

ENVIRONMENTAL STUDIES, CERTIFICATE

WHY CHOOSE AN ENVIRONMENTAL STUDIES CERTIFICATE?

The Environmental Studies Certificate Program allows undergraduate students at UW–Madison to explore the environmental intersections that complement their major, but with fewer curricular requirements than the major. Students completing the certificate also benefit from participation in the Nelson academic community and gain invaluable access to a network of multidisciplinary problem-solving colleagues. The certificate program is available only to UW–Madison students pursuing a bachelor's degree through the university's regular academic departments.

Completion of the certificate program is noted on a student's academic transcript.

Students who earn an environmental studies certificate may **not** earn the environmental studies major or the sustainability certificate.

HOW TO GET IN

HOW TO DECLARE

Students interested in declaring the environmental studies certificate can email undergrad@nelson.wisc.edu or request a declaration appointment. Information about declaring the certificate can be found at undergraduate advising (<https://nelson.wisc.edu/undergraduate/advising.php>).

Students who earn an environmental studies certificate may **not** earn the environmental studies major or the sustainability certificate or the organic agriculture certificate.

REQUIREMENTS

REQUIREMENTS FOR THE CERTIFICATE

Students are required to take five courses/15 credits to include two courses in the Foundation section and three courses in the thematic areas. A minimum of 6 credits overall must be at the intermediate or advanced level (I/A/D). A minimum of 8 credits must be taken in residence. A minimum GPA of 2.0 is required in certificate courses.

ENVIRONMENTAL HUMANITIES/SOCIAL SCIENCE (TAKE ONE COURSE)

Code	Title	Credits
ENVIR ST 112	Environmental Studies: Social Science Perspectives	3
ENVIR ST 113	Environmental Studies: Environmental Humanities	3
ENVIR ST/HIST SCI/HISTORY 125	Green Screen: Environmental Perspectives through Film	3
ENVIR ST/GEOG 139	Global Environmental Issues	3
SOC/C&E SOC 140	Introduction to Community and Environmental Sociology	4

ENVIR ST/A A E 244	The Environment and the Global Economy	4
SOC/C&E SOC/F&W ECOL 248	Environment, Natural Resources, and Society	3
ENVIR ST/RELIG ST 270	The Environment: Religion & Ethics	3-4
ENVIR ST/GEOG 339	Environmental Conservation	4
ENVIR ST/GEOG/HISTORY 460	American Environmental History	4
ENVIR ST/HISTORY 465	Global Environmental History	3-4

ENVIRONMENTAL PHYSICAL SCIENCE/ECOLOGY (TAKE ONE COURSE)

Code	Title	Credits
ATM OCN 100	Weather and Climate	3
ATM OCN 101	Weather and Climate	4
ENVIR ST/GEOSCI 106	Environmental Geology	3
GEOSCI 110	Evolution and Extinction	4
PHYSICS 115	Energy	3
ENVIR ST/GEOG 120	Introduction to the Earth System	3
ENVIR ST/ILS 126	Principles of Environmental Science	4
ENVIR ST/GEOG 127	Physical Systems of the Environment	5
ATM OCN/SOIL SCI 132	Earth's Water. Natural Science and Human Use	3
ENVIR ST/GEOG/SOIL SCI 230	Soil: Ecosystem and Resource	3
BOTANY 240	Plants and Humans	3
ENVIR ST 250	Introduction to Sustainability Science	3
ENVIR ST 251	Ecology and the Global Environment	3
ENVIR ST/BOTANY/ZOOLOGY 260	Introductory Ecology	3
SOIL SCI 301	General Soil Science	4
ENVIR ST/ATM OCN/GEOG/GEOSCI 335	Climatic Environments of the Past	3
ENVIR ST/ATM OCN/GEOG 332	Global Warming: Science and Impacts	3
F&W ECOL 401	Physiological Animal Ecology	3
ENVIR ST 413	Preserving Nature	3
F&W ECOL/BOTANY/ZOOLOGY 460	General Ecology	4
F&W ECOL 550	Forest Ecology	3

THEME

- Students are required to take three courses (min 9 cr.) from the thematic areas listed below.
- Courses may be concentrated in one area or taken in multiple areas.
- Courses taken in the thematic areas cannot also be used in foundation.

