

# ENVIRONMENTAL STUDIES, 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 239		3-4
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
ENVIR ST/GEOG/ HISTORY 469	The Making of the American Landscape	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 and Climate	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 251	Ecology and the Global Environment	3
ENVIR ST/ILS 255	Introduction to Sustainability Science	4
ENVIR ST/BOTANY/ ZOOLOGY 260	Introductory Ecology	3
SOIL SCI 301	General Soil Science	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
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.

#### 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	ENVIR ST/ ATM OCN 171	Global Change: Atmospheric Issues and Problems	2-3
SOIL SCI/ AGRONOMY/ BOTANY 370	Grassland Ecology	3	SOIL SCI 211	Soils and Climate Change	2
ENVIR ST 375	Field Ecology Workshop	3	A A E 246	Climate Change Economics and Policy	3
BOTANY 401	Vascular Flora of Wisconsin	4	ED POL 320	Climate Change, Sustainability, and Education	3
F&W ECOL 401	Physiological Animal Ecology	3	ENVIR ST/ ATM OCN/ GEOG 322	Polar Regions and Their Importance in the Global Environment	3
BOTANY/ANTHRO/ ZOOLOGY 410	Evolutionary Biology	3	ENVIR ST/ ATM OCN/GEOG/ GEOSCI 335	Climatic Environments of the Past	3
ENVIR ST 413	Preserving Nature	3	ENVIR ST/ ATM OCN/ GEOG 332	Global Warming: Science and Impacts	3
BOTANY 422	Plant Geography	3	ENVIR ST 349	Climate Change Governance	3
ENVIR ST/C&E SOC/ GEOG 434	People, Wildlife and Landscapes	3	ENVIR ST/ ATM OCN 355	Introduction to Air Quality	3
F&W ECOL 448	Disturbance Ecology	3	GEOG/GEOSCI 420	Glacial and Pleistocene Geology	3
BOTANY/ ZOOLOGY 450	Midwestern Ecological Issues: A Case Study Approach	2	ATM OCN 425	Global Climate Processes	3
BOTANY/ F&W ECOL 455	The Vegetation of Wisconsin	4	M E 466	Air Pollution Effects, Measurements and Control	3
BOTANY/ F&W ECOL/ ZOOLOGY 460	General Ecology	4	ENVIR ST/ PHYSICS 472	Scientific Background to Global Environmental Problems	3
ENTOM 490	Biodiversity and Global Change	3	ENVIR ST/ ATM OCN 520	Bioclimatology	3
AN SCI/F&W ECOL/ ZOOLOGY 520	Ornithology	3	ATM OCN 522	Tropical Meteorology	3
AN SCI/F&W ECOL/ ZOOLOGY 521	Birds of Southern Wisconsin	3	GEOG 523	Advanced Paleoecology: Species Responses to Past Environmental Change	3
ATM OCN/ AGRONOMY/ SOIL SCI 532	Environmental Biophysics	3	ENVIR ST/ ATM OCN/ GEOG 528	Past Climates and Climatic Change	3
GEOG 538	The Humid Tropics: Ecology, Subsistence, and Development	4	ENVIR ST/ ATM OCN 535	Atmospheric Dispersion and Air Pollution	3
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			
ENVIR ST 613	Reproducibility and Open Science in Ecological Research	3			
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

## ENERGY

Code	Title	Credits
PHYSICS 115	Energy and Climate	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
M E 461	Thermal Systems Modeling	3
M E 466	Air Pollution Effects, Measurements and Control	3
CIV ENGR/ G L E 535	Wind Energy Balance-of-Plant Design	3
ENVIR ST/ ATM OCN 535	Atmospheric Dispersion and Air Pollution	3

ENVIR ST/A A E/ CIV ENGR/ URB R PL 561	Energy Markets	3
ENVIR ST/A A E/ ECON/URB R PL 671	Energy Economics	3

