

## UNIVERSITY FACULTY SENATE FORMS

### Academic Program Approval

This form is a routing document for the approval of new and revised academic programs. Proposing department should complete this form. For more information, call the Faculty Senate Office at 831-2921.

Submitted by: John Byrne phone number: 831-8405

Department: Energy and Environmental Policy email address: [jbyrne@udel.edu](mailto:jbyrne@udel.edu)

Date: XXXXXXXXXXXX

Action: Revision to ENEP Major  
(Example: add major/minor/concentration, delete major/minor/concentration, revise major/minor/concentration, academic unit name change, request for permanent status, policy change, etc.)

Effective term: 15F  
(use format 04F, 05W)

Current degree: BS  
(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed change leads to the degree of: BS  
(Example: BA, BACH, BACJ, HBA, EDD, MA, MBA, etc.)

Proposed name: \_\_\_\_\_  
(Proposed new name for revised or new major / minor / concentration / academic unit (if applicable))

### Revising or Deleting:

Undergraduate major / Concentration: Energy and Environmental Policy BS  
(Example: Applied Music – Instrumental degree BMAS)

Undergraduate minor: \_\_\_\_\_  
(Example: African Studies, Business Administration, English, Leadership, etc.)

Graduate Program Policy statement change: \_\_\_\_\_  
(Must attach your Graduate Program Policy Statement)

Graduate Program of Study: \_\_\_\_\_  
(Example: Animal Science: MS Animal Science: PHD Economics: MA Economics: PHD)

Graduate minor / concentration: \_\_\_\_\_

**Note: all graduate studies proposals must include an electronic copy of the Graduate Program Policy Document, highlighting the changes made to the original policy document.**

**List new courses required for the new or revised curriculum. How do they support the overall program objectives of the major/minor/concentrations)?**

(Be aware that approval of the curriculum is dependent upon these courses successfully passing through the Course Challenge list. If there are no new courses enter "None")

The only new course included in the revised curriculum is ENEP 420 Water Resources Management. This course is a revision to the existing course ENEP 324 Water Resources Management. The course has been submitted for approval through the Course Inventory Process. This course supports the overall program objectives of the ENEP major by providing students with the opportunity to learn about water resources management. The course bridges the gap between engineering and policy as it relates to water resources.

**Explain, when appropriate, how this new/revised curriculum supports the 10 goals of undergraduate education: <http://www.ugs.udel.edu/gened/>**

The undergraduate program in ENEP embodies the general education requirements of the University, specifically the ten (10) general education goals for undergraduate education. The major is interdisciplinary by design and fully meets the goals. The changes proposed do not adversely affect the manner in which the program meets the goals.

**Identify other units affected by the proposed changes:**

(Attach permission from the affected units. If no other unit is affected, enter "None")

None

**Describe the rationale for the proposed program change(s):**

(Explain your reasons for creating, revising, or deleting the curriculum or program.)

The proposed revision to the curriculum is being requested as a result of a recent assessment of the curriculum. The changes are being made for the following reasons:

- The description of the Breadth Requirements for the Major has been revised to clarify that BS-ENEP Majors are required to complete 31 credits of College of Arts and Sciences Breadth.
- The description of the timing of the Second Writing Course has been revised to reflect the fact that according to College of Arts and Sciences policy, the course must be taken after 60 credits have been completed by the student.
- The names of three ENEP courses are being revised through the Course Inventory process, specifically ENEP 364, ENEP 426, and ENEP 472. The changes in title are reflected in the Revised Course Catalog curriculum.
- GEOG 235 Conservation of Natural Resources has replaced GEOG 236

Conservation of Natural Resources: Global Issues in the Core Curriculum for all Concentrations.

- Headings have been renamed to simplify the terminology used and to improve consistency.
- Students in the Energy, Economics and Public Policy (EEP) Concentration will be required to complete a 400-level course applicable to the Concentration instead of ENEP 468 Research in Energy and Environment or ENEP 470 Readings in Energy and Environment as an Advanced Course Requirement (ACR). This change has been made at the request of the EEP Concentration Advisor who prefers that students complete a lecture course instead of a tutorial course. The course selected by the student to fulfill this requirement must be approved in advance by the Concentration Advisor.
- POSC 300 Research Methods for Political Sciences has been removed from the options for statistics courses within the ACRs in the EEP Concentration because the course has been restricted to Majors. Students in the EEP Concentration will choose among three possible courses to fulfill that Requirement.
- ECON 471/APEC 471 Futures and Options Markets has been excluded from the Advanced Curriculum Elective (ACE) list for the EEP Concentration because it has been offered infrequently.
- The new course ENEP 420 which has been proposed through the Course Inventory process has replaced ENEP 324 Water Resources Management as an ACE option in the EEP, Energy, Environment and Society (EES), and Energy, Science and Technology (EST) Concentrations.
- ENEP 468 and ENEP 470 have been excluded from the ACE list for the EEP Concentration because of the Concentration Advisor's preference for students to enroll in lecture courses.
- GEOG 250 Computer Methods in Geography has been removed from the ACE list in all Concentrations because the course is no longer offered by the Geography Department. GEOG 271 Introduction to Geographic Data Analysis is now included as an ACE option in all Concentrations.
- Needed corrections to course titles have been made.
- PHIL 340 Cross Cultural Environmental Ethics has been removed from the ACE list in all Concentrations because the Philosophy Department no longer offers the course.
- POSC 300 Research Methods for Political Sciences has been removed from the ACE list in the EEP Concentration because the course has been restricted to Majors.
- The prerequisite for STAT 470 Introduction to Statistical Analysis I and STAT 471 Introduction to Statistical Analysis II has been added in the ACE lists for all

Concentrations.

