AGRICULTURAL AND RESOURCE ECONOMICS MAJOR

Agricultural and Resource Economics majors complete a set of prerequisite courses, a core of classes offered by the Agricultural and Resource Economics Department, and one or more fields comprised of selected courses from outside the department. The core includes courses in economic reasoning, agribusiness management, environmental and resource policy, agricultural policy, economic development, and analytical methods. The program permits students flexibility in choosing fields to fit their career interests. Majors must complete one and are strongly encouraged to complete two fields. The curriculum balances breadth and depth, and lets students develop academic skills in two or more areas. The program provides a good foundation for careers in economics, resource or environmental policy, agribusiness, and international agriculture. Students are also able to minor in Agricultural and Resource Economics.

Program Learning Outcomes

Upon completion of the degree program, students should have acquired the following knowledge and skills:

- An understanding of economic terms and concepts.
- An ability to draw inferences from data.
- A knowledge of relevant laws, institutions, and policies.

Requirements

**Course** | **Title** | **Credits**
--- | --- | ---
**Prerequisite Courses**
ECON200 | Principles of Microeconomics | 3
ECON201 | Principles of Macroeconomics | 3
AREC326 | Intermediate Applied Microeconomics | 3
ECON321 | Economic Statistics | 3
or BMGT230 | Business Statistics | 3
MATH120 | Elementary Calculus I | 3
or MATH140 | Calculus I | 3
STAT100 | Elementary Statistics and Probability | 3
or MATH107 | Introduction to Math Modeling and Probability | 3
**Specialization (from list below)** | 24
Agribusiness
Agricultural and Resource Economics
Environmental and Resource Economics

Total Credits 42

Specializations:

**Agribusiness**

**Course** | **Title** | **Credits**
--- | --- | ---
Select five of the following courses: | 15
AREC306 | Farm Management and Sustainable Food Production | 3
AREC382 | Computer-Based Analysis in Agricultural and Resource Economics | 3

Agricultural and Resource Economics

**Course** | **Title** | **Credits**
--- | --- | ---
Select five of the following courses: | 15
AREC306 | Farm Management and Sustainable Food Production | 3
AREC382 | Computer-Based Analysis in Agricultural and Resource Economics | 3

**Course** | **Title** | **Credits**
--- | --- | ---
AREC405 | Economics of Production | 3
AREC422 | Econometric Applications in Agricultural and Natural Resource Economics | 3
AREC425 | Economic Methods and Food Consumption Policy | 3
AREC427 | Economics of Commodity Marketing Systems | 3
AREC430 | Introduction to Agricultural and Resource Law | 3
AREC431 | Agricultural Water Quality: Policy and Legal Issues | 3
AREC433 | Food and Agricultural Policy | 3
AREC435 | Commodity Futures and Options | 3
AREC445 | Agricultural Development, Population Growth and the Environment | 3
AREC446 | Sustainable Economic Development | 3
AREC453 | Natural Resources and Public Policy | 3
AREC454 | The Economics of Climate Change | 3
AREC455 | Economics of Land Use | 3
AREC456 | Energy and Environmental Economics | 3
AREC457 | Environmental Economics | 3
AREC489 | Special Topics in Agricultural and Resource Economics | 3
Other upper-level AREC courses with permission of advisor.

Select three courses from one of the following fields: 9
Business Management
Farm Management and Entrepreneurship
Student Designed Field

Total Credits 24
Agricultural and Resource Economics Major

**AREC489**  Special Topics in Agricultural and Resources Economics

Other upper-level AREC courses with permission of advisor.

**Select three courses from one of the following fields:** 9

- **Agriculture Science**
- **Advanced Degree Preparation**
- **Food Production**
- **Political Process**
- **Student Designed Field**

**Total Credits** 24

### Environmental and Resource Economics

**Course**  
**Title**  
**Credits**

Select five of the following courses: 15

- **AREC382**  Computer-Based Analysis in Agricultural and Resource Economics
- **AREC405**  Economics of Production
- **AREC422**  Econometric Applications in Agricultural and Natural Resource Economics
- **AREC431**  Agricultural Water Quality: Policy and Legal Issues
- **AREC445**  Agricultural Development, Population Growth and the Environment
- **AREC446**  Sustainable Economic Development
- **AREC453**  Natural Resources and Public Policy
- **AREC454**  The Economics of Climate Change
- **AREC455**  Economics of Land Use
- **AREC456**  Energy and Environmental Economics
- **AREC481**  Environmental Economics

Other upper-level AREC courses with permission of advisor.

