Environmental and Natural Resource Economics

Bachelor of Science - Environmental & Natural Resource Economics Major

The objective of this major is to provide students with the training necessary for the application of economic theory and analysis to environmental and natural resource policy. The flexibility of this major allows students, in consultation with their academic advisor, to design a program of study which focuses on environmental and natural resource issues tailored to individual interests (such as water use and quality, soil protection, waste management, or ecosystem management and land use). The curriculum reflects the breadth of training required to prepare students for careers in the private and government sectors dealing with environmental and natural resource management and policy analysis.

Students in this major can expect to find employment with state and federal government agencies or with private industry in environmental policy analysis and management of natural resources. Many students may find it desirable to obtain a graduate degree. Students completing this degree will be prepared for graduate study in environmental and natural resource economics and policy. A total of 120 credit hours are required for graduation in this major.

GENERAL EDUCATION CURRICULUM

Please use this link to view a list of courses that meet each GEC requirement. (http://registrar.wvu.edu/current_students/general_education_curriculum)

NOTE: Some major requirements will fulfill specific GEC requirements. Please see the curriculum requirements listed below for details on which GECs you will need to select.

<table>
<thead>
<tr>
<th>General Education Curriculum</th>
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<tr>
<td>ENGL 101 &amp; ENGL 102</td>
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<tr>
<td>or ENGL 103</td>
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<tr>
<td>GEC 2A - Mathematics</td>
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<tr>
<td>GEC 2B - Natural and Physical Science</td>
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<tr>
<td>GEC 2C - Additional GEC 2A, B or C</td>
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<tr>
<td>GEC 3 - The Past and Its Traditions</td>
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<td>GEC 4 - Issues of Contemporary Society</td>
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<td>GEC 5 - Artistic Expression</td>
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<td>GEC 6 - The Individual in Society</td>
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<tr>
<td>GEC 6F - First Year Seminar</td>
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<tr>
<td>GEC 7 - American Culture</td>
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<td>GEC 8 - Western Culture</td>
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<tr>
<td>GEC 9 - Non-Western Culture</td>
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<td>Total Hours</td>
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CURRICULUM REQUIREMENTS

Select one of the following: 3-6

<table>
<thead>
<tr>
<th>ENGL 101 &amp; ENGL 102</th>
<th>Composition And Rhetoric and Composition And Rhetoric</th>
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<tr>
<td>OR</td>
<td>Accelerated Academic Writing</td>
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GEC Objective 2A, 2B, and 2C (Must include two 4 credit courses- each with a laboratory) 14

Select one from each GEC Objective 3, 5, 7 9

<table>
<thead>
<tr>
<th>WVUE 191</th>
<th>First Year Seminar</th>
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<tbody>
<tr>
<td>AGEE 101</td>
<td>Global Food/Agriculture Industry</td>
</tr>
<tr>
<td>AGEE 110</td>
<td>Microcomputer Applications-Ag Ed</td>
</tr>
<tr>
<td>ARE 150</td>
<td>Intro Agri &amp; Agribusiness Econ</td>
</tr>
<tr>
<td>ARE 187</td>
<td>Energy Resource</td>
</tr>
<tr>
<td>ARE 220</td>
<td>Intro Environmental/Resource Econ</td>
</tr>
<tr>
<td>ARE 382</td>
<td>Agri and Natural Resources Law</td>
</tr>
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</table>
SUGGESTED PLAN OF STUDY

First Year

**Fall** | **Hours** | **Spring** | **Hours**
---|---|---|---
ARE 150 | 3 | 3 AGEE 101 | 3
Biol 101 | 3 AGEE 110 | 3
Biol 103 | 1 ENVP 155 | 3
Engl 101 | 3 GEC Objective 3, 5, or 7 | 3
WVUE 191 | 1 Select one of the following: | 3
Select one of the following* | | |
MATH 126A | 3 | STAT 211 | 3
MATH 126B | ECON 225 | |
MATH 126C | | |
**Total Hours** | **14** | **15** | **Total Hours**