- ENEP 410 Environmental Sustainability: Economic and Policy Analysis has been included as an alternative to POSC 350 Politics and the Environment in the Advanced Course Requirements (ACR) for the EES Concentration. ENEP students have had difficulty enrolling in POSC 350 when seats have been reserved for Majors and Minors. ENEP 410 will serve as an option for students to complete the ACRs in the Concentration.
- APEC 343/ECON 343 Environmental Economics has replaced POSC/COMM 425 Energy/Environment Policy, Public Opinion, Media and Politics in the ACR list for the EES Concentration. A section of the course was planned to address environmental topics, but that section has not been offered. The substitution was recently approved by Professor Josh Duke in the APEC department.
- ENEP 366 Independent Study has been added as an ACE choice in the EES Concentration and the EST Concentration based on faculty experience in the Concentrations.
- ENGL 365 Studies in Literary Genres, Types and Movements: ENVIRONMENTAL NON-FICTION has been included in the ACE list for the EES Concentration.
- GEOL 112 Earth Resources and Public Policy has been removed from the ACE list in the EES Concentration because the Geology Department does not have plans to offer this course in the future.
- GEOL 304 Earth System Science has been removed from the ACE list in the EES Concentration. The subject of the course is no longer related to the EES Concentration.
- SOCI 331 World Population, Profiles and Trends has been removed from the ACE list in the EES Concentration because the course no longer appears in the Course Catalog.
- UAPP 456 Politics and Disasters has been removed from the ACE list in the EES Concentration because the School of Public Policy and Administration does not plan to offer this course in the future.
- MATH 115 Pre-Calculus, MATH 117 Pre-Calculus for Scientists & Engineers, and MATH 221 Calculus I have been removed from the ACE list in the EST Concentration. Credit cannot be received for both MATH 241 (an ACR in the Concentration) and MATH 221, and therefore, MATH 221 has been removed from the ACE list. MATH 115 and MATH 117 (the prerequisites to MATH 221 and MATH 241) will no longer count as ACEs in the EST Concentration.

**Program Requirements:**

(Show the new or revised curriculum as it should appear in the Course Catalog. If this is a revision, be sure to indicate the changes being made to the current curriculum and **include a side-by-side comparison** of the credit distribution before and after the proposed change.)

The revised curriculum should appear in the Course Catalog as follows:

Revised

**DEGREE: BACHELOR OF SCIENCE**

**MAJOR: ENERGY and ENVIRONMENTAL POLICY**

Curriculum	Credits
<b>UNIVERSITY REQUIREMENTS</b>	
ENGL 110                      Critical Reading and Writing (minimum grade C-)	3
ENEP 117                      Science, Society and Energy (FYE)	1
Breadth Requirements	12
Discovery Learning Experience (fulfilled by taking ENEP 364: Internship)	3
Multicultural Course	3
<b>College Breadth Requirements</b>	<b>31</b>

A total of 31 credits from Groups A, B, C, and D, distributed as follows, are required (essentially 19 credits in addition to the University Breadth Requirements):

- Creative Arts and Humanities (A):                      9 credits
- History and Cultural Change (B):                      6 credits
- Social and Behavioral Sciences (C):                      6 credits
- Math, Natural Science and Technology (D):                      10 credits

If chosen carefully, up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy the College of Arts and Sciences Breadth Requirements for this major.

Of the 31 credits, 3 credits may be used to simultaneously satisfy the University Multicultural Requirement (recommended for timely progress toward degree completion.)

All courses must be passed with a minimum grade of C-.

**MAJOR REQUIREMENTS**

**Foreign Language Requirement**

There is no major-wide foreign language requirement. The EES and EST concentrations include the opportunity to count up to 8 credits of foreign language instruction to fulfill the concentration requirement.

**Minimum Mathematics Requirement**

MATH 114 is required for the EEP and EES concentrations and MATH 241 is required for the EST concentration.

**Commented [JB1]:** Clarifies the already existing ENEP requirements

**Second Writing Course**

3

Provides students with the opportunity to develop their writing skills through guided writing exercises. This course must be taken after completion of -60 credit hours. Appropriate writing courses are designated in the semester's course listings; several ENEP courses fulfill this requirement, including

ENEP 410	Environmental Sustainability: Economic & Policy Analysis	3
ENEP 425	Energy Policy and Administration	3
ENEP 426	Climate Change Policy	3
ENEP 427	Sustainable Energy: Economics & Policy Analysis	3
ENEP 468	RESEARCH in Energy and Environment	3
ENEP 470	READINGS in Energy and Environment	3
ENEP 472	Senior Thesis	6

**Revised**

**DEGREE: BACHELOR OF SCIENCE**

**MAJOR: ENERGY and ENVIRONMENTAL POLICY**

Curriculum

Credits

**Core Curriculum**

ENEP 250	Introduction to Energy Policy	3
PHYS 143	Energy, Technology and Society	3
ECON 101	Introduction to Micro-Economics: Prices and Markets	3
POSC 220	Introduction to Public Policy	3
or UAPP 225	Crafting Public Policy	3
GEOG 235	Conservation of Natural Resources	3

All concentrations require the following courses:

**Capstone Courses**

GEOG 422	Resources, Development and the Environment	3
ENEP 425	Energy Policy and Administration	3
ENEP 427	Sustainable Energy: Economics and Policy Analysis	3
CHEG 625	Green Engineering	3

**Internship and Senior Thesis**

ENEP 364	Research Internship	3
Students intern in an organization in the field of energy and environmental policy.		
ENEP 472	Senior Thesis	6
This is a tutorial course taken with approval from an Energy and Environmental Policy Program faculty member.		

In addition to the Core Curriculum, the Breadth Requirements and the Major Requirements, students must choose one of the following concentrations:

**Energy, Economics and Public Policy Concentration:**

Advanced Course Requirements (ACR)

18 credits to be completed as follows:

ECON 300	Intermediate Microeconomic Theory	3
ENEP 402	Electricity Policy and Planning	3
APEC 343/ECON 343	Environmental Economics	3
ENEP 410	Environmental Sustainability: Economics & Policy Analysis	3

A 400-level course applicable to the Energy, Economics and Public Policy Concentration as approved in advance by the Concentration Advisor. 3

One of the following 3 courses:

ECON 422	Econometric Methods & Models I	3
or MATH 201	Introduction to Statistical Methods I	3
or MATH 408	E	3

Advanced Course Electives (ACE)

Choose 30 credits from the advanced course elective list below.