**Select three courses from one of the following fields:** 9

- **Advanced Degree Preparation**
- **Natural Science**
- **Social Science**

**Total Credits** 24

### Fields:

**Advanced Degree Preparation**

**Course**  
**Title**  
**Credits**

Choose three of the following courses:

- **ECON407**  Advanced Macroeconomics
- **ECON414**  Game Theory
- **ECON415**  Market Design
- **ECON422**  Econometrics I
- **ECON423**  Econometrics II
- **ECON425**  Mathematical Economics
- **MATH141**  Calculus II
- **MATH240**  Introduction to Linear Algebra
- **MATH241**  Calculus III
- **STAT401**  Applied Probability and Statistics II
- **STAT410**  Introduction to Probability Theory
- **STAT420**  Theory and Methods of Statistics
- **STAT430**  Introduction to Statistical Computing with SAS

Any other upper-level ECON/MATH/STAT course chosen in consultation with advisor.

### Agricultural Science

**Course**  
**Title**  
**Credits**

Choose three of the following courses:

- **PLSC204**  Fundamentals of Agricultural Mechanics
- **PLSC100**  Introduction to Horticulture
  or **PLSC101**  Introductory Crop Science
- **ENST105**
- **ANSC101**  Principles of Animal Science
- **AGRI SCI**  Other courses in agricultural science, chosen in consultation with an advisor

1 Substitutions to the above listed courses may be made with the permission of advisor.

### Business Management

**Course**  
**Title**  
**Credits**

Choose three of the following courses:

- **BMGT340**  Business Finance (BMGT340N)** 1
- **BMGT350**  Marketing Principles and Organization (BMGT350N)
- **BMGT364**  Managing People and Organizations (BMGT364N)
- **BMGT380**  Business Law I (BMGT380N)

1 Course has prerequisites that do not count toward major requirements.

### Farm Management and Entrepreneurship

**Course**  
**Title**  
**Credits**

Choose three of the following courses:

- **ENES140**  Discovering New Ventures
- **ENES461**  Advanced Entrepreneurial Opportunity Analysis in Technology Ventures
- **ENES471**  Legal Aspects of Entrepreneurship
- **INAG103**  Agricultural Marketing
- **INAG201**  Agricultural Human Resources Management
- **INAG204**  Agricultural Business Management
- **INAG205**  Analyzing Alternative Enterprises
- **BMGT289E**  (Entrepreneurial Thinking for Non-Business Majors)
  or **ENES210**  Entrepreneurial Opportunity Analysis and Decision-Making in 21st Century Technology Ventures
  or **INAG102**  Agricultural Entrepreneurship

### Food Production

**Course**  
**Title**  
**Credits**

Choose three of the following courses:

- **PHYS117**
  or **PHYS121**  Fundamentals of Physics I
- **BSCI170**  Principles of Molecular & Cellular Biology
  & **BSCI171**  and Principles of Molecular & Cellular Biology Laboratory
Agricultural and Resource Economics Major

<table>
<thead>
<tr>
<th>BSCI223</th>
<th>General Microbiology</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFSC100</td>
<td>Elements of Nutrition</td>
</tr>
<tr>
<td>NFSC112</td>
<td>Food: Science and Technology</td>
</tr>
<tr>
<td>NFSC430</td>
<td>Food Microbiology</td>
</tr>
<tr>
<td>NFSC431</td>
<td>Food Quality Control</td>
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</tbody>
</table>

Other courses related to food science can be substituted with permission of advisor

Total Credits 0

Natural Science

Course Title Credits
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Choose three of the following courses:

