major Declare and complete at least one (1) major
- Total Credits 120 credits
UW-Madison Experience
30 credits in residence, overall
30 credits in residence after the 90th credit
Minimum GPAs
2.000 in all coursework at UW–Madison
2.000 in intermediate/advanced coursework at UW–Madison

NON–L&S STUDENTS PURSUING AN L&S MAJOR
Non–L&S students who have permission from their school/college to pursue an additional major within L&S only need to fulfill the major requirements and do not need to complete the L&S breadth and degree requirements above. Please note that the following special degree programs are not considered majors so are not available to non-L&S-degree-seeking candidates:

• Applied Mathematics, Engineering and Physics (Bachelor of Science–Applied Mathematics, Engineering and Physics)
• Journalism (Bachelor of Arts–Journalism; Bachelor of Science–Journalism)
• Music (Bachelor of Music)
• Social Work (Bachelor of Social Work)

REQUIREMENTS FOR THE MAJOR
The department offers two major options. Students must declare one (and not more than one) of these options and complete all requirements including Residence and Quality of Work standards. Options are:

Option A: Economics provides a well-rounded major in economics that is valuable for employment following graduation, or subsequent graduate work in business, law, public policy, and related disciplines.

Option B: Economics—Mathematical Emphasis provides students with the mathematical and statistical background needed for in-depth study of the analytical aspects of economics. Its requirements are designed to prepare students for graduate study in economics and related fields, or for careers as professional economists in business or government.

MATH AND STATISTICS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 221</td>
<td>Calculus and Analytic Geometry 1</td>
<td>3-5</td>
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<tr>
<td>MATH 211</td>
<td>Calculus</td>
<td></td>
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<tr>
<td>MATH 213</td>
<td>Calculus and Introduction to Differential Equations</td>
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<tr>
<td>MATH 222</td>
<td>Calculus and Analytic Geometry 2</td>
<td></td>
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<tr>
<td>MATH 234</td>
<td>Calculus–Functions of Several Variables</td>
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<tr>
<td>MATH 275</td>
<td>Topics in Calculus I</td>
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<tr>
<td>MATH 276</td>
<td>Topics in Calculus II</td>
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<tr>
<td>MATH 171 &amp; MATH 217</td>
<td>Calculus with Algebra and Trigonometry I and Calculus with Algebra and Trigonometry II (Or Two courses from:)</td>
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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ECON 310</td>
<td>Statistics: Measurement in Economics (Recommended)</td>
<td></td>
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<tr>
<td>STAT 302</td>
<td>Accelerated Introduction to Statistical Methods</td>
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<tr>
<td>ECON 400</td>
<td>Introduction to Applied Econometrics</td>
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<tr>
<td>ECON 410</td>
<td>Introductory Econometrics</td>
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<tr>
<td>MATH/STAT 309</td>
<td>Introduction to Probability and Mathematical Statistics I</td>
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<tr>
<td>STAT 311</td>
<td>Introduction to Theory and Methods of Mathematical Statistics I</td>
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<tr>
<td>STAT 324</td>
<td>Introductory Applied Statistics for Engineers</td>
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</table>

Total Credits 6-8

ECONOMICS
30 credits to include:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ECON 101 &amp; ECON 102</td>
<td>Principles of Microeconomics and Principles of Macroeconomics</td>
<td>4-8</td>
</tr>
<tr>
<td>ECON 111</td>
<td>Principles of Economics-Accelerated Treatment</td>
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</tr>
<tr>
<td>ECON 301 &amp; ECON 302</td>
<td>Intermediate Microeconomic Theory and Intermediate Macroeconomic Theory</td>
<td>6-8</td>
</tr>
<tr>
<td>ECON 311 &amp; ECON 312</td>
<td>Intermediate Microeconomic Theory - Advanced Treatment and Intermediate Macroeconomic Theory - Advanced Treatment (Honors Econ)</td>
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<tr>
<td>ECON 400</td>
<td>Introduction to Applied Econometrics</td>
<td>6-8</td>
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<tr>
<td>ECON 410</td>
<td>Introductory Econometrics</td>
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<tr>
<td>ECON 435</td>
<td>The Financial System</td>
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<td>ECON 441</td>
<td>Analytical Public Finance</td>
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<td>ECON 442</td>
<td>Macroeconomic Policy</td>
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<td>ECON 448</td>
<td>Human Resources and Economic Growth</td>
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<td>ECON 450</td>
<td>Wages and the Labor Market</td>
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<td>ECON 451</td>
<td>The Economic Approach to Human Behavior</td>
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<td>ECON 455</td>
<td>Behavioral Economics</td>
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<td>ECON 458</td>
<td>Industrial Structure and Competitive Strategy</td>
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<td>ECON 460</td>
<td>Economic Forecasting</td>
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<tr>
<td>ECON 464</td>
<td>International Trade and Finance</td>
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<tr>
<td>ECON 467</td>
<td>International Industrial Organizations</td>
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<tr>
<td>ECON 468</td>
<td>Industrial Organization and Imperfect Competition</td>
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<tr>
<td>ECON 475</td>
<td>Economics of Growth</td>
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<tr>
<td>ECON 503</td>
<td>Markets with Frictions</td>
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<tr>
<td>ECON 508</td>
<td>Wealth and Income</td>
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</tbody>
</table>