## FOOD AND AGRICULTURE

Code	Title	Credits
ENVIR ST/ AGROECOL/ AGRONOMY/ C&E SOC/ ENTOM 103	Agroecology: An Introduction to the Ecology of Food and Agriculture	3
ENVIR ST 117	GreenHouse Roots Seminar	1
FOOD SCI 120	Science of Food	3
NUTR SCI 132	Nutrition Today	3
SOIL SCI 211	Soils and Climate Change	2
SOC/C&E SOC 222	Food, Culture, and Society	3
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
HORT 333	Survey of Controlled Environment Food Production	2
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/ NUTR SCI 350	World Hunger and Malnutrition	3
CNSR SCI 360	Sustainable and Socially Just Consumption	3
HORT 370	World Vegetable Crops	3
HORT/ AGRONOMY 376	Tropical Horticultural Systems	2
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
ENVIR ST/ ENTOM 205	Our Planet, Our Health	3
ENVIR ST/ HIST SCI 213	Global Environmental Health: An Interdisciplinary Introduction	3
A A E/AGRONOMY/ NUTR SCI 350	World Hunger and Malnutrition	3
POP HLTH 370	Introduction to Public Health: Local to Global Perspectives	3
CIV ENGR 422	Elements of Public Health Engineering	3
CIV ENGR 423	Air Pollution Effects, Measurement and Control	3
SOIL SCI 430	Environmental Soil Contamination	3

M E 466	Air Pollution Effects, Measurements and Control	3
ENVIR ST/ POP HLTH 471	Introduction to Environmental Health	3
ENVIR ST/ POP HLTH 502	Air Pollution and Human Health	3
GEN&WS/ INTL ST 535	Women's Global Health and Human Rights	3
POP HLTH/ HIST SCI/ MED HIST 553	International Health and Global Society	3
CIV ENGR/ M&ENVTOX/ SOIL SCI 631	Toxicants in the Environment: Sources, Distribution, Fate, & Effects	3
AGRONOMY/ ENTOM/F&W ECOL/ M&ENVTOX 632	Ecotoxicology: The Chemical Players	1
AGRONOMY/ ENTOM/F&W ECOL/ M&ENVTOX 633	Ecotoxicology: Impacts on Individuals	1
AGRONOMY/ ENTOM/F&W ECOL/ M&ENVTOX 634	Ecotoxicology: Impacts on Populations, Communities and Ecosystems	1

## HISTORY, CULTURE, SOCIETY

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/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
HISTORY/ AMER IND 190	Introduction to American Indian History	3-4
GNS/ENVIR ST 210	Cultures of Sustainability: Central, Eastern, and Northern Europe	3
ENVIR ST 239		3-4
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/ ENGL 305	Rhetoric, Science, and Public Engagement	3
ENVIR ST/ AMER IND 306	Indigenous Peoples and the Environment	3
ENVIR ST 307	Literature of the Environment: Speaking for Nature	3

ENVIR ST 308	Outdoors For All: Inequities in Environmentalism	3
ENVIR ST 317	Community Environmental Scholars Program Seminar	1
ED POL 320	Climate Change, Sustainability, and Education	3
ENVIR ST/ HISTORY 328	Environmental History of Europe	3
F&W ECOL/ ZOOLOGY 335	Human/Animal Relationships: Biological and Philosophical Issues	3
GEOG/ ENVIR ST 337	Nature, Power and Society	3
ENVIR ST/ GEOG 339	Environmental Conservation	4
ENVIR ST/ AMER IND 341	Indigenous Environmental Communicators	3
ENVIR ST/ HIST SCI 353	History of Ecology	3
ENVIR ST/HIST SCI/ RELIG ST 356	Islam, Science & Technology, and the Environment	3-4
LAND ARC 360	Earth Partnership Restoration Education: Indigenous Arts & Sciences	1
ENVIR ST/ HISTORY 369	Thinking through History with Animals	3-4
AMER IND/ GEOG 410	Critical Indigenous Ecological Knowledges	3
ENVIR ST/HISTORY/ LEGAL ST 430	Law and Environment: Historical and Contemporary Perspectives	3
ENVIR ST/ PHILOS 441	Environmental Ethics	3-4
LSC/AMER IND 444	Native American Environmental Issues and the Media	3
ENVIR ST/ SPANISH 445	Culture and the Environment in the Luso-Hispanic World	3
ENVIR ST/GEOG/ HISTORY 460	American Environmental History	4
ENVIR ST/ HISTORY 465	Global Environmental History	3-4
ENVIR ST/GEOG/ HISTORY 469	The Making of the American Landscape	4
ANTHRO 477	Anthropology, Environment, and Development	3
ENVIR ST/ CLASSICS 488	Greeks, Romans and the Natural Environment	3
ENGL/ ENVIR ST 533	Topic in Literature and the Environment	3
ENVIR ST/ GEOG 537	Culture and Environment	4
ENVIR ST/ GEOG 557	Development and Environment in Southeast Asia	3
BOTANY/ F&W ECOL/ ZOOLOGY 672	Historical Ecology	2

