

# AGRICULTURAL AND APPLIED ECONOMICS, B.S.

Agricultural and applied economics (AAE) majors learn about the principles of economics and how to apply them to real-world problems and public policy debates. This training equips students to analyze the economic factors impacting a wide range of issues, including environmental challenges and sustainability; energy and climate change; globalization and trade; business economics and finance; global poverty and hunger; community and regional economic development; biotechnology; and food systems.

All AAE students take a set of core courses in microeconomics, macroeconomics, statistics and math, then select one of four concentrations: environmental economics, development economics, managerial economics or applied economics.

A degree in agricultural and applied economics helps students prepare to work as environmental economists, environmental managers, agricultural economists, policy and business analysts, researchers, managers, consultants, and auditors with nonprofit organizations, government agencies, co-operatives, multinational firms, agribusiness companies, financial institutions, and the food or retailing industry. Students also go on to pursue graduate-level degrees in economics, public policy, business, or law.

## LEARN THROUGH HANDS-ON, REAL-WORLD EXPERIENCES

Students are encouraged to apply their course learning to real life through research projects, independent studies and internships with guidance from faculty and staff members. During their final year, majors complete a senior capstone course where they work closely with fellow students on a semester-long project and also hear from program alumni.

## BUILD COMMUNITY AND NETWORKS

Students get to know faculty and instructors through the courses they take, and they can build their networks by participating in student organizations and the department's commodity trading challenge team.

Individuals selected for the Renk Scholarship Program (<https://renk.aae.wisc.edu/renk-scholarship/>), operated by the Renk Agribusiness Institute (<https://renk.aae.wisc.edu/>), receive mentorship and financial support, as well as internship and networking opportunities.

## CUSTOMIZE A PATH OF STUDY

AAE students customize their academic experience to fit their career goals by selecting one of four concentrations within the major: environmental economics, development economics, managerial economics, or applied economics.

## MAKE A STRONG START

A number of first-year seminar courses are available to help new students understand academic programs, access student services, and develop time management and study skills.

## GAIN GLOBAL PERSPECTIVE

Many AAE majors study abroad to gain an international perspective and prepare to participate in today's global economy. Students can explore studying abroad as an AAE major utilizing the AAE Major Advising Page. Students work with their advisor and the CALS study abroad office to identify appropriate programs.

## HOW TO GET IN

To declare this major, students must be admitted to UW–Madison and the College of Agricultural and Life Sciences (CALS). For information about becoming a CALS first-year or transfer student, see Entering the College (<http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#enteringthecollegertext>).

Students who attend Student Orientation, Advising, and Registration (SOAR) with the College of Agricultural and Life Sciences have the option to declare this major at SOAR. Students may otherwise declare after they have begun their undergraduate studies. For more information, contact the advisor listed in the Contact Box for the major.

## 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/#requirementsforundergraduestudytext>) section of the *Guide*.

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| General Education | <ul style="list-style-type: none"> <li>• Breadth–Humanities/Literature/Arts: 6 credits</li> <li>• 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</li> <li>• Breadth–Social Studies: 3 credits</li> <li>• Communication Part A &amp; Part B *</li> <li>• Ethnic Studies *</li> <li>• Quantitative Reasoning Part A &amp; Part B *</li> </ul> |
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\* 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 AGRICULTURAL AND LIFE SCIENCES REQUIREMENTS

In addition to the University General Education Requirements, all undergraduate students in CALS must satisfy a set of college and major requirements. Courses may not double count within university requirements (General Education and Breadth) or within college

requirements (First-Year Seminar, International Studies, Science, and Capstone), but courses counted toward university requirements may also be used to satisfy a college and/or a major requirement; similarly, courses counted toward college requirements may also be used to satisfy a university and/or a major requirement.

