

# ENERGY ANALYSIS AND POLICY, GRADUATE/ PROFESSIONAL CERTIFICATE

The Energy Analysis and Policy certificate (EAP) provides students with the opportunity to customize their graduate experience, adding energy training to any graduate degree program offered at the University of Wisconsin–Madison. Graduate students can complete the EAP certificate by selecting courses that meet both their degree and EAP requirements. As such, most students can add EAP onto a degree without any additional time or cost. PhD students may use the EAP certificate to fulfill their doctoral breadth requirement (<https://policy.wisc.edu/library/UW-1200/>), though in this case courses may not be double-counted for major requirements. Many prospects choose UW–Madison specifically to participate in the EAP program, while others join EAP upon learning about it after matriculation.

Since its formation in 1980, EAP has provided students with the skills and knowledge needed by professionals in government, energy companies, consulting firms, and other organizations. EAP draws students from across campus. Particularly large student groups from public policy, environmental studies, engineering, and urban planning pursue the certificate because of the program's interdisciplinary curriculum which considers a wide range of technical, economic, political, and social factors that shape energy policy formulation and decision-making.

## ADMISSIONS

EAP welcomes applications from students in any graduate degree program at UW–Madison that allows students to pursue a certificate. Students may apply to the EAP program concurrently with their graduate school application or once they have matriculated at UW–Madison. Acceptance into EAP is contingent on enrollment in a graduate degree program.

While there are no prerequisites to the program, it is recommended that EAP applicants have completed at least one college-level course in each of the following five subject areas: physical science (physics or chemistry); natural science (biology, environmental, geology or atmospheric and oceanic); economics; social sciences or humanities (besides economics); and calculus or statistics.

## HOW TO APPLY

To declare the certificate, students must first complete the online Energy Analysis and Policy (EAP) application form (<https://go.wisc.edu/EAP-apply/>), which includes the following elements:

1. Information on prior educational attainment
2. Information on degree program being pursued
3. A brief statement of interest in the EAP program
4. For prospective students applying to the Environment and Resources MS or PhD programs, the EAP application provides a matching service with potential thesis advisors.

All Graduate School students must utilize the Graduate Student Portal in MyUW to add, change, or discontinue any doctoral minor or graduate/

professional certificate. Once your application has been accepted and you have enrolled in a graduate degree program, to add the certificate you must log in to MyUW, click on Graduate Student Portal, and then click on Add/Change Programs. Select the information for the Energy Analysis and Policy certificate.

## DEADLINES

Applications to EAP may be submitted at any time, but applicants are encouraged to apply before the end of their first year in graduate school to ensure timely completion of certificate requirements. Students may take courses that meet certificate requirements prior to completing their application.

## REQUIREMENTS

Each EAP student must complete five courses (13 credits), including an introductory course, a capstone course, a professional skills seminar, and one course from each of two categories: *Energy Analysis* and *Energy Policy*. Courses in the *Energy Analysis* category involve quantitative analysis of the technical and economic factors that shape society's use of energy resources. Courses in the *Energy Policy* category involve the social, political, and environmental factors that underly decision-making around energy choices.

Some courses listed in the *Energy Analysis* category may have some overlap with the *Energy Policy* category, and vice versa. Students who wish to use a course for the opposite category that it is listed in should submit a written request to the EAP Academic Coordinator or Faculty Chair. Students should provide a course syllabus and a written justification for why the course should qualify for the other category in the context of their overall course of study, with the EAP Chair making the final decision on whether to accept the request.

The following courses are offered regularly, though other courses (with approval by the EAP faculty program committee) may fulfill one of the requirements below (see note under Other Qualifying Courses (p. 2)).

Code	Title	Credits
<b>Required Courses</b>		
ENVIR ST/ PUB AFFR/ URB R PL 809	Introduction to Energy Analysis and Policy	3
ENVIR ST/ PUB AFFR/ URB R PL 810	Energy Analysis and Policy Capstone	3
<b>Seminar</b>		
ENVIR ST 909	Professional Skills in Energy Analysis and Policy	1
or		
ENVIR ST 900	Seminar (Topic: Prof Skills in Energy Analysis and Policy)	
<b>Energy Analysis</b>		
Choose one of the following:		
A A E/ECON 371	Energy, Resources and Economics	3
A A E/ENVIR ST/ POP HLTH/ PUB AFFR 881	Benefit-Cost Analysis	