<table>
<thead>
<tr>
<th>AOSC200</th>
<th>Weather and Climate and Weather and Climate Laboratory</th>
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<tbody>
<tr>
<td>&amp; AOSC201</td>
<td></td>
</tr>
<tr>
<td>BSCI160</td>
<td>Principles of Ecology and Evolution and Principles of Ecology and Evolution Lab</td>
</tr>
<tr>
<td>&amp; BSCI161</td>
<td></td>
</tr>
<tr>
<td>CHEM131</td>
<td>Chemistry I - Fundamentals of General Chemistry and General Chemistry I Laboratory</td>
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<tr>
<td>&amp; CHEM132</td>
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<tr>
<td>ENST200</td>
<td>Fundamentals of Soil Science</td>
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<tr>
<td>ENST214</td>
<td>Introduction to Fish and Wildlife Sciences</td>
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<tr>
<td>GEOG201</td>
<td>Geography of Environmental Systems and Geography of Environmental Systems Laboratory</td>
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<tr>
<td>&amp; GEOG211</td>
<td></td>
</tr>
<tr>
<td>PHYS121</td>
<td>Fundamentals of Physics I and Fundamentals of Physics II</td>
</tr>
<tr>
<td>&amp; PHYS122</td>
<td></td>
</tr>
<tr>
<td>Any higher-level lab science course</td>
<td></td>
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</tbody>
</table>

Total Credits 18

Political Process

Course Title Credits
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GVPT Any three courses in government and politics, chosen with permission of the advisor.

Social Sciences

Course Title Credits
---
Choose three of the following courses:

<table>
<thead>
<tr>
<th>ANTH222</th>
<th>Introduction to Ecological and Evolutionary Anthropology</th>
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<tbody>
<tr>
<td>ANTH266</td>
<td>Changing Climate, Changing Cultures</td>
</tr>
<tr>
<td>ANTH305</td>
<td>Archaeological Methods and Practice</td>
</tr>
<tr>
<td>ANTH322</td>
<td>Method and Theory in Ecological Anthropology</td>
</tr>
<tr>
<td>GVPT273</td>
<td>Introduction to Environmental Politics</td>
</tr>
<tr>
<td>GVPT306</td>
<td>Global Environmental Politics</td>
</tr>
<tr>
<td>SOCY200</td>
<td>Human Societies</td>
</tr>
<tr>
<td>SOCY405</td>
<td>Scarcity and Modern Society</td>
</tr>
<tr>
<td>SOCY406</td>
<td>Globalization</td>
</tr>
<tr>
<td>SOCY415</td>
<td>Environmental Sociology</td>
</tr>
<tr>
<td>PLCY301</td>
<td>Sustainability or AGNR301 Sustainability</td>
</tr>
</tbody>
</table>

Any higher-level social sciences course chose in consultation with advisor

Total Credits 18

Student Designed Field

Course Title Credits
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This field requires a written proposal listing at least three courses totaling at least 9 credits. 1

Total Credits 18

1 The proposal must be submitted to the Undergraduate Committee of the AREC department. Committee approval must be obtained 30 or more credit hours before graduation. A student designed field may be used to study a foreign language as part of the AREC curriculum.

Other Requirements for the Major

All courses must be passed with a grade of "C-" or better to count towards prerequisite courses, major core courses, or field requirements. "C- or better" means any grade for which the University awards 1.7 or more quality points in calculating GPA. Beginning with students matriculating Fall 2012, to be awarded a baccalaureate degree, students must have a minimum (2.00) cumulative grade point average across all courses used to satisfy major degree requirements.

Four Year Plan

Click here (http://www.gened.umd.edu/for-students/forstudents-4yearplans-agnr.html) for roadmaps for four-year plans in the College of Agricultural and Natural Resources.

Additional information on developing a four-year academic plan can be found on the following pages:

• 4yearplans.umd.edu
• the Student Academic Success-Degree Completion Policy (https://academiccatalog.umd.edu/undergraduate/registration-academic-requirements-regulations_academic-advising) section of this catalog