## COLLEGE REQUIREMENTS FOR ALL CALS B.S. DEGREE PROGRAMS

Code	Title	Credits
Quality of Work: Students must maintain a minimum cumulative grade point average of 2.000 to remain in good standing and be eligible for graduation.		
Residency: Students must complete 30 degree credits in residence at UW–Madison after earning 86 credits toward their undergraduate degree.		
	First Year Seminar ( <a href="http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#CALSThirdYearSeminarCourses">http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#CALSThirdYearSeminarCourses</a> )	1
	International Studies ( <a href="http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#CALSThirdYearSeminarCourses">http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#CALSThirdYearSeminarCourses</a> )	3
	Physical Science Fundamentals	4-5
	CHEM 103 General Chemistry I or CHEM 108 Chemistry in Our World or CHEM 109 Advanced General Chemistry	
	Biological Science	5
	Additional Science (Biological, Physical, or Natural)	3
	Science Breadth (Biological, Physical, Natural, or Social)	3
CALS Capstone Learning Experience: included in the requirements for each CALS major (see "Major Requirements") ( <a href="http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#CALSCapstoneRequirement">http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#CALSCapstoneRequirement</a> )		

## MAJOR REQUIREMENTS

Code	Title	Credits
<b>Mathematics and Statistics</b>		
This major requires calculus. Prerequisites may need to be taken before enrollment in calculus.		
Select one of the following:		5
	MATH 211 Calculus	
	MATH 217 Calculus with Algebra and Trigonometry II	
	MATH 221 Calculus and Analytic Geometry I	
Select one of the following:		3-6
	ECON 310 Statistics: Measurement in Economics	
	STAT 301 Introduction to Statistical Methods	
	STAT 324 Introductory Applied Statistics for Engineers	
	STAT 371 Introductory Applied Statistics for the Life Sciences	
	PSYCH 210 Basic Statistics for Psychology	
	SOC/ C&E SOC 360 Statistics for Sociologists I	
	GEN BUS 306 Business Analytics I & GEN BUS 307 and Business Analytics II	

### Core

A A E 215	Introduction to Agricultural and Applied Economics <sup>1</sup>	4
or ECON 101	Principles of Microeconomics	
ECON 102	Principles of Macroeconomics	3-4
ECON 301	Intermediate Microeconomic Theory	4
or ECON 311	Intermediate Microeconomic Theory - Advanced Treatment	
ECON 302	Intermediate Macroeconomic Theory	4
or ECON 312	Intermediate Macroeconomic Theory - Advanced Treatment	

### Concentrations within the Major

Students must complete 15 credits of AAE courses 200-level or above. Students may choose to focus their studies on an area of concentration as follows: <sup>2</sup>

Applied Economics
Development Economics
Environmental Economics
Managerial Economics

### Capstone

A A E 500	Senior Capstone Experience	3
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**Total Credits** **41-45**

<sup>1</sup>

A A E 215 Introduction to Agricultural and Applied Economics satisfies QR-B credit.

<sup>2</sup>

A A E 215 Introduction to Agricultural and Applied Economics, A A E 299 Independent Study and A A E 500 Senior Capstone Experience may not count toward the 15 credits required in the major.

## CONCENTRATIONS WITHIN THE MAJOR APPLIED ECONOMICS

Code	Title	Credits
AAE courses, 200 level and above <sup>1</sup>		15
<b>Total Credits</b>		<b>15</b>

<sup>1</sup>

AAE courses 200 level and above may not include A A E 215 Introduction to Agricultural and Applied Economics, A A E 299 Independent Study, or A A E 500 Senior Capstone Experience.

## DEVELOPMENT ECONOMICS

Code	Title	Credits
Select any of the following courses:		
A A E 319	The International Agricultural Economy	3
A A E/AGRONOMY/ NUTR SCI 350	World Hunger and Malnutrition	3
A A E/INTL ST 373	Globalization, Poverty and Development	3
A A E/INTL ST 374	The Growth and Development of Nations in the Global Economy	3

A A E/ECON/ INTL BUS 462	Latin American Economic Development	3
A A E/ECON 473	Economic Growth and Development in Southeast Asia	3
A A E/ECON 474	Economic Problems of Developing Areas	3
A A E/ECON 477	Agricultural and Economic Development in Africa	3
AAE courses, 200 level and above <sup>1</sup>		

1

AAE courses 200 level and above may not include A A E 215 Introduction to Agricultural and Applied Economics, A A E 299 Independent Study, or A A E 500 Senior Capstone Experience.