Second Year

**Fall** | **Hours** | **Spring** | **Hours**
---|---|---|---
ENGL 102 | 3 | AGRN 202 | 3
MATH 150 | 3 | AGRN 203 | 1
ARE 220 | 3 | ECON 202 | 3
GEOL 110 | 3 GEC Objectives 3, 5, or 7 | 6
GEOL 111 | 1 Free Elective | 3
ARE 187 | 3 | | 3
**Total Hours** | **16** | **16** | **Total Hours**

Third Year

**Fall** | **Hours** | **Spring** | **Hours**
---|---|---|---
ARE 382 | 3 | ARE 410 | 3
ECON 301 | 3 | ARE 445 | 3
ARE 494 | 1 | ECON 302 | 3
GEC Objective 3, 5, or 7 | 3 RESM 480 | 3
**Total Hours** | **16** | **16** | **Total Hours**

* Consult with Undergraduate Coordinator for approval of Capstone Experience (Senior Thesis).

** Selected and approved in consultation with adviser, student must select either an approved minor or at least four courses at the 300 or 400 level - either from Agriculture and Resource Economics, Agronomy, Environmental Protection, Forestry, or Economics.
COURSES

ARE 110. Agribusiness Accounting. 3 Hours.
Introduction to accounting for agricultural, rural, and small business managers. Emphasis on the accounting cycle, analysis and interpretation of financial statements, income taxes, and managerial accounting. (Students having prior college credit in accounting are not eligible for this course.).

ARE 150. Intro Agri & Agribusiness Econ. 3 Hours.
Introduction to basic agricultural economics and agribusiness concepts, and the application of these concepts to agricultural and agribusiness issues.

ARE 187. Energy Resource. 3 Hours.
Dilemmas posed for developing and modern societies by rising energy demands amid concerns for the world’s environment. Economics of fuel sources and technologies, and historical and new concerns over resource scarcities.

ARE 199. Orientation - Agr/Resourc Econ. 1 Hour.
Orientation to degree programs and requirements, departmental resources, curriculum options, student responsibilities and opportunities.

ARE 201. Principle Resource & Energy. 3 Hours.
PR: Third-year standing. Analyzes problems important or peculiar to mineral industry economics; exhaustion, externalities, risks, production cycle, industry structure, pricing, role of minerals in development and trade, resource planning. Energy, metals, industrial minerals. (3 hr. lec.).

ARE 204. Agribusiness Management. 3 Hours.
Overview of the agribusiness decision-making process, and the functions of agribusiness management; analysis of financial statements and budgeting for evaluating profitability of alternative enterprises and practices.

ARE 220. Intro Envirnmntl/Resource Econ. 3 Hours.
Economic analysis of environmental pollution, natural resource conservation and management, outdoor recreation, public land use, wildlife resources, water use, property rights, and benefit-cost issues.

ARE 293A-Z. Special Topics. 1-6 Hours.
PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ARE 298A-Z. Honors. 1-3 Hours.
PR: Students in Honors Program and consent by the honors director. Independent reading, study, or research.

ARE 360. Current Issues in Agriculture. 3 Hours.
Course focusing on the current scientific, ethical, legal, economic and political issues relating to agriculture. Students conduct group and individual research, discuss topics in an informal debate format and summarize positions in a written form.

ARE 370. Recreation/Tourism Economics. 3 Hours.
PR: ARE 220 or consent. Principles of economic analysis as applied to recreation and tourism resources, including economic impact and cost-benefit analyses.

ARE 382. Agri and Natural Resources Law. 3 Hours.
Introduction to legal concepts, principles and practices related to environmental, natural resource, and agricultural issues; in the context of the legal system within which statutes are enacted, administered and enforced.