Note: Nelson Institute topic numbers (ENVIR ST 400, ENVIR ST 401, ENVIR ST 402, ENVIR ST 404) all count in the theme portion of the

curriculum. Because of the changing nature and titles of topics courses, they are not listed individually under the section headings.

BIODIVERSITY

Code	Title	Credits
ENVIR ST/ F&W ECOL 100	Forests of the World	3
F&W ECOL 110	Living with Wildlife - Animals, Habitats, and Human Interactions	3
GEOSCI 110	Evolution and Extinction	4
BIOCORE 181	Becoming a Scientist: Doing Biology Research	2
ENVIR ST/ ENTOM 201	Insects and Human Culture-a Survey Course in Entomology	3
BOTANY 240	Plants and Humans	3
ENVIR ST 251	Ecology and the Global Environment	3
ENVIR ST/BOTANY/ ZOOLOGY 260	Introductory Ecology	3
ENTOM/ ZOOLOGY 302	Introduction to Entomology	4
GEOG/BOTANY 338	Environmental Biogeography	3
ENVIR ST/ F&W ECOL/ ZOOLOGY 360	Extinction of Species	3
ENVIR ST/ LAND ARC 361	Wetlands Ecology	3
SOIL SCI/ AGRONOMY/ BOTANY 370	Grassland Ecology	3
ENVIR ST 375	Field Ecology Workshop	3
BOTANY 401	Vascular Flora of Wisconsin	4
F&W ECOL 401	Physiological Animal Ecology	3
BOTANY/ANTHRO/ ZOOLOGY 410	Evolutionary Biology	3
ENVIR ST 413	Preserving Nature	3
BOTANY 422	Plant Geography	3
ENVIR ST/C&E SOC/ GEOG 434	People, Wildlife and Landscapes	3
BOTANY/ ZOOLOGY 450	Midwestern Ecological Issues: A Case Study Approach	2
BOTANY/ F&W ECOL 455	The Vegetation of Wisconsin	4
BOTANY/F&W ECOL/ ZOOLOGY 460	General Ecology	4
AN SCI/F&W ECOL/ ZOOLOGY 520	Ornithology	3
AN SCI/F&W ECOL/ ZOOLOGY 521	Birds of Southern Wisconsin	3
ATM OCN/ AGRONOMY/ SOIL SCI 532	Environmental Biophysics	3
GEOG 538	The Humid Tropics: Ecology, Subsistence, and Development	4
F&W ECOL/ SURG SCI 548	Diseases of Wildlife	3
F&W ECOL 550	Forest Ecology	3

F&W ECOL 551	Forest Ecology Lab	1
AGRONOMY/ ENTOM/F&W ECOL/ M&ENVTOX 634	Ecotoxicology: Impacts on Populations, Communities and Ecosystems	1
ENVIR ST/BOTANY/ F&W ECOL/ ZOOLOGY 651	Conservation Biology	3
BOTANY/F&W ECOL/ ZOOLOGY 672	Historical Ecology	2

CLIMATE

Code	Title	Credits
ATM OCN 100	Weather and Climate	3
ATM OCN 101	Weather and Climate	4
ENVIR ST/ATM OCN/ GEOSCI 102	Climate and Climate Change	3
ENVIR ST/ ATM OCN 171	Global Change: Atmospheric Issues and Problems	2-3
SOIL SCI 211	Soils and Climate Change	2
A A E 246	Climate Change Economics and Policy	3
ENVIR ST/ATM OCN/ GEOG 322	Polar Regions and Their Importance in the Global Environment	3
ENVIR ST/ATM OCN/ GEOG/GEOSCI 335	Climatic Environments of the Past	3
ENVIR ST/ATM OCN/ GEOG 332	Global Warming: Science and Impacts	3
ENVIR ST 349	Climate Change Governance	3
ENVIR ST/ ATM OCN 355	Introduction to Air Quality	3
GEOG/GEOSCI 420	Glacial and Pleistocene Geology	3
ATM OCN 425	Global Climate Processes	3
M E 466	Air Pollution Effects, Measurements and Control	3
ENVIR ST/ PHYSICS 472	Scientific Background to Global Environmental Problems	3
ENVIR ST/ ATM OCN 520	Bioclimatology	3
ATM OCN 522	Tropical Meteorology	3
GEOG 523	Advanced Paleoecology: Species Responses to Past Environmental Change	3
ENVIR ST/ATM OCN/ GEOG 528	Past Climates and Climatic Change	3
ENVIR ST/ ATM OCN 535	Atmospheric Dispersion and Air Pollution	3