Total Credits 6-8
ECON 521 Game Theory and Economic Analysis
ECON 522 Law and Economics
ECON 525 Economics of Education: Theory and Measurement
ECON/POP HLTH/ PUB AFFR 548 The Economics of Health Care
ECON 580 Honors Tutorial in Research Project Design
ECON 623 Population Economics
ECON 666 Issues in International Finance
ECON 690 Topics in Economics
Electives 6-14

Select any Advanced level course not used above or one of these applied economics courses:

ECON/ FINANCE 300 Introduction to Finance
ECON/ HIST SCI 305 Development of Economic Thought
ECON/A AE/ REAL EST/ URB R PL 306 The Real Estate Process
ECON/ FINANCE 320 Investment Theory
ECON 321 Sports Economics
ECON 330 Money and Banking
ECON/A AE/ ENVIR ST 343 Environmental Economics
ECON 364 Survey of International Economics
ECON 370 Economics of Poverty and Inequality
ECON 390 Contemporary Economic Issues
ECON/REAL EST/ URB R PL 420 Urban and Regional Economics
ECON/A AE 421 Economic Decision Analysis
ECON 440 Government and Natural Resources
ECON/A AE/ INTL BUS 462 Latin American Economic Development
ECON/ HISTORY 465 The American Economy to 1865
ECON/ HISTORY 466 The American Economy Since 1865
ECON/A AE 473 Economic Growth and Development in Southeast Asia
ECON/A AE 474 Economic Problems of Developing Areas
ECON/A AE 477 Agricultural and Economic Development in Africa
ECON/ PHILOS 524 Philosophy and Economics
ECON/A AE/ F&W ECOL 531 Natural Resource Economics

ECON/A AE 567 Public Finance in Less Developed Countries
ECON/REAL EST/ URB R PL 641 Housing Economics and Policy
ECON/SOC 663 Population and Society
ECON/A AE/ ENVIR ST/ URB R PL 671 Energy Economics

Total Credits 30

1 At least two advanced ECON courses must be taken in residence at UW–Madison, and not via transfer or a UW–Madison Study Abroad program.

STUDENTS MAY ADD THE FOLLOWING NAMED OPTION:

• Economics: Mathematical Emphasis (http://guide.wisc.edu/undergraduate/letters-science/economics/economics-ba/economics-mathematical-emphasis-ba)

RESIDENCE AND QUALITY OF WORK

• 2.000 GPA in all major and ECON courses
• 2.000 GPA on 15 upper-level major courses taken in residence
• 15 credits in ECON, taken on the UW–Madison campus

HONORS IN THE ECONOMICS MAJOR

Students may declare Honors in the Economics Major in consultation with the Economics undergraduate advisor(s).

HONORS IN THE ECONOMICS MAJOR: REQUIREMENTS

To earn Honors in the Major in Economics, students must satisfy both the requirements for the Economics–Mathematical Emphasis Option (above) and the following additional requirements:

• Earn a 3.300 overall university GPA
• Earn a 3.500 GPA for all ECON courses
• Complete the following courses, taken for Honors, with grades of B or better in each:

<table>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ECON 311</td>
<td>Intermediate Microeconomic Theory</td>
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<tr>
<td>&amp; ECON 312</td>
<td>Advanced Treatment and Intermediate Macroeconomic Theory - Advanced Treatment</td>
<td></td>
</tr>
<tr>
<td>ECON 580</td>
<td>Honors Tutorial in Research Project Design</td>
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</table>

Select one of the following capstone experiences:

ECON 581 Honors Thesis
ECON 681 Senior Honors Thesis
& ECON 682 and Senior Honors Thesis (Take for a total of 6 credits)

2 Intermediate and Advanced level ECON courses are Upper Level in the major.
UNIVERSITY DEGREE REQUIREMENTS

Total Degree
To receive a bachelor’s degree from UW–Madison, students must earn a minimum of 120 degree credits. The requirements for some programs may exceed 120 degree credits. Students should consult with their college or department advisor for information on specific credit requirements.

Residency
Degree candidates are required to earn a minimum of 30 credits in residence at UW–Madison. “In residence” means on the UW–Madison campus with an undergraduate degree classification. “In residence” credit also includes UW–Madison courses offered in distance or online formats and credits earned in UW–Madison Study Abroad/Study Away programs.

Quality of Work
Undergraduate students must maintain the minimum grade point average specified by the school, college, or academic program to remain in good academic standing. Students whose academic performance drops below these minimum thresholds will be placed on academic probation.

