

Energy Land Management, B.S.

Degree Offered

- Bachelor of Science

Nature of the Program

This major focuses on energy land management and how it relates to energy development with an emphasis on the management, coordination, and development of surface and mineral interests. This program provides a strong foundation in the key aspects of energy land management and produces trained professionals that are critically needed in the energy and regulatory sectors. Upon completion of this program, students will understand how energy lands are managed and associated energy resources can be developed and used for maximum social, economic, and environmentally responsible benefit. Students will develop a detailed knowledge related to the identification and leasing of mineral estates; be proficient in drilling site development, transportation planning, pipeline development, and route planning; will have a thorough knowledge of post-processing planning and infrastructure development; and comprehend the ethical, regulatory, and environmental framework in which they must operate.

This program is inactive and no longer accepting applicants.

General Education Foundations

Please use this link to view a list of courses that meet each GEF requirement. (<http://registrar.wvu.edu/gef/>)

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

| Code | Title | Hours |
|--|---|-------|
| General Education Foundations | | |
| F1 - Composition & Rhetoric | | 3-6 |
| ENGL 101 & ENGL 102 or ENGL 103 | Introduction to Composition and Rhetoric and Composition, Rhetoric, and Research Accelerated Academic Writing | |
| F2A/F2B - Science & Technology | | 4-6 |
| F3 - Math & Quantitative Reasoning | | 3-4 |
| F4 - Society & Connections | | 3 |
| F5 - Human Inquiry & the Past | | 3 |
| F6 - The Arts & Creativity | | 3 |
| F7 - Global Studies & Diversity | | 3 |
| F8 - Focus (may be satisfied by completion of a minor, double major, or dual degree) | | 9 |
| Total Hours | | 31-37 |

Please note that not all of the GEF courses are offered at all campuses. Students should consult with their advisor or academic department regarding the GEF course offerings available at their campus.

Curriculum Requirements

| Code | Title | Hours |
|-------------|---|-------|
| | University Requirements | 34 |
| | Energy Land Management Program Requirements | 56 |
| | Energy Land Management Major Requirements | 30 |
| Total Hours | | 120 |

University Requirements

| Code | Title | Hours |
|----------|--|-------|
| | General Education Foundations (GEF) 1, 2, 3, 4, 5, 6, 7, and 8 (31-37 Credits) | |
| | Outstanding GEF Requirements 1, 4, 5, 6, 7, and 8 | 21 |
| ANRD 191 | First-Year Seminar | 1 |

| | |
|-------------------|----|
| General Electives | 12 |
| Total Hours | 34 |

Energy Land Management Program Requirements

| Code | Title | Hours |
|-------------------------------------|---|-----------|
| Energy Land Track | | 14 |
| GEOL 101 & 101L | Planet Earth and Planet Earth Laboratory (GEF 2B) | |
| SUST 201 & 201L | Earth System Science and Earth System Science Laboratory (GEF 8) | |
| STAT 211 | Elementary Statistical Inference (GEF 8) | |
| MATH 124 | Algebra with Applications (GEF 3) | |
| Geology | | 3 |
| GEOL 472 | Energy Geology | |
| Policy | | 3 |
| Select one of the following: | | |
| FNRS 421 | Renewable Resources Policy and Governance | |
| FNRS 438 | Human Dimensions Natural Resource Management | |
| ARE 450 | Agriculture, Environmental and Resource Policy | |
| Computer | | 3 |
| CS 101 or FNRS 240 & 240L | Intro to Computer Applications Introduction to Computing in Natural Resources and Introduction to Computing in Natural Resources Laboratory | |
| Natural Resource Management | | 18 |
| Select six of the following: | | |
| ESWS 455 | Reclamation of Disturbed Soils | |
| ARE 220 | Introductory Environmental and Resource Economics | |
| ARE 360 | Current Issues In Agriculture | |
| ARE 382 | Agricultural and Natural Resources Law | |
| ARE 410 | Environmental and Resource Economics | |
| ESWS 460 & 460L | Environmental Impact Assessment and Environmental Impact Assessment Laboratory | |
| FNRS 444 | Watershed Management | |
| FNRS 212 | Forest Ecology | |
| FNRS 212L | Forest Ecology Laboratory | |
| FNRS 140 | West Virginia's Natural Resources | |
| FNRS 326 | Remote Sensing of Environment | |
| RESM 480 | Environmental Regulation | |
| FNRS 422 | Harvesting Forest Products | |
| FNRS 422L | Harvesting Forest Products Laboratory | |
| FNRS 445 | Bio-based Energy Systems | |
| WMAN 150 | Principles of Conservation Ecology | |
| WMAN 200 | Restoration Ecology | |
| ARE 201 | Principles of Resource and Energy | |
| WMAN 160 | Ecology of Invading Species | |
| ESWS 155 | Elements of Environmental Protection | |
| ENLM 415 | Midstream Energy Planning and Development | |
| Business Perspective | | 15 |
| Select one of the following minors: | | |
| Agribusiness Management | | |
| General Business | | |
| Or select five of the following: | | |