(Other courses can be added with the approval of the advisor.)

APEC 406	Agricultural and Natural Resource Policy	3
BUAD 301	Introduction to Marketing	3
BUAD 472	Marketing, Society and the Environment (Prerequisite: BUAD 301)	3
CIEG 402	Introduction to Sustainability Principles in Civil Engineering	3
ECON 103	Introduction to Macroeconomics	3
ECON 311	Economics of Developing Countries	3
ECON 360	Government Regulation of Business	3
ECON 422	Econometric Methods & Models I	3
ECON 426	Mathematical Economic Analysis	3
ECON 463	Economics of Regulation	3

**Revised**

**DEGREE: BACHELOR OF SCIENCE**

**MAJOR: ENERGY and ENVIRONMENTAL POLICY**

Curriculum		Credits
ENEP 420	Water Resources Management	3
ENEP 413/ENWC 413	Wildlife Policy and Administration	3
ENEP 426	Climate Change Policy	3
GEOG 271	Introduction to Geographic Data Analysis	3
GEOG 372	Introduction to GIS	3
GEOG 412	Physical Climatology	4

**Advanced Course Electives (ACE) (Continued)**

GEOG 434/UAPP 406	Plan Sustainable Communities & Regions	3
GEOL 421	Environmental and Applied Geology	3
MATH 201	Introduction to Statistical Methods I	3
MATH 202	Introduction to Statistical Methods II	3
MATH 221	Calculus I	3
MATH 241	Analytic Geometry and Calculus A	4
MATH 242	Analytic Geometry and Calculus B	4
POSC 301	State and Local Government	3
POSC 311	Politics of Developing Nations	3
POSC 316	International Political Economy	3
STAT 200	Elementary Statistics	4
STAT 470	Introduction to Statistical Analysis I (MATH 222 or MATH 242 required)	3
STAT 471	Introduction to Statistical Analysis II (MATH 222 or MATH 242 required)	3
UAPP 325	Public Policy Analysis	3
UAPP 410	Politics and the Delivery of Public Policy	3
UAPP 419	Policy Leadership and Ethics	3
UAPP 427	Evaluating Public Policy	3
UAPP 440	Contemporary Policy Issues	3
Foreign Language	(up to 8 credits)	8

Commented [JB2]: Adds STAT 200 as an option.

**Energy, Environment and Society Concentration:**

Advanced Course Requirements (ACR)

12 credits to be completed as follows:

ENEP 426	Climate Change Policy	3
POSC 350	Politics and the Environment	3
or ENEP 410	Environmental Sustainability: Economic and Policy Analysis	
APEC 343/ECON 343	Environmental Economics	3
ECON 300	Intermediate Microeconomic Theory	3

Advanced Course Electives (ACE)

Science/Methods – choose 12 credits from list below:

BISC 321	Environmental Biology	3
CIEG 402	Introduction to Sustainability Principles in Civil Engineering	3
ECON 422	Econometric Methods & Models I	3
ENEP 420	Water Resources Management	3
ENWC 201	Wildlife Conservation and Ecology	3
ENWC 325	Wildlife Management	3
ENWC 456	Conservation Biology	3
GEOG 271	Introduction to Geographic Data Analysis	3
GEOG 412	Physical Climatology (MATH 241, GEOG 220, and GEOG 271 required)	4
GEOG 372	Introduction to GIS	3
GEOL 421	Environmental and Applied Geology	3
MATH 201	Introduction to Statistical Methods I	3
MATH 202	Introduction to Statistical Methods II	3
MATH 221	Calculus I	3
MATH 241	Analytic Geometry and Calculus A	4
POSC 300	Research Methods for Political Science	3
STAT 200	Elementary Statistics	4
STAT 470	Introduction to Statistical Analysis I (MATH 222 or MATH 242 required)	3
STAT 471	Introduction to Statistical Analysis II (MATH 222 or MATH 242 required)	3
STAT 408	Statistical Research Methods I	3

Commented [JB3]: Adds STAT 200 as an elective

**Revised**  
**DEGREE: BACHELOR OF SCIENCE**  
**MAJOR: ENERGY and ENVIRONMENTAL POLICY**  
Curriculum

Credits

*Social Science – choose 24 credits from list below:*

APEC 324	Introduction to Resource Economics	3
APEC 406	Agricultural and Natural Resource Policy	3
APEC 424	Resource Economics	3
APEC 450	Topics in Environmental Law	3
APEC 444/ECON 444	Economics of Environmental Management	3
ENEP 366	Independent Study	1-3
ENEP 402	Electricity Policy and Planning	3
ENEP 413/ENWC 413	Wildlife Policy and Administration	3
ENEP 468	RESEARCH in Energy and Environment	3
ENEP 470	READINGS in Energy and Environment	3
ENGL 365	Studies in Literary Genres, Types and Movements: ENVIRONMENTAL NON-FICTION	3
GEOG 434/UAPP 406	Plan Sustainable Communities & Regions	3
HIST 223	Nature and History	3
PHIL 448	Environmental Ethics	3
POSC 311	Politics of Developing Nations	3
POSC 316	International Political Economy	3
SOCI 470	Environmental Sociology	3
SOCI 471	Disasters, Vulnerability and Development	3
UAPP 325	Public Policy Analysis	3
UAPP 427	Evaluating Public Policy	3
Foreign Language (up to 8 credits)		8

**Energy, Science and Technology Concentration:**

Advanced Course Requirements (ACR)

