

School of Environment and Natural Resources  
Environmental Science

**New GE for students beginning  
Autumn 2022 & beyond**

COURSE & NUMBER	Units		COURSE & NUMBER	Units	
<b>UNIVERSITY REQUIREMENTS (GE)</b>			<b>Major Prerequisites</b>		
<b>Foundations</b>			<b>25 Hours</b>		
Writing and Information Literacy	3		Math 1151 (Calculus) or 1156 (Calculus for Biological Sciences)	Recommend Overlapping all Major Prerequisite Courses with the GE	
Mathematical and Quantitative Reasoning or Data Analysis	5	<i>Math 1151 or 1156</i> ❖	Chemistry 1210 (General Chemistry I)		
Literary, Visual, and Performing Arts	3		ENR 2300 (Society & Natural Resources)		
Historical and Cultural Studies	3				
			<b>16 Hours</b>		
<b>SEN R CORE REQUIREMENTS</b>					
Natural Science	5	<i>Chemistry 1210</i> ❖	ENR 1100 (ENR Survey)	1	
Social and Behavioral Sciences	3	<i>ENR 2300</i> ❖	ENR 2100 (Intro to Environmental Science)	3	
Race, Ethnic, and Gender Diversity	3		ENR 3300 (Intro to Forestry, Fisheries & Wildlife)	3	
<b>Thematic Pathways</b>			<b>8-12 Hours</b>		
Citizenship for a Diverse and Just World	4-6		ENR 3400 (Psychology of Environmental Problems) <sup>▲</sup> or ENR 3500 <sup>▲</sup> (Community, Environment & Development)	3	
Theme of Choice	4-6	<i>Overlap with SENR Core</i>	ENR 3700 (Intro to Spatial Info for ENR)	3	
			Recommend overlap with GE		
<b>Bookend Courses</b>			<b>2 Hours</b>		
GenEd 1201 (Launch seminar)	1		ENR 4900.01 (ENR Management) <sup>Senior Capstone</sup>	3	
GenEd 4001 (Reflection seminar)	1		<b>ENVIRONMENTAL SCIENCE MAJOR REQUIREMENTS</b>		
<b>Major Supporting Courses</b>			<b>32 Hours</b>		
Chemistry 1220 (General Chemistry II)	5		Chemistry 2310 (Intro Organic Chemistry)	4	
Biology 1113.01 (Biological Sciences: Energy Transfer & Development)	4		EEOB 3410 (Intro to Ecology)	4	
Biology 1114.01 (Biological Sciences: Form, Function, Diversity, & Ecology)	4		ENR 3280 (Water Quality Management)	2	
			<b>26 Hours</b>		
			<b>Environmental Science Specializations:</b>		
EARTHSC 1121 (3) & EARTHSC 1200 (1) (The Dynamic Earth)			<b>Ecosystem Restoration</b>		
Physics 1200 (Mechanics, Kinematics, Fluids, Waves)			<b>Environmental Molecular Science</b>		
ENR 3000 (Soil Science)			<b>Soil Resources and Environmental Sustainability</b>		
ENR 3001 (Soil Science Laboratory)			<b>Water Science</b>		
ENR 2000 (Natural Resource Data Analysis)			▲ GE Theme Course		
ENR 2367 (Communicating ENR Information)			❖ Prerequisite and/or corequisite to Env Sci major; recommend taking as part of GE Foundation.		
<b>MINIMUM HRS FOR GRADUATION</b>				<b>121 Hours</b>	