ENERGY

Code	Title	Credits
PHYSICS 115	Energy	3
E C E 356	Electric Power Processing for Alternative Energy Systems	3
ENVIR ST/BSE 367	Renewable Energy Systems	3
A A E/ECON 371	Energy, Resources and Economics	3
ENVIR ST/ GEOSCI 411	Energy Resources	3

BSE 460	Biorefining: Energy and Products from Renewable Resources	3	POP HLTH 370	Introduction to Public Health: Local to Global Perspectives	3
M E 461	Thermal Systems Modeling	3	CIV ENGR 422	Elements of Public Health Engineering	3
M E 466	Air Pollution Effects, Measurements and Control	3	CIV ENGR 423	Air Pollution Effects, Measurement and Control	3
CIV ENGR/G L E 535	Wind Energy Balance-of-Plant Design	3	SOIL SCI 430	Environmental Soil Contamination	3
ENVIR ST/ ATM OCN 535	Atmospheric Dispersion and Air Pollution	3	M E 466	Air Pollution Effects, Measurements and Control	3
ENVIR ST/A A E/ CIV ENGR/ URB R PL 561	Energy Markets	3	ENVIR ST/ POP HLTH 471	Introduction to Environmental Health	3
ENVIR ST/A A E/ ECON/URB R PL 671	Energy Economics	3	ENVIR ST/ POP HLTH 502	Air Pollution and Human Health	3

FOOD AND AGRICULTURE

Code	Title	Credits	Code	Title	Credits
ENVIR ST/ AGROECOL/ AGRONOMY/ C&E SOC/ ENTOM 103	Agroecology: An Introduction to the Ecology of Food and Agriculture	3	POP HLTH/HIST SCI/ MED HIST 553	International Health and Global Society	3
ENVIR ST 117	GreenHouse Roots Seminar	1	ENVIR ST/ POP HLTH 560	Health Impact Assessment of Global Environmental Change	3
FOOD SCI 120	Science of Food	3	CIV ENGR/ M&ENVTOX/ SOIL SCI 631	Toxicants in the Environment: Sources, Distribution, Fate, & Effects	3
NUTR SCI 132	Nutrition Today	3	AGRONOMY/ ENTOM/F&W ECOL/ M&ENVTOX 632	Ecotoxicology: The Chemical Players	1
SOIL SCI 211	Soils and Climate Change	2	AGRONOMY/ ENTOM/F&W ECOL/ M&ENVTOX 633	Ecotoxicology: Impacts on Individuals	1
SOC/C&E SOC 222	Food, Culture, and Society	3	AGRONOMY/ ENTOM/F&W ECOL/ M&ENVTOX 634	Ecotoxicology: Impacts on Populations, Communities and Ecosystems	1
HIST SCI/ C&E SOC 230	Agriculture and Social Change in Western History	3			
AGRONOMY 300	Cropping Systems	3			
ENVIR ST/GEOG 309	People, Land and Food: Comparative Study of Agriculture Systems	3			
C&E SOC/A A E/ SOC 340	Issues in Food Systems	3-4			
MED HIST/ PHILOS 344	Food Ethics	3			
A A E/AGRONOMY/ INTER-AG/ NUTR SCI 350	World Hunger and Malnutrition	3			
CNSR SCI 360	Sustainable and Socially Just Consumption	3			
HORT 370	World Vegetable Crops	3			
AGRONOMY 377	Global Food Production and Health	3			
FOLKLORE 439	Foodways	3			
SOC/C&E SOC 650	Sociology of Agriculture	3			