CHEM 103	General Chemistry	4
ECON 300	Intermediate Microeconomic Theory	3
ENEP 426	Climate Change Policy	3
MATH 241	Analytic Geometry and Calculus A	4
PHYS 201	Introductory Physics I	4

Advanced Course Electives (ACE)

*Choose 30 credits from the advanced course elective list below.*

BUAD 301	Introduction to Marketing	3
BUAD 472	Marketing, Society and the Environment (Prerequisite BUAD 301)	3
CHEM 104	General Chemistry II	4
CIEG 402	Introduction to Sustainability Principles in Civil Engineering	3
ECON 311	Economics of Developing Countries	3
ELEG 415/ELEG 615	Electric Power and Renewable Energy Systems	3
ELEG 491	Ethics/Impacts of Engineering	3
ENEP 420	Water Resources Management	3
ENEP 366	Independent Study	1-3
ENEP 402	Electricity Policy and Planning	3
ENEP 410	Environmental Sustainability: Economic and Policy Analysis	3
ENEP 413/ENWC 413	Wildlife Policy and Administration	3
ENEP 468	RESEARCH in Energy and Environment	3
ENEP 470	READINGS in Energy and Environment	3
APEC 343/ECON 343	Environmental Economics	3
GEOG 271	Introduction to Geographic Data Analysis	3
GEOG 421	Environmental and Applied Geology	3
GEOG 372	Introduction to GIS	3
GEOG 412	Physical Climatology (Prerequisite: MATH 241, GEOG 220, and GEOG 271)	4
GEOG 434/UAPP 406	Plan Sustainable Communities & Regions	3
MATH 242	Analytic Geometry and Calculus B (MATH 241 required)	4
MEEG 435	Wind Power Engineering	3



**Revised**  
**DEGREE: BACHELOR OF SCIENCE**  
**MAJOR: ENERGY and ENVIRONMENTAL POLICY**  
Curriculum

Credits

**Advanced Course Electives (ACE) (Continued)**

MEEG 442	Introduction to Fuel Cells	3
POSC 350	Politics and the Environment	3
STAT 470	Introduction to Statistical Analysis I (MATH 222 or MATH 242 required)	3
STAT 471	Introduction to Statistical Analysis II (MATH 222 or MATH 242 required)	3
UAPP 325	Public Policy Analysis	3
UAPP 427	Evaluating Public Policy	3
Foreign Language (up to 8 credits)		8

**Electives**

After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

**TOTAL CREDITS NEEDED TO GRADUATE**

**125 credits**

A side-by-side comparison of the Current Course Catalog curriculum and the Revised Course Catalog curriculum is shown below. (Changes are highlighted.):

<u>Current</u>			<u>Revised</u>		
<u>DEGREE: BACHELOR OF SCIENCE</u>			<u>DEGREE: BACHELOR OF SCIENCE</u>		
<u>MAJOR: ENERGY and ENVIRONMENTAL POLICY</u>			<u>MAJOR: ENERGY and ENVIRONMENTAL POLICY</u>		
Curriculum		Credits	Curriculum		Credits
<b>UNIVERSITY REQUIREMENTS</b>					
ENGL 110	Critical Reading and Writing (minimum grade C-)	3	ENGL 110	Critical Reading and Writing (minimum grade C-)	3
ENEP 117 (FYE)	Science, Society and Energy	1	ENEP 117 (FYE)	Science, Society and Energy	1
Breadth Requirements		12	Breadth Requirements		12
Discovery Learning Experience (fulfilled by taking ENEP 364: Internship)		3	Discovery Learning Experience (fulfilled by taking ENEP 364: Internship)		3
Multicultural Course		3	Multicultural Course		3
<b>College of Engineering* Breadth Requirements</b>		<b>31</b>	<b>College Breadth Requirements (minimum grade of C-)</b>		<b>31</b>
The College of Engineering requires 31 total Breadth Requirement credits distributed as follows (essentially 19 credits in addition to the University Breadth Requirement):			A total of 31 credits from Groups A, B, C, and D, distributed as follows, are required (essentially 19 credits in addition to the University Breadth Requirements):		
<ul style="list-style-type: none"> <li>Creative Arts and Humanities: 9 credits</li> <li>History and Cultural Change: 6 credits</li> <li>Social and Behavioral Sciences: 6 credits</li> <li>Math, Natural Science and Technology: 10 credits</li> </ul>			<ul style="list-style-type: none"> <li>Creative Arts and Humanities: 9 credits</li> <li>History and Cultural Change: 6 credits</li> <li>Social and Behavioral Sciences: 6 credits</li> <li>Math, Natural Science and Technology: 10 credits</li> </ul>		
If chosen carefully, up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy the College of Engineering* Breadth Requirements for this major.			If chosen carefully, up to 3 credits from each of the University Breadth Requirement categories may be used to simultaneously satisfy the College of Arts and Sciences Breadth Requirements for this major.		
Of the 31 credits, 3 credits may be used to satisfy the University Multicultural Requirement (recommended for timely progress toward degree completion.)			Of the 31 credits, 3 credits may be used to simultaneously satisfy the University Multicultural Requirement (recommended for timely progress toward degree completion.)		
All courses must be passed with a minimum grade of C-.			All courses must be passed with a minimum grade of C-.		
* Although the ENEP major is housed within the College of Arts and Sciences, students who enter the ENEP major in the 2014—2015 academic year will select breadth courses from the College of Engineering breadth list.			<b>Foreign Language Requirement</b> There is no major-wide foreign language requirement. The EES and EST concentrations include the opportunity to count up to 8 credits of foreign language instruction to fulfill the concentration requirement.		
<i>Note: ENEP majors have <u>always</u> selected breadth courses from the College of Arts and Sciences breadth list. This asterisked sentence appeared as an undetected error. An email from Chuck Shermeyer, Assistant Dean for Undergraduate Advisement of the College of Engineering, dated March 31, 2014, clarified that this statement is not correct. The email is included as Appendix A.</i>			<b>Minimum Mathematics Requirement</b> MATH 114 is required for the EEP and EES concentrations and MATH 241 is required for the EST concentration		<b>Commented [JB4]:</b> Clarifies the already existing ENEP requirements

