ENERGY BUSINESS AND FINANCE, B.S.

Begin Campus: Any Penn State Campus
End Campus: University Park

Degree Requirements
For the Bachelor of Science degree in Energy Business and Finance, a minimum of 120 credits is required:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education</td>
<td>45</td>
</tr>
<tr>
<td>Electives</td>
<td>0-12</td>
</tr>
<tr>
<td>Requirements for the Major</td>
<td>90-102</td>
</tr>
</tbody>
</table>

25-27 of the 45 credits of General Education are included in the Requirements for the Major. This includes: 4-6 credits of GN courses, 9 credits of GWS courses, 6 credits of GQ courses, and 6 credits of GS courses.

General Education
Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (https://bulletins.psu.edu/undergraduate/general-education/baccalaureate-degree-general-education-program/) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required.)
- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Knowledge Domains
- Arts (GA): 6 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 6 credits
- Social and Behavioral Sciences (GS): 6 credits
- Natural Sciences (GN): 9 credits

Integrative Studies (may also complete a Knowledge Domain requirement)
- Inter-Domain or Approved Linked Courses: 6 credits

University Degree Requirements
First Year Engagement
All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement
6 credits are required and may satisfy other requirements
- United States Cultures: 3 credits
- International Cultures: 3 credits

Writing Across the Curriculum
3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits
A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work
Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition
The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 82-44). For more information, check the Suggested Academic Plan for your intended program.

Requirements for the Major
To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44. For more information, check the Suggested Academic Plan for your intended program.

Common Requirements for the Major (All Options)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCTG 211</td>
<td>Financial and Managerial Accounting for Decision Making</td>
<td>4</td>
</tr>
<tr>
<td>EBF 473</td>
<td>Risk Management in Energy Industries</td>
<td>3</td>
</tr>
<tr>
<td>ECON 104</td>
<td>Introductory Macroeconomic Analysis and Policy</td>
<td>3</td>
</tr>
<tr>
<td>IB 303</td>
<td>International Business Operations</td>
<td>3</td>
</tr>
</tbody>
</table>

Prescribed Courses: Require a grade of C or better

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tr>
<td>EBF 200</td>
<td>Introduction to Energy and Earth Sciences Economics</td>
<td>3</td>
</tr>
<tr>
<td>EBF 301</td>
<td>Global Finance for the Earth, Energy, and Materials Industries</td>
<td>3</td>
</tr>
<tr>
<td>EBF 304W</td>
<td>Global Management for the Earth, Energy, and Materials Industries</td>
<td>3</td>
</tr>
<tr>
<td>EBF 401</td>
<td>Strategic Corporate Finance for the Earth, Energy, and Materials Industries</td>
<td>3</td>
</tr>
<tr>
<td>Code</td>
<td>Title</td>
<td>Credits</td>
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</tr>
<tr>
<td>ECON 102</td>
<td>Introductory Microeconomic Analysis and Policy</td>
<td>3</td>
</tr>
<tr>
<td>ECON 302</td>
<td>Intermediate Microeconomic Analysis</td>
<td>3</td>
</tr>
<tr>
<td>EME 460</td>
<td>Geo-resource Evaluation and Investment Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 140</td>
<td>Calculus With Analytic Geometry I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 141</td>
<td>Calculus with Analytic Geometry II</td>
<td>4</td>
</tr>
<tr>
<td>RM 302</td>
<td>Risk and Insurance</td>
<td>3</td>
</tr>
</tbody>
</table>

### Additional Courses

- CAS 100  
  Effective Speech  
  or EMSC 100S  
  Earth and Mineral Sciences First-Year Seminar
- ENGL 15  
  Rhetoric and Composition  
  or ENGL 30H  
  Honors Rhetoric and Composition
- ENGL 202C  
  Effective Writing: Technical Writing  
  or ENGL 202D  
  Effective Writing: Business Writing

Select 3 credits of the following:

- CMPSC 101  
  Introduction to Programming
- CMPSC 200  
  Programming for Engineers with MATLAB
- CMPSC 201  
  Programming for Engineers with C++
- CMPSC 202

Select 3 credits of the following:

- BA 243  
  Social, Legal, and Ethical Environment of Business
- BLAW 243  
  Legal Environment of Business
- ERM 411  
  Legal Aspects of Resource Management

### Additional Courses: Require a grade of C or better

- EBF 483  
  Introduction to Electricity Markets
  or EBF 484  
  Energy Economics

Select 3 credits of the following:

- EBF 472  
  Quantitative Analysis in Earth Sciences
- STAT 301  
  Statistical Analysis I
- STAT 401  
  Experimental Methods

### Requirements for the Option

Select an option  

### Requirements for the Option

**Energy Land Management Option (25 credits)**

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#### Prescribed Courses

- EBF 402  
  Energy Law and Contracts
- GEOG 363  
  Geographic Information Systems

#### Additional Courses

- EBF 410  
  Petroleum and Natural Gas Operations
  or PNG 405  
  Rock and Fluid Properties
- EBF 411  
  Petroleum and Natural Gas Geology for Land Professionals
  or GEOSC 454  
  Geology of Oil and Gas

Select 3 credits of the following:

- GEOG 361  
  Cartography–Maps and Map Construction
- GEOG 362  
  Image Analysis
- GEOG 364  
  Spatial Analysis
- GEOG 463  
  Geospatial Information Management

### General Option (24-36 credits)

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</thead>
</table>

#### Additional Courses

- Select 6-7 credits of the following:
  - CHEM 110  
    Chemical Principles I
  - EARTH 100  
    Environment Earth
  - EARTH 101  
    Natural Disasters: Hollywood vs. Reality
  - EARTH 103N  
    Earth in the Future: Predicting Climate Change and Its Impacts Over the Next Century
  - EARTH 111  
    Water: Science and Society
  - EARTH 150  
    Dinosaur Extinctions and Other Controversies
  - EGEE 101  
    Energy and the Environment
  - EGEE 102  
    Energy Conservation for Environmental Protection
  - EGEE 120  
    Oil: International Evolution
  - GEOG 110  
    Climates of the World
  - GEOG 115  
    Landforms of the World
  - GEOG 2  
    Historical Geology
  - GEOG 10  
    Geology of the National Parks
  - GEOG 20  
    Planet Earth
  - GEOG 21  
    Earth and Life: Origin and Evolution
  - GEOG 40  
    The Sea Around Us
  - MATSE 81  
    Materials in Today’s World
  - METEO 3  
    Introductory Meteorology
  - METEO 101  
    Understanding Weather Forecasting
  - PHYS 211  
    General Physics: Mechanics
  - or PHYS 250  
    Introductory Physics I

Select 3 credits of the following:

- CED 404  
  Community, Environment and Development Research Methods
- CED 429  
  Natural Resource Economics
- CED 431
- EBF 411  
  Petroleum and Natural Gas Geology for Land Professionals
- EBF 483  
  Introduction to Electricity Markets (if not selected for requirement for the major)
- ECON 490
- EME 301  
  Thermodynamics in Energy and Mineral Engineering
- GEOG 424  
  Geography of the Global Economy
- GEOG 430  
  Human Use of Environment
- GEOG 431  
  Geography of Water Resources
- GEOG 444  
  African Resources and Development
- GEOG 493  
  Service Learning
- GEOG 492Y  
  Natural Disasters
- GEOS 454  
  Geology of Oil and Gas
- METEO 473  
  Application of Computers to Meteorology
- PLSC 490  
  Policy Making and Evaluation

### Supporting Courses and Related Areas

Select one of the following:

- 15-26 credits
Select from one of the following minors: Arabic, Chinese, Civic and Community Engagement, Earth Systems, Energy Engineering, Entrepreneurship and Innovation, Environmental Resource Management, Environmental Systems Engineering, Geographic Information Science, Geosciences, Mathematics, Meteorology, Mining Engineering, Petroleum and Natural Gas Engineering, Russian, Spanish, Statistics, Watersheds and Water Resources or a relevant minor selected in consultation with an adviser.

- A concurrent major in any subject
- A 15 credit semester-long education abroad program approved by the professor in charge of the EBF major
- A minor in Asian Studies together with an approved EBF summer term abroad experience