HEALTH

Code	Title	Credits	Code	Title	Credits
ENVIR ST/ ENTOM 205	Our Planet, Our Health	3	ENVIR ST 112	Environmental Studies: Social Science Perspectives	3
ENVIR ST/ MED HIST 213	Global Environmental Health: An Interdisciplinary Introduction	3	ENVIR ST 113	Environmental Studies: Environmental Humanities	3
A A E/AGRONOMY/ INTER-AG/ NUTR SCI 350	World Hunger and Malnutrition	3	ENVIR ST/HIST SCI/ HISTORY 125	Green Screen: Environmental Perspectives through Film	3
			ENVIR ST/ILS 126	Principles of Environmental Science	4
			ENVIR ST/GEOG 139	Global Environmental Issues	3
			SOC/C&E SOC 140	Introduction to Community and Environmental Sociology	4
			HISTORY/ CHICLA 151	The North American West to 1850	3-4
			HISTORY/ CHICLA 152	The U.S. West Since 1850	3-4
			ENVIR ST/ENGL 153	Literature and the Environment	3
			GNS/ENVIR ST 210	Cultures of Sustainability: Central, Eastern, and Northern Europe	3
			SOC/C&E SOC/ F&W ECOL 248	Environment, Natural Resources, and Society	3
			ENVIR ST/ RELIG ST 270	The Environment: Religion & Ethics	3-4

ENVIR ST/ AMER IND 306	Indigenous Peoples and the Environment	3	ENVIR ST/GEOG 127	Physical Systems of the Environment	5
ENVIR ST 307	Literature of the Environment: Speaking for Nature	3	ENVIR ST/GEOG/ SOIL SCI 230	Soil: Ecosystem and Resource	3
ENVIR ST 308	Outdoors For All: Inequities in Environmentalism	3	SOIL SCI 301	General Soil Science	4
ENVIR ST 317	Community Environmental Scholars Program Seminar	1	GEOG/URB R PL 305	Introduction to the City	3-4
ENVIR ST/ HISTORY 328	Environmental History of Europe	3	A A E/ECON/ REAL EST/ URB R PL 306	The Real Estate Process	3
F&W ECOL/ ZOOLOGY 335	Human/Animal Relationships: Biological and Philosophical Issues	3	ENVIR ST/GEOG 309	People, Land and Food: Comparative Study of Agriculture Systems	3
GEOG/ENVIR ST 337	Nature, Power and Society	3	ENVIR ST/ SOIL SCI 324	Soils and Environmental Quality	3
ENVIR ST/GEOG 339	Environmental Conservation	4	ENVIR ST/GEOG 337	Nature, Power and Society	3
ENVIR ST/ HIST SCI 353	History of Ecology	3	BOTANY/GEOG 338	Environmental Biogeography	3
ENVIR ST/HIST SCI/ RELIG ST 356	Islam, Science & Technology, and the Environment	3-4	ENVIR ST/GEOG 339	Environmental Conservation	4
LAND ARC 360	Earth Partnership Restoration Education: Indigenous Arts & Sciences	1	GEOG 344	Changing Landscapes of the American West	3
ENVIR ST/ HISTORY 369	Thinking through History with Animals	3-4	BSE/DS/ LAND ARC 356	Sustainable Residential Construction	3
AMER IND/ GEOG 410	Critical Indigenous Ecological Knowledges	3	CNSR SCI 360	Sustainable and Socially Just Consumption	3
ENVIR ST/HISTORY/ LEGAL ST 430	Law and Environment: Historical and Contemporary Perspectives	3	F&W ECOL 410	Principles of Silviculture	3
ENVIR ST/ PHILOS 441	Environmental Ethics	3-4	ECON/REAL EST/ URB R PL 420	Urban and Regional Economics	3
LSC/AMER IND 444	Native American Environmental Issues and the Media	3	SOIL SCI 430	Environmental Soil Contamination	3
ENVIR ST/ SPANISH 445	Culture and the Environment in the Luso-Hispanic World	3	ENVIR ST/C&E SOC/ GEOG 434	People, Wildlife and Landscapes	3
ENVIR ST/GEOG/ HISTORY 460	American Environmental History	4	LSC/AMER IND 444	Native American Environmental Issues and the Media	3
ENVIR ST/ HISTORY 465	Global Environmental History	3-4	ENVIR ST/ ECON/POLI SCI/ URB R PL 449	Government and Natural Resources	3-4
ENVIR ST/GEOG/ HISTORY 469	The Making of the American Landscape	4	F&W ECOL/ SOIL SCI 451	Environmental Biogeochemistry	3
ANTHRO 477	Anthropology, Environment, and Development	3	ENVIR ST/GEOG/ HISTORY 460	American Environmental History	4
HISTORY/ AMER IND 490	American Indian History	3-4	LAND ARC/ URB R PL 463	Evolution of American Planning	3
ENGL/ENVIR ST 533	Topic in Literature and the Environment	3	GEOG/URB R PL 505	Urban Spatial Patterns and Theories	3
ENVIR ST/GEOG 537	Culture and Environment	4	ENVIR ST/ F&W ECOL 515	Natural Resources Policy	3
ENVIR ST/GEOG 557	Development and Environment in Southeast Asia	3	ENVIR ST/GEOG 537	Culture and Environment	4
BOTANY/F&W ECOL/ ZOOLOGY 672	Historical Ecology	2	GEOG 538	The Humid Tropics: Ecology, Subsistence, and Development	4