### ENVIRONMENTAL ECONOMICS

Code	Title	Credits
Select any of the following courses:		
A A E/ENVIR ST 244	The Environment and the Global Economy	4
A A E 246	Climate Change Economics and Policy	3
A A E/ECON/ ENVIR ST 343	Environmental Economics	4
A A E 352	Global Health: Economics, Natural Systems, and Policy	4
A A E/ECON 371	Energy, Resources and Economics	3
A A E/ECON/ F&W ECOL 531	Natural Resource Economics	3
A A E/ECON/ ENVIR ST/ URB R PL 671	Energy Economics	3

AAE courses, 200 level and above<sup>1</sup>

1

AAE courses 200 level and above may not include A A E 215 Introduction to Agricultural and Applied Economics, A A E 299 Independent Study, or A A E 500 Senior Capstone Experience.

### MANAGERIAL ECONOMICS

Code	Title	Credits
Select any of the following courses:		
A A E 320	Agricultural Systems Management	3
A A E 322	Commodity Markets	4
A A E 323	Cooperatives and Alternative Forms of Enterprise Ownership	3
A A E 335	Introduction to Data Analysis using Spreadsheets	2
A A E 419	Agricultural Finance	3
A A E/ECON 421	Economic Decision Analysis	4
AAE courses, 200 level and above <sup>1</sup>		

1

AAE courses 200 level and above may not include A A E 215 Introduction to Agricultural and Applied Economics, A A E 299 Independent Study, or A A E 500 Senior Capstone Experience.

## 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. Use economic concepts to think critically about real-world problems and public policy debates.
2. Use appropriate quantitative techniques to analyze economic problems.
3. Communicate results effectively orally and in writing.

## FOUR-YEAR PLAN

### FOUR-YEAR PLAN SAMPLE AGRICULTURAL & APPLIED ECONOMICS FOUR-YEAR PLAN

#### Freshman

Fall	Credits	Spring	Credits
COMM A		3 MATH 211 or 221 <sup>1</sup>	5
MATH 112 or 114 <sup>1</sup>		3-5 A A E 215	4
First Year Seminar		1 Ethnic Studies	3
CALS Biological Science		3 Electives	3
Electives		3	
<b>13-15</b>			<b>15</b>

#### Total Credits 28-30

#### Sophomore

Fall	Credits	Spring	Credits
ECON 102		3 ECON 301	4
Statistics Course		3 AAE Courses	3
CALS Biological Science		3 Comm B	3
Electives		6 Electives	5
<b>15</b>			<b>15</b>

#### Total Credits 30

**Junior**

Fall	Credits	Spring	Credits
AAE Courses		3 AAE Courses	3
ECON 302		4 CALS International Studies	3
Gen Ed Requirement		3 CHEM 108 or 103	4-5
Electives		6 Electives	4
		<b>16</b>	<b>14-15</b>

**Total Credits 30-31****Senior**

Fall	Credits	Spring	Credits
AAE Courses		3 AAE course	3
Humanities		3 A A E 500	3
Electives		9 Electives	9
		<b>15</b>	<b>15</b>

**Total Credits 30**

1

Students must complete MATH 211 or MATH 217 or MATH 221. Students may satisfy the required level of math proficiency through the math placement exam. On the other hand, this level of competence may require as many as three semesters of coursework in mathematics.

## ADVISING AND CAREERS

**ADVISING**

Each agricultural and applied economics major receives one-on-one guidance from an academic advisor. The advisor helps students plan their coursework and identify opportunities to get involved in department and campus activities.

The agricultural and applied economics department offers a one-credit course in career development for majors. Students in the course hear from department alumni and others about their career paths and receive resume writing assistance and interviewing tips.

