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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON200</td>
<td>Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON201</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>AREC326</td>
<td>Intermediate Applied Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON321</td>
<td>Economic Statistics</td>
<td>3</td>
</tr>
<tr>
<td>or BMGT230</td>
<td>Business Statistics</td>
<td></td>
</tr>
<tr>
<td>MATH120</td>
<td>Elementary Calculus I</td>
<td>3</td>
</tr>
<tr>
<td>or MATH140</td>
<td>Calculus I</td>
<td></td>
</tr>
<tr>
<td>STAT100</td>
<td>Elementary Statistics and Probability</td>
<td>3</td>
</tr>
<tr>
<td>or MATH107</td>
<td>Introduction to Math Modeling and Probability</td>
<td></td>
</tr>
</tbody>
</table>

Specialization (from list below) 24

- Agribusiness
- Agricultural and Resource Economics
- Environmental and Resource Economics

Total Credits 42

Specializations:

Agribusiness

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select five of the following courses:</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>AREC306</td>
<td>Farm Management and Sustainable Food Production</td>
<td></td>
</tr>
</tbody>
</table>
Agricultural and Resource Economics Major

AREC481 Environmental Economics
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

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

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 Introduction to Statistics

STAT430 Introduction to Statistical Computing with SAS

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

Agricultural Science

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

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

Business Management

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

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

Choose three of the following courses:
- PHYS117 ¹
  or PHYS121 Fundamentals of Physics I

¹ Course has prerequisites that do not count toward major requirements.
BSCI170 & BSCI171
Principles of Molecular & Cellular Biology and Principles of Molecular & Cellular Biology Laboratory
BSCI223
General Microbiology
NFSC100
Elements of Nutrition
NFSC112
Food: Science and Technology
NFSC430
Food Microbiology
NFSC431
Food Quality Control
Other courses related to food science can be substituted with permission of advisor

Total Credits: 0

Natural Science

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

Student Designed Field

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

Political Process

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GVPT</td>
<td>Any three courses in government and politics, chosen with permission of the advisor.</td>
<td></td>
</tr>
</tbody>
</table>

Social Sciences

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose three of the following courses:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANTH222</td>
<td>Introduction to Ecological and Evolutionary Anthropology</td>
<td></td>
</tr>
<tr>
<td>ANTH266</td>
<td>Changing Climate, Changing Cultures</td>
<td></td>
</tr>
<tr>
<td>ANTH305</td>
<td>Archaeological Methods and Practice</td>
<td></td>
</tr>
<tr>
<td>ANTH322</td>
<td>Method and Theory in Ecological Anthropology</td>
<td></td>
</tr>
<tr>
<td>GVPT273</td>
<td>Introduction to Environmental Politics</td>
<td></td>
</tr>
<tr>
<td>GVPT306</td>
<td>Global Environmental Politics</td>
<td></td>
</tr>
<tr>
<td>SOCY200</td>
<td>Human Societies</td>
<td></td>
</tr>
<tr>
<td>SOCY405</td>
<td>Scarcity and Modern Society</td>
<td></td>
</tr>
<tr>
<td>SOCY406</td>
<td>Globalization</td>
<td></td>
</tr>
<tr>
<td>SOCY415</td>
<td>Environmental Sociology</td>
<td></td>
</tr>
<tr>
<td>PLCY301</td>
<td>Sustainability</td>
<td></td>
</tr>
<tr>
<td>or AGNR301 Sustainability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any higher-level social sciences course chose in consultation with advisor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>