<b>Ecosystem Restoration Specialization</b>	<b>Units</b>	
<b>Principles and Practice of Restoration</b>	<b>7</b>	
<i>Required:</i>		
ENR 3800 Principles and Tools of Ecological Restoration	2	
ENR 4800 Practical Skills for Terrestrial Ecosystem Restoration	2	
ENR 5560 Rehabilitation/Restoration of Ecosystems	3	
<b>Ecosystem Science – take 3-4 credit hours from each of the following two sub-categories:</b>	<b>6 - 8</b>	
<i>Ecology of Terrestrial Ecosystems</i>		
EEOB 5470 Community and Ecosystems Ecology ( <i>Recommended</i> )	3	
ENR 3322 Forest Ecosystems or ENR 5340 Forest Ecosystem Management	3	
ENR 5274 Ecosystems Simulation	3	
ENR 5263 Biology of Soil Ecosystems	3	
MICRBIO 5155 Environmental Microbiology	3	
ENR/ENVENG/FABENG 5310 Ecological Engineering & Science	4	
HCS 2201 Ecology of Managed Plant Systems	4	
HCS 5422 Biology and Management of Weeds and Invasive Plants	3	
HCS 5412 Agroecology of Grasslands and Prairies	3	
PLNTPTH/ENTMLGY 5110 Ecology and Management of Pathogens and Insects Affecting Trees in Forest and Urban Environments	3	
HCS 5602 The Ecology of Agriculture	3	
HCS 5730 Seed Ecology and Physiology	3	
<i>Ecology of Aquatic &amp; Wetland Ecosystems</i>		
EEOB 5420 Ecology of Inland Waters	4	
ENR 4285 Watershed Hydrology	3	
ENR 5250.01 Wetland Ecology and Management	3	
ENR 5250.02 Wetland Field Laboratory	1	
ENR 5280 Stream Ecology	4	
<b>Resource Management and Conservation – take 2 - 3 credit hours from any of the following three sub-categories:</b>	<b>2 - 3</b>	
<i>Ecosystem Management and Conservation</i>		
EEOB 2410 Biological Invasions: The Ecology and Evolution of Species Introductions	3	
ENR 3335.01 Introduction to Wildland Fire Management	2	
ENR 3335.02 Wildland Fire Management Laboratory	1	
ENR 5340 Forest Ecosystem Management	3	
ENR 4342 Freshwater Fisheries Management	3	
ENR 5370 Management of Wildlife Habitat	3	
HCS 5422 Biology and Management of Weeds and Invasive Plants	3	
AGSYSMT 2370 Environmental Hydrology	2	
<i>Soil Resource Management and Conservation</i>		
ENR 4260 Soil Resource Management	3	
ENR 5262 Soil Chemical Processes and Environmental Quality	3	
ENR 5268 Soils and Climate Change	2	
ENR 5270 Soil Fertility	3	
ENR 5273 Environmental Fate and Impact of Contaminants in Soil and Water	3	
<i>Plant Production for Restoration</i>		
HCS 3320 Plant Propagation: The Manipulation of Plant Reproduction	3	
HCS 3420 Seed Science	3	
HCS 3521 Basic Greenhouse Production	2	