**Current**  
**DEGREE: BACHELOR OF SCIENCE**  
**MAJOR: ENERGY and ENVIRONMENTAL POLICY**

Curriculum Credits

**MAJOR REQUIREMENTS**

Second Writing Course		3
Provides students with the opportunity to develop their writing skills through guided writing exercises. This course must be taken after completion of 30 credit hours. Appropriate writing courses are designated in the semester's course listings; several ENEP courses fulfill this requirement, including		
ENEP 410	Environmental Sustainability: Economic & Policy Analysis	3
ENEP 425	Energy Policy and Administration	3
ENEP 426	Climate Change: Science, Policies & Political Economy	3
ENEP 427	Sustainable Energy: Economics & Policy Analysis	3
ENEP 468	RESEARCH in Energy and Environment	3
ENEP 470	READINGS in Energy and Environment	3
ENEP 472	Senior Research Paper	6

**Core Curriculum**

ENEP 250	Introduction to Energy Policy	3
PHYS 143	Energy, Technology and Society	3
ECON 101	Introduction to Micro-Economics: Prices and Markets	3
POSC 220 or UAPP 225	Introduction to Public Policy Crafting Public Policy	3
GEOG 236	Conservation of Natural Resources: Global Issues	3

**All concentrations require the following courses:**

**Capstone Courses**

GEOG 422	Resources, Development and the Environment	3
ENEP 425	Energy Policy and Administration	3
ENEP 427	Sustainable Energy: Economics and Policy Analysis	3
CHEG 625	Green Engineering	3

**Internship and Senior Research Paper**

ENEP 364	Internship Fieldwork	3
Students intern in an organization in the field of energy and environmental policy.		
ENEP 472	Senior Research Paper	6
This is a tutorial course taken with approval from an Energy and Environmental Policy Program faculty member.		

In addition to the Core Curriculum, the Breadth Requirements and the Major Requirements, students must choose one of the following

**Revised**  
**DEGREE: BACHELOR OF SCIENCE**  
**MAJOR: ENERGY and ENVIRONMENTAL POLICY**

Curriculum Credits

**MAJOR REQUIREMENTS**

Second Writing Course		3
Provides students with the opportunity to develop their writing skills through guided writing exercises. This course must be taken after completion of 60 credit hours. Appropriate writing courses are designated in the semester's course listings; several ENEP courses fulfill this requirement, including		
ENEP 410	Environmental Sustainability: Economic & Policy Analysis	3
ENEP 425	Energy Policy and Administration	3
ENEP 426	Climate Change Policy	3
ENEP 427	Sustainable Energy: Economics & Policy Analysis	3
ENEP 468	RESEARCH in Energy and Environment	3
ENEP 470	READINGS in Energy and Environment	3
ENEP 472	Senior Thesis	6

**Core Curriculum**

ENEP 250	Introduction to Energy Policy	3
PHYS 143	Energy, Technology and Society	3
ECON 101	Introduction to Micro-Economics: Prices and Markets	3
POSC 220 or UAPP 225	Introduction to Public Policy Crafting Public Policy	3
GEOG 235	Conservation of Natural Resources	3

**All concentrations require the following courses:**

**Capstone Courses**

GEOG 422	Resources, Development and the Environment	3
ENEP 425	Energy Policy and Administration	3
ENEP 427	Sustainable Energy: Economics and Policy Analysis	3
CHEG 625	Green Engineering	3

**Internship and Senior Thesis**

ENEP 364	Research Internship	3
Students intern in an organization in the field of energy and environmental policy.		
ENEP 472	Senior Thesis	6
This is a tutorial course taken with approval from an Energy and Environmental Policy Program faculty member.		

In addition to the Core Curriculum, the Breadth Requirements and the Major Requirements, students must choose one of the following

**Current**  
**DEGREE: BACHELOR OF SCIENCE**  
**MAJOR: ENERGY and ENVIRONMENTAL POLICY**

Curriculum Credits  
 concentrations:

**Energy, Economics and Public Policy Concentration:**

Advanced Curriculum Required Courses  
 Choose 18 credits from the advanced curriculum required course list below.

ECON 300	Intermediate Microeconomic Theory	3
ENEP 402	Electricity Policy and Planning	3
APEC	Environmental Economics	3
343/ECON 343		
ENEP 410	Environmental Sustainability: Economics & Policy Analysis	3

One of the following:

ENEP 468	RESEARCH in Energy and Environment	3
ENEP 470	READINGS in Energy and Environment	3

One of the following:

ECON 422	Econometric Methods & Models I	3
MATH 201	Introduction to Statistical Methods I	3

POSC 300	Research Methods for Political Sciences	3
STAT 408	Experimental Methods	3

Advanced Curriculum Elective Courses  
 Choose 30 credits from the advanced curriculum elective course list below.  
 (Other courses can be added with the approval of the advisor.)