LEARNING OUTCOMES

1. Understand the fundamental concepts of economics and how those concepts apply to real world issues.
2. Construct and evaluate economic models, their assumptions, and conclusions.
3. Acquire a diverse set of skills and strategies in mathematical reasoning/statistical and computational techniques/deductive logic/problem solving.
4. Use mathematics/computational/statistical techniques to analyze real world situations and policies.
5. Use economic analysis to critically evaluate public policy proposals.

ADVISING AND CAREERS

ACADEMIC ADVISING
Academic advising (https://econ.wisc.edu/undergraduate/academic-advising), along with general information about the undergraduate major and coursework, is available in Room 7238 of the Social Science Building. Find us on the campus map (http://www.map.wisc.edu/?initObj=bdg_SocSc&z=41.33&x=-0.158401&y=-0.09157).
Email: econadvise@ssc.wisc.edu
Phone: 608-262-6925

ECONOMICS CAREER DEVELOPMENT OFFICE
The Economics Career Development Office (https://econ.wisc.edu/careers) (ECDO) provides career development services and resources to undergraduate students who are either declared economics majors or are considering majoring in economics and would like career information. To set up an appointment or to ask a career/internship question please email econcareers@ssc.wisc.edu

PREPARATION FOR PH.D. PROGRAMS IN ECONOMICS
Students interested in pursuing graduate study should pursue Option B (mathematical emphasis) and augment the standard curriculum with higher-level mathematics and statistics courses. These may include:

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>MATH/STAT 309</td>
<td>Introduction to Probability and Mathematical Statistics I</td>
<td></td>
</tr>
<tr>
<td>MATH/STAT 310</td>
<td>Introduction to Probability and Mathematical Statistics II</td>
<td></td>
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<tr>
<td>MATH 421</td>
<td>The Theory of Single Variable Calculus</td>
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<tr>
<td>MATH/STAT 431</td>
<td>Introduction to the Theory of Probability</td>
<td></td>
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<tr>
<td>MATH 521</td>
<td>Analysis I</td>
<td></td>
</tr>
<tr>
<td>MATH 522</td>
<td>Analysis II</td>
<td></td>
</tr>
<tr>
<td>MATH/STAT 632</td>
<td>Introduction to Stochastic OTM/STAT Processes</td>
<td></td>
</tr>
</tbody>
</table>

It is important to consult early in the second year with the undergraduate advisor and/or the faculty member that directs the undergraduate program to design a plan of coursework.

DIRECTED STUDY
Directed Study (ECON 698, ECON 699) enables advanced students to pursue economic topics not covered in the regular course offerings. A student interested in Directed Study should prepare a research proposal and/or reading list; specific course requirements are arranged with an instructor who agrees to supervise the directed study project. Enrollment requires the consent of the instructor; a GPA of 3.00 or above in ECON; completion of the Intermediate economic theory courses (ECON 301 & ECON 302); at least one Advanced ECON course; and completion of the department’s Directed Study form, available in 7238 Social Science.

INTERNSHIPS
Students can earn 1 credit for approved internships appropriate to the study of economics under course ECON 228. Students must enroll for ECON 228 in the same semester/session in which the internship is granted. Students should work a minimum of 100 hours per term. Prerequisites are declaration in the major economics major; a major GPA of 2.200 or higher; completion of at least four ECON courses at UW–Madison; completion of at least one Intermediate Theory course (ECON 301 & ECON 302); a completed application; and departmental approval.

L&S CAREER RESOURCES
SuccessWorks at the College of Letters & Science helps students leverage the academic skills learned in their major, certificates, and liberal arts degree; explore and try out different career paths; participate in internships; prepare for the job search and/or graduate school applications; and network with professionals in the field (alumni and employers).
SuccessWorks can also assist students in career advising, résumé and cover letter writing, networking opportunities, and interview skills, as well
as course offerings for undergraduates to begin their career exploration early in their undergraduate career.

- SuccessWorks (https://careers.ls.wisc.edu)
- Set up a career advising appointment (https://careers.ls.wisc.edu/make-an-appointment)
- INTER-LS 210 L&S Career Development: Taking Initiative (1 credit, targeted to first- and second-year students)—for more information, see Inter-LS 210: Career Development, Taking Initiative (https://careers.ls.wisc.edu/inter-ls-210-career-development-taking-initiative)
- Learn how we're transforming career preparation: L&S Career Initiative (http://ls.wisc.edu/lsci)

### PEOPLE

Professors Corbae, Deneckere, Engel, B. Hansen, Hendricks, Kennan, Lentz, Porter, Rostek, Sandholm, Scholz, Seshadri, L. Smith, Sorensen, Taber, Walker, West, Williams, Wiswall, Wolfe, Wright

Associate Professors Fu, Quint, Weretka

Assistant Professors Aizawa, Atalay, Bilir, Freyberger, Gregory, Magnolfi, Mommaerts, Penta, Shi, Soelvsten, Sullivan

Affiliated Faculty Chinn, Montgomery, Schechter, Wallace