| | |
|----------|------------------------------------|
| ECON 200 | Survey of Economics |
| BCOR 320 | Legal Environment of Business |
| BCOR 330 | Information Systems and Technology |
| BCOR 340 | Principles of Finance |
| BCOR 360 | Supply Chain Management |
| BCOR 370 | Principles of Management |
| BCOR 380 | Business Ethics |
| ARE 110 | Agribusiness Accounting |
| ARE 482 | Enterprise Operation Law |
| ARE 204 | Agribusiness Management |
| ARE 431 | Marketing Agricultural Products |
| ARE 461 | Agribusiness Finance |

Total Hours

56

Energy Land Management Major Requirements

| Code | Title | Hours |
|---|--|-------|
| A minimum grade of C- or higher is required in Energy Land Management Major coursework. | | |
| ENLM 150 | Introduction to Environmental, Energy, and Land Management | 3 |
| ENLM 200 | Principles of Environmental, Energy, and Land Management | 3 |
| ENLM 220 | Energy Production & Operations | 3 |
| ENLM 300 | Ethics and Negotiations for Land Managers | 3 |
| ENLM 390 | Land and Lease Analysis | 3 |
| ENLM 400 | Land Management Contracts 1 | 3 |
| ENLM 420 | Land Management Contracts 2 | 3 |
| ENLM 442 | GIS Skills for Energy Land Management | 3 |
| ENLM 450 | Land Management Strategic Planning (Capstone) | 3 |
| ENLM 491 | Professional Field Experience | 3 |
| Total Hours | | 30 |

Suggested Plan of Study

First Year

| Fall | Hours | Spring | Hours |
|-----------------------------|-------|------------------------------|-------|
| ENGL 101 (GEF 1) | | 3 SUST 201 & 201L (GEF 8) | 4 |
| MATH 124 (GEF 3) | | 3 ENLM 150 | 3 |
| GEOL 101 & 101L (GEF 2B) | | 4 General Elective | 3 |
| ANRD 191 | | 1 GEF 5 | 3 |
| GEF 8 | | 3 GEF 6 | 3 |
| | | 14 | 16 |

Second Year

| Fall | Hours | Spring | Hours |
|------------------|-------|------------------------------------|-------|
| ENGL 102 (GEF 1) | | 3 Natural Resource Management 1 | 3 |
| ENLM 200 | | 3 FNRS 240 | 3 |
| STAT 211 (GEF 8) | | 3 General Elective | 3 |
| ENLM 220 | | 3 ENLM 390 | 3 |
| Business Choice | | 3 GEF 7 | 3 |
| | | 15 | 15 |

Third Year

| Fall | Hours | Spring | Hours | Summer | Hours |
|-------------------------------|--------------|---------------------------------|--------------|---------------|--------------|
| Natural Resource Management 2 | | 3 ENLM 400 | | 3 ENLM 491 | 3 |
| Business Choice GEF 4 | | 3 GEOL 472 | | 3 | |
| | | 3 Natural Resource Management 3 | | 3 | |
| ENLM 300 | | 3 Business Choice | | 3 | |
| ENLM 442 | | 3 General Elective | | 3 | |
| | | 15 | | | 3 |

Fourth Year

| Fall | Hours | Spring | Hours | | |
|-------------------------------|--------------|---------------------------------|--------------|---|----|
| Natural Resource Management 4 | | 3 Business Choice | | 3 | |
| Natural Resource Management 5 | | 3 General Elective | | 3 | |
| Policy | | 3 Natural Resource Management 6 | | 3 | |
| Business Choice ENLM 420 | | 3 ENLM 450 | | 3 | |
| | | 3 | | | |
| | | 15 | | | 12 |

Total credit hours: 120

Major Learning Outcomes**ENERGY LAND MANAGEMENT**

This new B.S. degree program and major will provide undergraduate students a knowledge-based framework that will develop skillsets essential to a successful career in Energy Land Management. Upon graduation from this degree program and major, students will be able to:

- Effectively communicate with stakeholders, peers, and other professionals in both written and oral forms.
- Design operational plans that integrate industry and public stakeholder goals as to minimize impacts of energy development on local environments and create a positive community relationship
- Evaluate the types of interests in energy resource ownership including explaining the differences between mineral and surface estates, as well as the ability to interpret mineral and surface deeds
- Demonstrate professional knowledge and be able to negotiate the key elements of energy-related leases and operating agreements under accepted standards of practice
- Develop budgets and financial projections associated with energy development and the economics related to multiple energy production systems