APEC 406	Agricultural and Natural Resource Policy	3
BUAD 301	Introduction to Marketing	3
BUAD 472	Marketing, Society and the Environment (Prerequisite: BUAD 301)	3
CIEG 402	Introduction to Sustainability Principles in Civil Engineering	3
ECON 103	Introduction to Macroeconomics	3
ECON 311	Economics of Developing Countries	3
ECON 360	Government Regulation of Business	3
ECON 422	Econometric Methods & Models I	3
ECON 426	Mathematical Economic Analysis	3
ECON 463	Economics of Regulation	3
ECON 471/APEC 471	Futures and Options Markets	3
ENEP 324	Water Resources Management	3
ENEP 413/ENWC 413	Wildlife Policy and Administration	3
ENEP 426	Climate Change: Science, Policy and Political Economy	3
ENEP 468	RESEARCH in Energy and Environment	3
ENEP 470	READINGS in Energy and Environment	3
GEOG 250	Computer Methods in Geography	4
GEOG 372	Geographic Information Systems	3
GEOG 412	Physical Climatology	4
GEOG 434/UAPP 406	Plan Sustainable Communities & Regions	3
GEOL 421	Environmental and Applied Geology	3
MATH 201	Introduction to Statistical Methods I	3
MATH 202	Introduction to Statistical Methods II	3
MATH 221	Calculus I	3
MATH 241	Analytic Geometry and Calculus A	4
MATH 242	Analytic Geometry and Calculus B	4
PHIL 340	Cross Cultural Environmental Ethics	3

**Revised**  
**DEGREE: BACHELOR OF SCIENCE**  
**MAJOR: ENERGY and ENVIRONMENTAL POLICY**

Curriculum Credits  
 concentrations:

**Energy, Economics and Public Policy Concentration:**

Advanced Course Requirements (ACR)  
 18 credits to be completed as follows:

ECON 300	Intermediate Microeconomic Theory	3
ENEP 402	Electricity Policy and Planning	3
APEC	Environmental Economics	3
343/ECON 343		
ENEP 410	Environmental Sustainability: Economics & Policy Analysis	3

A 400-level course applicable to the Energy, Economics and Public Policy Concentration as approved in advance by the Concentration Advisor. 3

One of the following 3 courses:

ECON 422	Econometric Methods & Models I	3
MATH 201	Introduction to Statistical Methods I	3
or STAT 200	Elementary Statistics	4
or STAT 408	Experimental Methods	3

Commented [JB5]: Adds STAT 200 as an option.

Advanced Course Electives (ACE)  
 Choose 30 credits from the advanced course elective list below.  
 (Other courses can be added with the approval of the advisor.)

APEC 406	Agricultural and Natural Resource Policy	3
BUAD 301	Introduction to Marketing	3
BUAD 472	Marketing, Society and the Environment (Prerequisite: BUAD 301)	3
CIEG 402	Introduction to Sustainability Principles in Civil Engineering	3
ECON 103	Introduction to Macroeconomics	3
ECON 311	Economics of Developing Countries	3
ECON 360	Government Regulation of Business	3
ECON 422	Econometric Methods & Models I	3
ECON 426	Mathematical Economic Analysis	3
ECON 463	Economics of Regulation	3
ENEP 420	Water Resources Management	3
ENEP 413/ENWC 413	Wildlife Policy and Administration	3
ENEP 426	Climate Change Policy	3
GEOG 271	Introduction to Geographic Data Analysis	3
GEOG 372	Introduction to GIS	3
GEOG 412	Physical Climatology	4
GEOG 434/UAPP 406	Plan Sustainable Communities & Regions	3
GEOL 421	Environmental and Applied Geology	3
MATH 201	Introduction to Statistical Methods I	3
or STAT 200	Elementary Statistics	4
MATH 202	Introduction to Statistical Methods II	3
MATH 221	Calculus I	3
MATH 241	Analytic Geometry and Calculus A	4
MATH 242	Analytic Geometry and Calculus B	4

**Current**  
**DEGREE: BACHELOR OF SCIENCE**  
**MAJOR: ENERGY and ENVIRONMENTAL POLICY**

Curriculum	Credits
POSC 300	3
POSC 301	3
POSC 311	3
POSC 316	3
STAT 470	3
STAT 471	3
UAPP 325	3
UAPP 410	3
UAPP 419	3
UAPP 427	3
UAPP 440	3
Foreign Language (up to 8 credits)	8

**Energy, Environment and Society Concentration:**

Required Advanced Courses

ENEP 426	Climate Change: Science, Policy and Political Economy	3
POSC 350	Politics and the Environment	3
POSC 425/COMM 425	Energy/Environment Policy, Public Opinion, Media and Politics	3
ECON 300	Intermediate Microeconomic Theory	3

Advanced Curriculum Required Courses

Science/Methods – choose 12 credits from list below:

BISC 321	Environmental Biology	3
CIEG 402	Introduction to Sustainability Principles in Civil Engineering	3
ECON 422	Econometric Methods & Models I	3
ENEP 324	Water Resources Management	3
ENWC 201	Wildlife Conservation and Ecology	3
ENWC 325	Wildlife Management	3
ENWC 456	Conservation Biology	3
GEOG 250	Computer Methods for Geography and Environmental Science	4
GEOG 412	Physical Climatology (MATH 241, GEOG 220, and GEOG 271 required)	4
GEOG 372	Introduction to GIS	3
GEOG 421	Environmental and Applied Geology	3
MATH 201	Introduction to Statistical Methods I	3
MATH 202	Introduction to Statistical Methods II	3
MATH 221	Calculus I	3
MATH 241	Analytic Geometry and Calculus A	4
POSC 300	Research Methods for Political Science	3
STAT 470	Introduction to Statistical Analysis I	3
STAT 471	Introduction to Statistical Analysis II	3
STAT 408	Statistical Research Methods I	3
STAT 475/ENSC 475	Environmental Statistics	3

Social Science – choose 24 credits from list below:

APEC 324	Introduction to Resource Economics	3
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**Revised**  
**DEGREE: BACHELOR OF SCIENCE**  
**MAJOR: ENERGY and ENVIRONMENTAL POLICY**

Curriculum	Credits
POSC 301	3
POSC 311	3
POSC 316	3
STAT 470	3
STAT 471	3
UAPP 325	3
UAPP 410	3
UAPP 419	3
UAPP 427	3
UAPP 440	3
Foreign Language (up to 8 credits)	8

**Energy, Environment and Society Concentration:**

Advanced Course Requirements (ACR)

12 credits to be completed as follows:

ENEP 426	Climate Change Policy	3
POSC 350 or ENEP 410	Politics and the Environment Environmental Sustainability: Economic and Policy Analysis	3
APEC 343/ECON 343	Environmental Economics	3
ECON 300	Intermediate Microeconomic Theory	3

Advanced Course Electives (ACE)

Science/Methods – choose 12 credits from list below:

BISC 321	Environmental Biology	3
CIEG 402	Introduction to Sustainability Principles in Civil Engineering	3
ECON 422	Econometric Methods & Models I	3
ENEP 420	Water Resources Management	3
ENWC 201	Wildlife Conservation and Ecology	3
ENWC 325	Wildlife Management	3
ENWC 456	Conservation Biology	3
GEOG 271	Introduction to Geographic Data Analysis	3
GEOG 412	Physical Climatology (MATH 241, GEOG 220, and GEOG 271 required)	4
GEOG 372	Introduction to GIS	3
GEOG 421	Environmental and Applied Geology	3
MATH 201	Introduction to Statistical Methods I	3
MATH 202	Introduction to Statistical Methods II	3
MATH 221	Calculus I	3
MATH 241	Analytic Geometry and Calculus A	4
POSC 300	Research Methods for Political Science	3
STAT 200	Elementary Statistics	4
STAT 470	Introduction to Statistical Analysis I (MATH 222 or MATH 242 required)	3
STAT 471	Introduction to Statistical Analysis II (MATH 222 or MATH 242 required)	3
STAT 408	Experimental Methods I	3
STAT 475/ENSC 475	Environmental Statistics	3

Social Science – choose 24 credits from list below:

APEC 324	Introduction to Resource Economics	3
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Commented [JB6]: Adds STAT 200 as an option.

**Current**  
**DEGREE: BACHELOR OF SCIENCE**  
**MAJOR: ENERGY and ENVIRONMENTAL POLICY**

Curriculum	Credits	
APEC 406	Agricultural and Natural Resource Policy	3
APEC 424	Resource Economics	3
APEC 450	Topics in Environmental Law	3
ECON 444/APEC 444	Economics of Environmental Management	3
ENEP 402	Electricity Policy and Planning	3
ENEP 413/ENWC 413	Wildlife Policy and Administration	3
ENEP 468	RESEARCH in Energy and Environment	3
ENEP 470	READINGS in Energy and Environment	3
GEOG 434/UAPP 406	Plan Sustainable Communities & Regions	3
GEOL 112	Earth Resources and Public Policy	3
GEOL 304	Earth System Science	4
HIST 223	Nature and History	3
PHIL 340	Cross Cultural Environmental Ethics	3
PHIL 448	Environmental Ethics	3
POSC 311	Politics of Developing Nations	3
POSC 316	International Political Economy	3
SOCI 331	World Population, Profiles and Trends	3
SOCI 470	Environmental Sociology	3
SOCI 471	Disasters, Vulnerability and Development	3
UAPP 325	Public Policy Analysis	3
UAPP 427	Evaluating Public Policy	3
UAPP 456	Politics and Disaster	3
Foreign Language (up to 8 credits)		8

**Energy, Science and Technology Concentration:**

**Advanced Curricular Required Courses**

CHEM 103	General Chemistry	4
ECON 300	Intermediate Microeconomic Theory	3
ENEP 426	Climate Change: Science, Policy and Political Economy	3
MATH 241	Analytic Geometry and Calculus A	4
PHYS 201	Introductory Physics I	4

**Advanced Curriculum Elective Courses**

Choose 30 credits from the advanced curriculum elective course list below.

BUAD 301	Introduction to Marketing	3
BUAD 472	Marketing, Society and the Environment (Prerequisite BUAD 301)	3
CHEM 104	General Chemistry II	4
CIEG 402	Introduction to Sustainability Principles in Civil Engineering	3
ECON 311	Economics of Developing Countries	3
ELEG 415/ELEG 615	Electric Power and Renewable Energy Systems	3
ELEG 491	Ethics/Impacts of Engineering	3
ENEP 324	Water Resources Management	3
ENEP 402	Electricity Policy and Planning	3
ENEP 410	Environmental Sustainability: Economic and Policy Analysis	3
ENEP 413/ENWC 413	Wildlife Policy and Administration	3
ENEP 468	RESEARCH in Energy and Environment	3
ENEP 470	READINGS in Energy and Environment	3
APEC	Environmental Economics	3

**Revised**  
**DEGREE: BACHELOR OF SCIENCE**  
**MAJOR: ENERGY and ENVIRONMENTAL POLICY**

Curriculum	Credits	
APEC 406	Agricultural and Natural Resource Policy	3
APEC 424	Resource Economics	3
APEC 450	Topics in Environmental Law	3
APEC 444/ECON 444	Economics of Environmental Management	3
ENEP 366	Independent Study	1-3
ENEP 402	Electricity Policy and Planning	3
ENEP 413/ENWC 413	Wildlife Policy and Administration	3
ENEP 468	RESEARCH in Energy and Environment	3
ENEP 470	READINGS in Energy and Environment	3
ENGL 365	Studies in Literary Genres, Types and Movements: ENVIRONMENTAL NON-FICTION	3
GEOG 434/UAPP 406	Plan Sustainable Communities & Regions	3
HIST 223	Nature and History	3
PHIL 448	Environmental Ethics	3
POSC 311	Politics of Developing Nations	3
POSC 316	International Political Economy	3
SOCI 470	Environmental Sociology	3
SOCI 471	Disasters, Vulnerability and Development	3
UAPP 325	Public Policy Analysis	3
UAPP 427	Evaluating Public Policy	3
Foreign Language (up to 8 credits)		8

**Energy, Science and Technology Concentration:**

**Advanced Course Requirements (ACR)**

CHEM 103	General Chemistry	4
ECON 300	Intermediate Microeconomic Theory	3
ENEP 426	Climate Change Policy	3
MATH 241	Analytic Geometry and Calculus A	4
PHYS 201	Introductory Physics I	4

**Advanced Course Electives (ACE)**

Choose 30 credits from the advanced course elective list below.