**CAREER OPPORTUNITIES**

Agricultural and applied economics graduates have great careers as environmental economists, agricultural economists, policy and business analysts, consultants, researchers, managers, traders and auditors for nonprofit organizations, government agencies, multinational firms, financial institutions, agribusiness companies, co-operatives and food companies. Graduates also pursue advanced degrees in economics, public policy, business, or law.

AAE graduates are recognized for their skills in data analysis, business and economic forecasting, strategic planning, management, and leadership.

For more information contact Michaela Thaw (pthaw@wisc.edu) or schedule an appointment through Starfish (<https://wisc.starfishsolutions.com/starfish-ops/dl/instructor/serviceCatalog.html?bookmark=connection/129721/schedule>).

## PEOPLE

**Professors:**

Tessa Conroy  
Steven Deller  
Paul Dower  
Sheldon Du  
Jeremy Foltz  
Corbett Grainger  
Sarah Johnston  
Paul Mitchell  
Priya Mukherjee  
Charles Nicholson  
Dominic Parker  
Daniel Phaneuf  
Thomas Rutherford  
Laura Schechter  
Guanming Shi  
Andrew Stevens

**Instructors:**

Jeremy Beach  
Courtney Berner  
Silke Schmidt  
Jordan Van Rijn

**Undergraduate Advisor:**

Michaela Thaw

For faculty and instructor profiles, visit the department website (<http://aae.wisc.edu/>).

## WISCONSIN EXPERIENCE

**STUDENT ORGANIZATIONS**

There are numerous campus student organizations of interest to agricultural and applied economics majors, including Economics Student Association, Global Economic Forum – Madison, and Women in Economics. A full list of organizations is available on the Wisconsin Involvement Network website (<https://win.wisc.edu/organizations/>).

**COMPETITIVE TEAMS**

Each year, a team of UW–Madison students participates in the annual CME Group University Trading Challenge (<https://www.cmegroup.com/events/university-trading-challenge.html>), a simulated trading competition that pits hundreds of college teams from around the world against one another as they make real-time commodity trading decisions.

**RESEARCH EXPERIENCE**

AAE students are able to gain social science research experience on both domestic and international topics by working with a faculty member on a specific project.

**INTERNSHIPS**

Agricultural and applied economics majors can complete an internship during their undergraduate years.

**GLOBAL ENGAGEMENT**

Many agricultural and applied economics students choose to study abroad. These programs help students gain an international perspective and prepare them to participate in today's global economy. Students

can find more information on the CALS study abroad advising page (<https://cals.wisc.edu/academics/undergraduate-students/international-programs/study-abroad-advising/>). Study abroad options include programs that focus on sustainable development, food systems, agriculture, health and wellness, and community and economic development.

AAE students who select development economics as their area of concentration take numerous international-focused courses that address the global economy, population, and poverty.

#### COMMUNITY ENGAGEMENT AND VOLUNTEERING

AAE students have numerous volunteer activities to choose from. The Morgridge Center for Public Service (<https://morgridge.wisc.edu/>) provides resources to help students connect with volunteer opportunities based on their interests and goals.

## RESOURCES AND SCHOLARSHIPS

Students in the College of Agricultural and Life Sciences receive more than \$1.25 million in scholarships annually. The Department of Agricultural and Applied Economics awards an average of \$60,000 in scholarships per year to students in the department. Students apply for CALS and AAE scholarships through a single application in the Wisconsin Scholarship Hub (WiSH). Learn more about college scholarships (<https://cals.wisc.edu/academics/undergraduate-students/financing-your-education/cals-scholarships/>).

AAE majors are also eligible to apply for the Renk Scholarship Program (<https://renk.aae.wisc.edu/renk-scholarship/>), which can provide scholarships for up to three years. The program, offered through the Renk Agribusiness Institute (<https://renk.aae.wisc.edu/>), is designed for high-performing students with an interest in agriculture or agribusiness. In addition to financial support, Renk Scholars are provided networking opportunities that help them find internships and other experiences to build their business and leadership skills.