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 83-80 (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80)). 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 (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44).

Common Requirements for the Major (All Options)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prescribed Courses</td>
<td></td>
<td></td>
</tr>
<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>
<tr>
<td>Prescribed Courses: Require a grade of C or better</td>
<td></td>
<td></td>
</tr>
<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>
</tbody>
</table>
ECON 102  Introductory Microeconomic Analysis and Policy 3
ECON 302  Intermediate Microeconomic Analysis 3
EME 460  Geo-resource Evaluation and Investment Analysis 3
MATH 140  Calculus With Analytic Geometry I 4
MATH 141  Calculus with Analytic Geometry II 4
RM 302  Risk and Insurance 3

Additional Courses
CAS 100  Effective Speech 3
or EMSC 100S  Earth and Mineral Sciences First-Year Seminar
ENGL 15  Rhetoric and Composition 3
or ENGL 30H  Honors Rhetoric and Composition
ENGL 202C  Effective Writing: Technical Writing 3
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 3
- 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 24-36

Requirements for the Option
Energy Land Management Option (25 credits)

Prescribed Courses
- EBF 402  Energy Law and Contracts 3
- GEOG 363  Geographic Information Systems 3

Prescribed Courses: Require a grade of C or better
- GEOG 160  Mapping Our Changing World 3
- GEOG 1  Physical Geology 3

Additional Courses
- EBF 410  Petroleum and Natural Gas Operations 3
- 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

Additional Courses: Require a grade of C or better
- PHYS 211  General Physics: Mechanics 4
- or PHYS 250  Introductory Physics I

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)

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 402Y  Natural Disasters
- GEOG 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
- GEOG 360  Introductory Microeconomic Analysis and Policy
<table>
<thead>
<tr>
<th>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</th>
</tr>
</thead>
<tbody>
<tr>
<td>A concurrent major in any subject</td>
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<tr>
<td>A 15 credit semester-long education abroad program approved by the professor in charge of the EBF major</td>
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<tr>
<td>A minor in Asian Studies together with an approved EBF summer term abroad experience</td>
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