AGROECOL/ AGRONOMY/ ENVIR ST 724	Agroecosystems and Global Change
ENVIR ST/ A A E/ECON/ URB R PL 671	Energy Economics
BSE 460	Biorefining: Energy and Products from Renewable Resources
CBE 512	Energy Technologies and Sustainability
CIV ENGR/ G L E 421	Environmental Sustainability Engineering
CIV ENGR/ G L E 535	Wind Energy Balance-of-Plant Design
E C E 356	Electric Power Processing for Alternative Energy Systems
E C E 427	Electric Power Systems
ENVIR ST/ BSE 367	Renewable Energy Systems
E P D 731	Energy Efficiency in Buildings
M E 466	Air Pollution Effects, Measurements and Control
or CIV ENGR 42	Air Pollution Effects, Measurement and Control
M E 469	Internal Combustion Engines
M E/CBE 567	Solar Energy Technology
N E 571	Economic and Environmental Aspects of Nuclear Energy

**Energy Policy 3**

Choose one of the following:

ENVIR ST 349	Climate Change Governance
ENVIR ST/ ATM OCN 355	Introduction to Air Quality
ENVIR ST/ GEOG 439	US Environmental Policy and Regulation
ENVIR ST/ ECON/POLI SCI/ URB R PL 449	Government and Natural Resources
ENVIR ST/ POP HLTH 471	Introduction to Environmental Health
ENVIR ST/ POP HLTH 502	Air Pollution and Human Health
ENVIR ST/ POP HLTH 739	Climate Change, Human and Planetary Health <sup>1</sup>
ENVIR ST/ POLI SCI/ PUB AFFR 866	Global Environmental Governance
GEOSCI/ ENVIR ST 411	Energy Resources
LAW 848	Introduction to Environmental Law
POP HLTH/ M&ENVTOX 789	Principles of Environmental Health: A Systems Thinking Approach
URB R PL 551	Climate Action Planning: Sustainable Transportation

**Total Credits****13****1**

Because this is a 2-credit course, students selecting this course option are required to take an additional 1-credit course in consultation with the certificate coordinator.

## OTHER QUALIFYING COURSES

Because the scheduling of the preceding courses is coordinated with the needs of their home departments, EAP cannot guarantee that specific courses will always be offered at specific times or rotations. Each semester, the EAP program faculty will consider other qualifying courses for the upcoming semester that fulfill one of the categories above. Once approved, the EAP Academic Coordinator will distribute a list of course offerings for the upcoming semester to students in the EAP program.

## COURSE SUBSTITUTIONS

Students may propose course substitutions by contacting the Academic Coordinator or the Faculty Chair. The EAP Chair makes the final decision. Students should provide a course syllabus and a letter of endorsement from the faculty member teaching the course, preferably before the start of the course. The substitution proposal will be considered based upon the following criteria:

1. the extent to which the course content is devoted to energy
2. the rigor of methodology applied to the course material
3. the context of the class with respect to the student's study plan

## LEARNING OUTCOMES

1. Demonstrate an awareness of the variety of energy sources and energy conversion technologies and master the language and scientific basis required to engage in the analysis of energy topics.
2. Analyze and compare the sustainability of different energy sources/ technologies from the perspective of engineering, economics, environmental impacts, and security of supply.
3. Demonstrate an awareness of the socio-political institutions that govern the energy industry and the societal and social justice impacts of energy policies.
4. Prepare for energy-related career pathways in industry, government, academia, NGOs, regulatory agencies and energy consulting. Gain experience by participating in "real-life" projects for actual clients in multidisciplinary student groups.

## PEOPLE

**For up-to-date contact information of EAP faculty and staff, visit** [eap.wisc.edu/faculty/](https://eap.wisc.edu/faculty/) (<https://eap.wisc.edu/faculty/>)

## EAP FACULTY PROGRAM COMMITTEE

Tracey Holloway (Certificate Chairperson), Morgan Edwards, Bernard Lesieutre, Ben Lindley, Gregory Nemet, Jonathan Patz, Brad Pierce, Scott Williams, Paul Wilson, Anna Gade (Ex Officio)

## EAP FACULTY AFFILIATES

Rob Anex, Vicki Bier, Michael Cardiff, Xiaodong Du, Michael Ferris, Alyson Fleming, Holly Gibbs, Ruth Goldstein, Thomas Grist, Andrea Hicks, Sarah

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## **EAP PROGRAM STAFF**

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