## LAND USE

Code	Title	Credits
ENVIR ST/ GEOSCI 106	Environmental Geology	3
ENVIR ST/ GEOG 120	Introduction to the Earth System	3
ENVIR ST/GEOG 127	Physical Systems of the Environment	5
LAND ARC 211	Shaping the Built Environment	3
ENVIR ST/GEOG/ SOIL SCI 230	Soil: Ecosystem and Resource	3
SOIL SCI 301	General Soil Science	3
SOIL SCI 302	Meet Your Soil: Soil Analysis and Interpretation Laboratory	1
GEOG/ URB R PL 305	Introduction to the City	3-4
A A E/ECON/ REAL EST/ URB R PL 306	The Real Estate Process	3
ENVIR ST/ GEOG 309	People, Land and Food: Comparative Study of Agriculture Systems	3
LAND ARC 311	Introduction to Design Frameworks and Spatial Technologies	2
ENVIR ST/ SOIL SCI 324	Soils and Environmental Quality	3
ENVIR ST/ GEOG 333	Green Urbanism	3
ENVIR ST/ GEOG 337	Nature, Power and Society	3
BOTANY/GEOG 338	Environmental Biogeography	3
ENVIR ST/ GEOG 339	Environmental Conservation	4
GEOG 344	Changing Landscapes of the American West	3
CNSR SCI 360	Sustainable and Socially Just Consumption	3
LAND ARC 380	Plants for Ecological Design I	2
LAND ARC 381	Plants for Ecological Design II	1
F&W ECOL 410	Principles of Silviculture	3
ECON/REAL EST/ URB R PL 420	Urban and Regional Economics	3
SOIL SCI 430	Environmental Soil Contamination	3
ENVIR ST/C&E SOC/ GEOG 434	People, Wildlife and Landscapes	3
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
F&W ECOL/ SOIL SCI 451	Environmental Biogeochemistry	3
ENVIR ST/GEOG/ HISTORY 460	American Environmental History	4
LAND ARC/ URB R PL 463	Evolution of American Planning	3

GEOG/ URB R PL 505	Urban Spatial Patterns and Theories	3	ENVIR ST 417	Sustainability Science, Technology and Policy	1
LAND ARC 511	Geodesign Methods and Applications	3	ENVIR ST/HISTORY/ LEGAL ST 430	Law and Environment: Historical and Contemporary Perspectives	3
ENVIR ST/ F&W ECOL 515	Natural Resources Policy	3	ENVIR ST/ GEOG 439	US Environmental Policy and Regulation	3-4
ENVIR ST/ GEOG 537	Culture and Environment	4	LSC/AMER IND 444	Native American Environmental Issues and the Media	3
GEOG 538	The Humid Tropics: Ecology, Subsistence, and Development	4	ENVIR ST/ ECON/POLI SCI/ URB R PL 449	Government and Natural Resources	3-4
ENVIR ST/ GEOG 557	Development and Environment in Southeast Asia	3	M E 466	Air Pollution Effects, Measurements and Control	3
ENVIR ST/ SOIL SCI 575	Assessment of Environmental Impact	3	ENVIR ST/ F&W ECOL 515	Natural Resources Policy	3
LAND ARC/ ENVIR ST 581	Prescribed Fire: Ecology and Implementation	3	CIV ENGR 522	Hazardous Waste Management	3
URB R PL 601	Site Planning	3	ENVIR ST/ PHILOS 523	Philosophical Problems of the Biological Sciences	3
ENVIR ST/BOTANY/ F&W ECOL/ ZOOLOGY 651	Conservation Biology	3	ECON/A A E/ F&W ECOL 531	Natural Resource Economics	3
LAND ARC 668	Restoration Ecology	3	ENVIR ST/ GEOG 534	Environmental Governance: Markets, States and Nature	3
LAND ARC 677	Cultural Resource Preservation and Landscape History	3	ENVIR ST/C&E SOC/ SOC 540	Sociology of International Development, Environment, and Sustainability	3
ENVIR ST/ LAND ARC/ SOIL SCI 695	Applications of Geographic Information Systems in Natural Resources	3	SOC/C&E SOC 541	Environmental Stewardship and Social Justice	3