BUAD 301	Introduction to Marketing	3
BUAD 472	Marketing, Society and the Environment (Prerequisite BUAD 301)	3
CHEM 104	General Chemistry II	4
CIEG 402	Introduction to Sustainability Principles in Civil Engineering	3
ECON 311	Economics of Developing Countries	3
ELEG 415/ELEG 615	Electric Power and Renewable Energy Systems	3
ELEG 491	Ethics/Impacts of Engineering	3
ENEP 420	Water Resources Management	3
ENEP 366	Independent Study	1-3
ENEP 402	Electricity Policy and Planning	3
ENEP 410	Environmental Sustainability: Economic and Policy Analysis	3
ENEP 413/ENWC 413	Wildlife Policy and Administration	3
ENEP 468	RESEARCH in Energy and Environment	3
ENEP 470	READINGS in Energy and Environment	3
APEC	Environmental Economics	3

**Current**  
**DEGREE: BACHELOR OF SCIENCE**  
**MAJOR: ENERGY and ENVIRONMENTAL POLICY**

Curriculum	Credits
343/ECON 343	
GEOG 250 Computer Methods in Geography (MATH 115 or MATH 117 required)	4
GEOL 421 Environmental and Applied Geology	3
GEOG 372 Introduction to GIS	3
GEOG 412 Physical Climatology (Prerequisite: MATH 241, GEOG 220, and GEOG 271)	4
GEOG 434/UAPP 406 Plan Sustainable Communities & Regions	3
MATH 115 Pre-Calculus	3
MATH 117 Pre-Calculus for Scientists & Engineers	4
MATH 221 Calculus I	3
MATH 242 Analytic Geometry and Calculus B (MATH 241 required)	4
MEEG 435 Wind Power Engineering	3
MEEG 442 Introduction to Fuel Cells	3
PHIL 340 Cross Cultural Environmental Ethics	3
POSC 350 Politics and the Environment	3
STAT 470 Introduction to Statistical Analysis I	3
STAT 471 Introduction to Statistical Analysis II	3
UAPP 325 Public Policy Analysis	3
UAPP 427 Evaluating Public Policy	3
Foreign Language (up to 8 credits)	8

**Electives**  
 After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

**TOTAL CREDITS NEEDED TO GRADUATE**      **125 credits**

**Revised**  
**DEGREE: BACHELOR OF SCIENCE**  
**MAJOR: ENERGY and ENVIRONMENTAL POLICY**

Curriculum	Credits
343/ECON 343	
<b>GEOG 271 Introduction to Geographic Data Analysis</b>	<b>3</b>
GEOL 421 Environmental and Applied Geology	3
GEOG 372 Introduction to GIS	3
GEOG 412 Physical Climatology (Prerequisite: MATH 241, GEOG 220, and GEOG 271)	4
GEOG 434/UAPP 406 Plan Sustainable Communities & Regions	3
MATH 242 Analytic Geometry and Calculus B (MATH 241 required)	4
MEEG 435 Wind Power Engineering	3
MEEG 442 Introduction to Fuel Cells	3
POSC 350 Politics and the Environment	3
STAT 470 Introduction to Statistical Analysis I (MATH 222 or MATH 242 required)	3
STAT 471 Introduction to Statistical Analysis II (MATH 222 or MATH 242 required)	3
UAPP 325 Public Policy Analysis	3
UAPP 427 Evaluating Public Policy	3
Foreign Language (up to 8 credits)	8

**Electives**  
 After required courses are completed, sufficient elective credits must be taken to meet the minimum credit requirement for the degree.

**TOTAL CREDITS NEEDED TO GRADUATE**      **125 credits**

The Current Curriculum as it appears in the Catalog is shown on the following pages:

## Appendix A

# Clarification of Breadth Requirements



**From:** [Shermeyer, Frederick C.](#)  
**To:** [Byrne, John Michael](#); [Looby, Gwendolyn Perrotti](#)  
**Cc:** [Shermeyer, Frederick C.](#)  
**Subject:** ENEP-BS Breadth Requirements Confirmation

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**Date:** Monday, March 31, 2014 8:45:44 AM

Hello JB,

Per your request, I am writing to confirm that while the Center for Energy and Environmental Policy was in the College of Engineering and the ENEP-BS degree was administered there, the degree required and the College accepted Breadth Requirements that were established to follow and, therefore, to fulfill the College of Arts and Sciences breadth requirement.

Best regards,

Chuck

*F. Charles "Chuck" Shermeyer, M.S.*

Assistant Dean for Undergraduate Advisement

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eg-advisement@udel.edu

**ROUTING AND AUTHORIZATION:** (Please do not remove supporting documentation.)

Department Chairperson \_\_\_\_\_ Date \_\_\_\_\_

Dean of College \_\_\_\_\_ Date \_\_\_\_\_

Chairperson, College Curriculum Committee \_\_\_\_\_ Date \_\_\_\_\_

Chairperson, Senate Com. on UG or GR Studies \_\_\_\_\_ Date \_\_\_\_\_

Chairperson, Senate Coordinating Com. \_\_\_\_\_ Date \_\_\_\_\_

Secretary, Faculty Senate \_\_\_\_\_ Date \_\_\_\_\_

Date of Senate Resolution \_\_\_\_\_ Date to be Effective \_\_\_\_\_

Registrar \_\_\_\_\_ Program Code \_\_\_\_\_ Date \_\_\_\_\_

Vice Provost for Academic Affairs & International Programs \_\_\_\_\_ Date \_\_\_\_\_

Provost \_\_\_\_\_ Date \_\_\_\_\_

Board of Trustee Notification \_\_\_\_\_ Date \_\_\_\_\_

Revised 02/09/2009 /khs