LAND USE

Code	Title	Credits
ENVIR ST/ GEOSCI 106	Environmental Geology	3
ENVIR ST/GEOG 120	Introduction to the Earth System	3

ENVIR ST/BOTANY/ F&W ECOL/ ZOOLOGY 651	Conservation Biology	3
LAND ARC 668	Restoration Ecology	3

LAND ARC 677	Cultural Resource Preservation and Landscape History	3
ENVIR ST/ LAND ARC/ SOIL SCI 695	Applications of Geographic Information Systems in Natural Resources	3

POLICY

Code	Title	Credits
A A E/ENVIR ST 244	The Environment and the Global Economy	4
ENVIR ST 250	Introduction to Sustainability Science	3
POLI SCI 272	Introduction to Public Policy	3-4
ENVIR ST/GEOG 309	People, Land and Food: Comparative Study of Agriculture Systems	3
ENVIR ST/ M H R 310	Challenges & Solutions in Business Sustainability	3
ENVIR ST/GEOG 339	Environmental Conservation	4
ENVIR ST/A A E/ ECON 343	Environmental Economics	3-4
ENVIR ST/ AMER IND/ GEOG 345	Managing Nature in Native North America	3
ENVIR ST 349	Climate Change Governance	3
BSE/DS/ LAND ARC 356	Sustainable Residential Construction	3
ENVIR ST/ PL PATH 368	Environmental Law, Toxic Substances, and Conservation	2
OTM 370	Sustainable Approaches to System Improvement	3
CURRIC/C&E SOC/ ENVIR ST 405	Education for Sustainable Communities	3
F&W ECOL 410	Principles of Silviculture	3
ENVIR ST 417	Sustainability Science, Technology and Policy	1
ENVIR ST/HISTORY/ LEGAL ST 430	Law and Environment: Historical and Contemporary Perspectives	3
ENVIR ST/GEOG 439	US Environmental Policy and Regulation	3-4
LSC/AMER IND 444	Native American Environmental Issues and the Media	3
ENVIR ST/ ECON/POLI SCI/ URB R PL 449	Government and Natural Resources	3-4
M E 466	Air Pollution Effects, Measurements and Control	3
ENVIR ST/ F&W ECOL 515	Natural Resources Policy	3
CIV ENGR 522	Hazardous Waste Management	3
ENVIR ST/ PHILOS 523	Philosophical Problems of the Biological Sciences	3
ECON/A A E/ F&W ECOL 531	Natural Resource Economics	3
ENVIR ST/GEOG 534	Environmental Governance: Markets, States and Nature	3