<b>Field Monitoring and Assessment for Ecosystem Restoration</b>	<b>5 - 7</b>	
<i>Required:</i>		
ENR 5279 Urban Soils and Ecosystem Services: Assessment and Restoration	3	
<i>Choose 1 of the following courses:</i>		
EEOB 4430 Ecological Methods I ( <i>Recommended</i> )	2	
ENR 5260 Soil Landscapes: Morphology, Genesis and Classification	3	
ENR 3323 Forest Biometrics	3	
ENR 4345 Methods in Aquatic Ecology	4	
ENR 5362 Wildlife Ecology Methods	3	
EEOB 4950 Field Ecology	2	
<b>Species Ecology, Identification and Recording</b>	<b>2 - 3</b>	
<i>Choose 1 of the following courses:</i>		
ENR 4610 Natural History of Ohio ( <i>Recommended</i> )	3	
ENR 3321 Biol & ID of Woody Plants <i>or</i> EEOB 2210 OH Plants <i>or</i> HCS 2340 Landscp Plants <i>or</i> HCS 2202 Form & Func of Cultivated Plants	2 - 3	
ENR 5350.01 Taxonomy & Behavior of Aquatic Inverts. <i>or</i> ENTMLGY 4000 General Entomology	3	
ENR 5350.02 Taxonomy & Behavior of Fishes	3	
ENR 5364.01 Mammalian Wildlife Biology and Management	3	
ENR 5364.02 Avian Wildlife Biology & Management <i>or</i> ENR 2360 Ecology & Conservation of Birds (Stone Lab) <i>or</i> EEOB 2220 Ohio Birds	2 - 3	
PLNTPTH 5040 and PLNTPTH 5041 Science of Fungi: Mycology Lecture and Science of Fungi: Mycology Lab	4	
<b>Directed Electives</b>	<b>0 - 4</b>	
<i>Choose courses that you have not already taken from any of the following categories to reach the 26-hour minimum for the specialization:</i>		
<b>Ecosystem Science</b> (refer to previous page)		
<b>Resource Management and Conservation</b> (refer to previous page)		
<b>Ecosystem History and Environmental Change</b>		
ANTHROP 5614 Ethnobotany	3	
ANTHROP 5623 Environmental Anthropology	3	
ANTHROP 3350 Prehistoric Indians of the Ohio Valley	3	
GEOG 3900 Global Climate Change: Causes and Consequences	3	
PHIL 2342 Environmental Ethics	3	
<b>Practical Experience in Restoration</b>		
ENR 4191 or Professional Practice in Environment and Natural Resources ENR 4998 Undergraduate Research	1-3	
<b>University GE Total/SENR Core Total</b>	<b>95</b>	
<b>Ecosystem Restoration Specialization Total</b>	<b>26</b>	
<b>Degree Total</b>	<b>121</b>	

<b>Environmental Molecular Sciences Specialization</b>	<b>Units</b>	
<b>Biological Sciences</b>	<b>5 - 9</b>	
<i>Select 2 courses</i>		
MICRBIO 4000 Basic & Practical Microbiology	4	
MICRBIO 4100 General Microbiology	5	
MICRBIO 5155 Environmental Microbiology	3	
MICRBIO 5169H Microbial Evolution	3	
MICRBIO 5161H Bioinformatics & Molecular Microbiology	3	
PLNTBIO / MOLGEN 5630 Plant Physiology	3	
PLNTPTH 3001 General Plant Pathology Lecture	3	
PLNTPTH 5010 Phytobacteriology	2	
PLNTPTH 5040 & 5041 Science of Fungi: Mycology Lecture & Lab	4	
<b>Environmental Science</b>	<b>6</b>	
<i>Select 2 courses</i>		
ENR 5262 Soil Chemical Processes & Environmental Quality	3	
ENR 5263 Biology of Soil Ecosystems	3	
ENR 5273 Environmental Fate & Impact of Contaminants in Soil & Water	3	
ENR 5279 Urban Soils and Ecosystem Services Assessment and Restoration	3	
ENR 5271 Soils of Forest Ecosystems	3	
<b>Geological Sciences</b>	<b>6 - 7</b>	
<i>Select 2 courses</i>		
EARTHSC 4502 Stratigraphy and Sedimentology	4	
EARTHSC 5203 Geo-Environment and Human Health	3	
EARTHSC 5206 Advanced Oceanography	3	
EARTHSC 5621 Introduction to Geochemistry	3	
EARTHSC 5628 Environmental Isotope Geochemistry	3	
EARTHSC 5651 Hydrogeology	4	
EARTHSC 5655 Land Surface Hydrology	3	
EARTHSC 5718 Aquatic Geochemistry	3	
EARTHSC 5680 Deep Earth Geophysics	3	
<b>Molecular Biology</b>	<b>5 - 8</b>	
<i>Select 2 courses</i>		
BIOCHEM 4511 Introduction to Biological Chemistry	4	
BIOCHEM 5613 Biochemistry & Molecular Biology I	3	
MOLGEN 4500 General Genetics	3	
BIOCHEM 5614 Biochemistry & Molecular Biology II	3	
MICROBIO 4130 Microbial Genetics	3	
MICROBIO 4140 Molecular Microbiology Laboratory	3	
MOLGEN 4606 Molecular Genetics	4	
MOLGEN 5607 Cell Biology	3	
PLNTBIO / MOLGEN 5623 Genetics and Genomics	2	
<b>Directed Electives</b>	<b>0-5</b>	
<b>University GE Total/SENR Core Total</b>	<b>95</b>	
<b>Environmental Molecular Sciences Specialization Total</b>	<b>26</b>	
<b>Degree Total</b>	<b>121</b>	