ARE 393A-Z. Special Topics. 1-6 Hours.
PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ARE 401. Applied Demand Analysis. 3 Hours.
Consumer demand economics applied to environmental, natural resource, and agricultural issues; analysis of factors that influence demand and determine prices; special applications to non-market, environmental, and natural resource amenities.

ARE 406. Applied Quantitative Methods. 3 Hours.
PR: ARE 150. Application of basic quantitative concepts and methods applied to agribusiness and natural resources. Topics include applied economics, statistics, mathematics, and financial concepts and decision-making tools for determining optimum allocation of resources for production processes.
ARE 410. Environmental/Resource Economics. 3 Hours.
PR: (ARE 401 and ARE 402) or ECON 301 or consent. Economic analysis of natural resource and environmental problems; management of renewable and non-renewable resources and environmental amenities; market failure, externalities, benefit-cost and risk analysis; property rights and the "taking" issue.

ARE 411. Rural Economic Development. 3 Hours.
Economic trends, development policies, and analysis of rural economies in the United States. Rural diversity, development concepts, rural planning, public programs and policies, and community analysis methods.

ARE 421. Rural Enterprise Development. 4 Hours.
PR: ARE 110 and ARE 204 or consent. Introduction to concepts, methods and strategies involved in starting a successful small private enterprise in a rural area: assessing a community for enterprise opportunities, identifying and developing an enterprise idea, and preparing an enterprise plan.

ARE 431. Marketing Agricultural Product. 3 Hours.
Organization, functions, and analysis of the agricultural marketing system. Food consumption, exports, price analysis, marketing costs, market power, commodities futures market, food safety, and government regulations.

ARE 435. Marketing Livestock Products. 3 Hours.
Livestock marketing practices and policies. Supply and demand, livestock price cycles, grading, marketing alternatives, processing and retailing. Economic analysis of alternatives, current issues, and trends.

ARE 440. Futures Market/Commodity Price. 3 Hours.
Analysis of price-making forces which operate in the market place; emphasis on major agricultural and mineral commodity and futures markets.

ARE 445. Energy Economics. 3 Hours.
Analysis of the energy sector and its relationship to the rest of the economy; energy security, deregulation, full cost pricing, substitutability among energy sources, transmission, new technologies, environmental considerations.

ARE 450. Agr/Environmtl & Resource Policy. 3 Hours.
PR: (ARE 401 and ARE 402) or ECON 301 or consent. Economic analysis of agricultural, natural resource and environmental policies; problems of externalities and market failure, and alternative policies for addressing such problems; benefits and cost of alternative policies.

ARE 461. Agribusiness Finance. 3 Hours.
An overview of financial analysis and the application of financial principles to small, rural and agricultural businesses. Includes applications of financial analysis computer software.

ARE 482. Enterprise Operation Law. 3 Hours.
Course focusing on laws applicable to businesses and the management of risks associated with operating a business. Students will learn to read and interpret laws and apply them to real-life business scenarios.

ARE 490. Teaching Practicum. 1-3 Hours.
PR: Consent. Teaching practice as a tutor or assistant.

ARE 491. Prof Field Experience:Capstone. 1-18 Hours.
PR: Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ARE 492A-Z. Directed Study. 1-3 Hours.
Directed study, reading, and/or research.

ARE 493A-Z. Special Topics. 1-6 Hours.
PR: Consent. Investigation of topics not covered in regularly scheduled courses.

ARE 494A-Z. Seminar. 1-3 Hours.
PR: Consent. Presentation and discussion of topics of mutual concern to students and faculty.

ARE 495. Independent Study. 1-6 Hours.
Faculty supervised study of topics not available through regular course offerings.

ARE 496. Senior Thesis:Capstone. 1-3 Hours.
PR: Consent.

ARE 497. Research. 1-6 Hours.
Independent research projects.

ARE 498A-Z. Honors. 1-3 Hours.
PR: Students in honors program and consent by the honors director. Independent reading, study or research.