ENVIR ST/C&E SOC/ SOC 540	Sociology of International Development, Environment, and Sustainability	3
SOC/C&E SOC 541	Environmental Stewardship and Social Justice	3
ENVIR ST/GEOG 557	Development and Environment in Southeast Asia	3
SOC/C&E SOC 573	Community Organization and Change	3
SOIL SCI/CIV ENGR/ M&ENVTOX 631	Toxicants in the Environment: Sources, Distribution, Fate, & Effects	3
R M I 650	Sustainability, Environmental and Social Risk Management	3
SOC/ECON 663	Population and Society	3
ENVIR ST/ URB R PL 668	Green Politics: Global Experience, American Prospects	3

SPATIAL ANALYSIS

Code	Title	Credits
ENVIR ST/ F&W ECOL/G L E/ GEOG/GEOSCI/ LAND ARC 371	Introduction to Environmental Remote Sensing	3
GEOG/CIV ENGR/ ENVIR ST 377	An Introduction to Geographic Information Systems	4
GEOSCI/CIV ENGR/ ENVIR ST/G L E 444	Practical Applications of GPS Surveying	2
GEOG/URB R PL 505	Urban Spatial Patterns and Theories	3
ENVIR ST/GEOG/ LAND ARC/ URB R PL 532	Applications of Geographic Information Systems in Planning	3
ENVIR ST/ LAND ARC/ SOIL SCI 695	Applications of Geographic Information Systems in Natural Resources	3

WATER

Code	Title	Credits
ATM OCN/ GEOSCI 105	Survey of Oceanography	3-4
ATM OCN/ SOIL SCI 132	Earth's Water: Natural Science and Human Use	3
CIV ENGR 311	Hydroscience	3
ENVIR ST/ ZOOLOGY 315	Limnology-Conservation of Aquatic Resources	2
ZOOLOGY 316	Laboratory for Limnology-Conservation of Aquatic Resources	2-3
CIV ENGR 320	Environmental Engineering	3
CIV ENGR 322	Environmental Engineering Processes	3
SOIL SCI 322	Physical Principles of Soil and Water Management	3
ENVIR ST/ LAND ARC 361	Wetlands Ecology	3
BSE 473	Water Management Systems	3
ENVIR ST/ ZOOLOGY 510	Ecology of Fishes	3

ENVIR ST/ ZOOLOGY 511	Ecology of Fishes Lab	2
G L E/GEOSCI 627	Hydrogeology	3-4
G L E/GEOSCI 629	Contaminant Hydrogeology	3

Certificate students may enroll in a capstone course after the majors have enrolled, and the capstone course will be allowed to count in the thematic requirement. Junior standing is required for enrollment.

PASS/FAIL COURSES

Courses taken on a pass/fail basis will not count toward the certificate.

Courses listed under more than one category in the curriculum may be used to satisfy only one category.

CERTIFICATE COMPLETION REQUIREMENT

This undergraduate certificate must be completed concurrently with the student's undergraduate degree. Students cannot delay degree completion to complete the certificate.

LEARNING OUTCOMES

1. Explain the social and historical processes that impact our current environments. Interpret the meanings, values, and aesthetics that are created, shaped, and revealed as humans interact with and modify the environments they inhabit.
2. Explain ecological processes and fundamental principles of environmental sciences relating to humanity's key environmental challenges of the past, present, and future.
3. Apply perspectives and techniques drawn from a coordinate major to develop interdisciplinary responses to environmental questions.
4. Recognize through critical thinking a diversity of viewpoints, ethical commitments, and disciplinary approaches to environmental concerns across various scales from the local to the global.
5. Demonstrate excellent reading, writing, communication, and research skills, both individually and in interdisciplinary teams.

ADVISING AND CAREERS

Environmental studies students are represented in majors across campus and in most undergraduate schools and colleges. Environmental studies certificate students should utilize the career office for their home school as appropriate. All students, not just Letters & Science students, can also benefit from SuccessWorks at the College of Letters & Science.

PEOPLE

A complete list of faculty and staff affiliated with the Nelson Institute is available here. (<http://nelson.wisc.edu/people/>)