<b>Soil Resources and Environmental Sustainability Specialization</b>	<b>Units</b>	
<b>Required Courses</b>	<b>17 - 19</b>	
ENR 5261 Environmental Soil Physics	3	
AGSYSMGT 2370 Environmental Hydrology or Earth Sciences 5550 Geomorphology	2-4	
ENR 5260 Soil Landscapes: Morphology, Genesis & Classification	3	
ENR 5262 Soil Chemical Processes & Environmental Quality	3	
ENR 5263 Biology of Soil Ecosystems	3	
ENR 5270 Soil Fertility or ENR 4260 Soil Resource Management	3	
<b>Directed Electives</b>	<b>7-9</b>	
ENVENG 2100 Environmental Engineering Analytical Methods	3	
CIVILEN 5130 Applied Hydrology	3	
EARTHSCI 5651 Hydrogeology	4	
ENR 5280 Stream Ecology	4	
ENR 5250.01 Wetland Ecology and Restoration	3	
ENR 5210 US Environmental Impact Assessment	3	
ENR 5211 International Environmental Impact Assessment	3	
ENR 4345 Methods in Aquatic Ecology	4	
ENR 5271 Soils of Forest Ecosystems	3	
ENR 5451 Water Policy & Governance	3	
ENR 5273 Environmental Fate & Impact of Contaminants in Soil & Water	3	
ENR 5268 Soils and Climate Change	2	
ENR 5279 Urban Soils and Ecosystem Services: Assessment and Restoration	3	
ENR 5274 Ecosystems Simulation	3	
ENR 5560 Rehabilitation/Restoration of Ecosystems	3	
<b>University GE Total/SENR Core Total</b>	<b>95</b>	
<b>Soil Resources and Environmental Sustainability Specialization Total</b>	<b>26</b>	
<b>Degree Total</b>	<b>121</b>	

<b>Water Science Specialization</b>	<b>Units</b>	
<b>Water Science Required Courses</b>	<b>14</b>	
ENR 5280 Stream Ecology	4	
ENR 4345 Methods in Aquatic Ecology	4	
ENR 4285 Watershed Hydrology	3	
ENR 5273 Environmental Fate & Impact of Contaminants in Soil & Water	3	
<b>Water Resource and Management Courses (select 4 )</b>	<b>10 - 14</b>	
ENR 5250.01 Wetland Ecology & Restoration	3	
AGSYSMGT 2370 Environmental Hydrology	2	
ENR 5350.01 Taxonomy and Behavior of Aquatic Invertebrates	3	
ENR 5350.02 Taxonomy and Behavior of Fishes	3	
ENR 5355 Aquaculture	3	
ENR 5348 Conservation and Management of Aquatic Populations	3	
ENR 5358 Applied Vertebrate Physiological Ecology	3	
ENR 4342 Freshwater Fisheries Management	3	
ENR 3800 Principles and Tools of Ecosystem Restoration	2	
EEOB 5420 Ecology of Inland Waters or EEOB 5430 Aquatic Ecosystems - Fish Ecology	3 - 4	
ENR/ENVENG/FABENG 5310 Ecological Engineering & Science	4	
EARTHSCI 2206 Principles of Oceanography	3	
EARTHSCI 4450 Water, Ice and Energy in the Earth System	3	
GEOG 5210 Fundamentals of Geographic Information Systems	3	
<b>Directed Electives</b>	<b>0-2</b>	
<b>University GE Total/SENR Core Total</b>	<b>95</b>	
<b>Water Science Specialization Total</b>	<b>26</b>	
<b>Degree Total</b>	<b>121</b>	