## POLICY

Code	Title	Credits	Code	Title	Credits
URB R PL 215	Welcome to Your Urban Future	3	ENVIR ST/ GEOG 557	Development and Environment in Southeast Asia	3
A A E/ENVIR ST 244	The Environment and the Global Economy	4	SOC/C&E SOC 573	Community Organization and Change	3
POLI SCI 272	Introduction to Public Policy	3-4	ENVIR ST 613	Reproducibility and Open Science in Ecological Research	3
ENVIR ST/ ENGL 305	Rhetoric, Science, and Public Engagement	3	SOIL SCI/ CIV ENGR/ M&ENVTOX 631	Toxicants in the Environment: Sources, Distribution, Fate, & Effects	3
ENVIR ST/ GEOG 309	People, Land and Food: Comparative Study of Agriculture Systems	3	R M I 650	Sustainability, Environmental and Social Risk Management	3
M H R 310	Challenges & Solutions in Business Sustainability	3	SOC/ECON 663	Population and Society	3
ENVIR ST/ GEOG 339	Environmental Conservation	4	ENVIR ST/ URB R PL 668	Green Politics: Global Experience, American Prospects	3
ENVIR ST/A A E/ ECON 343	Environmental Economics	3-4	<b>GEOSPATIAL ANALYSIS</b>		
ENVIR ST/ AMER IND/ GEOG 345	Managing Nature in Native North America	3	<b>Code</b>	<b>Title</b>	<b>Credits</b>
ENVIR ST 349	Climate Change Governance	3	LAND ARC 311	Introduction to Design Frameworks and Spatial Technologies	2
PUB AFFR 366	U.S. Environmental Politics and Public Policy	3	ENVIR ST/ F&W ECOL/G L E/ GEOG/GEOSCI/ LAND ARC 371	Introduction to Environmental Remote Sensing	3
OTM 370	Sustainable Approaches to System Improvement	3	GEOG/CIV ENGR/ ENVIR ST 377	An Introduction to Geographic Information Systems	4
CURRIC/C&E SOC/ ENVIR ST 405	Education for Sustainable Communities	3	GEOG 379	Geospatial Technologies: Drones, Sensors, and Applications	3
F&W ECOL 410	Principles of Silviculture	3			

GEOSCI/CIV ENGR/ ENVR ST/G L E 444	Practical Applications of GPS Surveying	2
GEOG/ URB R PL 505	Urban Spatial Patterns and Theories	3
LAND ARC 511	Geodesign Methods and Applications	3
ENVR ST/GEOG/ LAND ARC/ URB R PL 532	Applications of Geographic Information Systems in Planning	3
ENVR 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
ENVR 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
ENVR ST/ LAND ARC 361	Wetlands Ecology	3
BSE 473	Water Management Systems	3
ENVR ST/ ZOOLOGY 510	Ecology of Fishes	3
ENVR ST/ ZOOLOGY 511	Ecology of Fishes Lab	2
G L E/GEOSCI 627	Hydrogeology	3-4
G L E/GEOSCI 629	Contaminant Hydrogeology	3

## MULTI-THEMATIC

Code	Title	Credits
ENVR ST/ SOIL SCI 101	Forum on the Environment	1-2
ENVR ST 202	Careers in the Environment	2
ENVR ST 203	Special Topics in Environmental Studies	1-3
ENVR ST/ILS 255	Introduction to Sustainability Science	4
ENVR ST 400	Special Topics in the Environment: Biological Aspects of Envir St	1-4
ENVR ST 401	Special Topics: Environmental Perspectives in the Physical Sciences	1-4
ENVR ST 402	Special Topics: Social Perspectives in Environmental Studies	1-4

ENVR ST 403	Special Topics in Environmental Studies	1-3
ENVR ST 404	Special Topics in Environmental Humanities	1-3

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.