

School of Environment and Natural Resources
Environmental Science

New GE for Autumn 2022

COURSE & NUMBER	Units	COURSE & NUMBER	Units
UNIVERSITY REQUIREMENTS (GE)			
Foundations	25 Hours	SENR CORE REQUIREMENTS	16 Hours
Writing and Information Literacy <i>English 1110</i> ❖	3	ENR 1100 (ENR Survey)	1
Mathematical and Quantitative Reasoning or Data Analysis <i>Math 1151 or 1156</i> ❖	5	ENR 2100 (Intro to Environmental Science)	3
Literacy, Visual, and Performing Arts	3	ENR 2300 (Society and Natural Resources)	GE Foundation
Historical and Cultural Studies	3	ENR 3300 (Intro to Forestry, Fisheries & Wildlife)	3
Natural Science <i>Chemistry 1210</i> ❖	5	ENR 3400 (Psychology of Environmental Problems) [▲] or ENR 3500 [▲] (Community, Environment & Development)	3
Social and Behavioral Sciences <i>ENR 2300</i> ❖	3	ENR 3200 (ENR Policy) [▲]	Recommend overlap with GE
Race, Ethnic, and Gender Diversity	3	ENR 3700 (Intro to Spatial Info for ENR)	3
Thematic Pathways	8-12 Hours	ENR 4900.01 (ENR Management) Senior Capstone	3
Citizenship for a Diverse and Just World	4-6	Environmental Science Major Requirements	10 Hours
Theme of Choice <i>Overlap with SENR Core</i>	4-6	Chemistry 2310 (Intro Organic Chemistry)	4
Bookend Courses	2 Hours	EEOB 3410 (Intro to Ecology)	4
Launch seminar	1	ENR 3280 (Water Quality Management)	2
Reflection seminar	1	Environmental Science Specializations:	26 Hours
Major Supporting Courses	32 Hours	Ecosystem Restoration	
Chemistry 1220 (General Chemistry II)	5	Environmental Molecular Science	
Biology 1113.01 (Biological Sciences: Energy Transfer & Development)	4	Soil Resources and Environmental Sustainability	
Biology 1114.01 (Biological Sciences: Form, Function, Diversity, & Ecology)	4	Water Science	
EARTHSC 1121 (3) & EARTHSC 1200 (1) (The Dynamic Earth)	4	❖ Prerequisite and/or corequisite to Env Sci major; recommend taking as part of GE Foundation. ▲ GE Theme Course	
Physics 1200 (Mechanics, Kinematics, Fluids, Waves)	5		
ENR 3000 (Soil Science)	3		
ENR 3001 (Soil Science Laboratory)	1		
ENR 2000 (Natural Resource Data Analysis)	3		
ENR 2367 (Communicating ENR Information)	3		
		MINIMUM HRS FOR GRADUATION	121 Hours

Ecosystem Restoration Specialization	Units	
Principles and Practice of Restoration	7	
<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	
Ecosystem Science – take 3-4 credit hours from each of the following two sub-categories:	6 - 8	
<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	
PLNTPH/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 & 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	
Resource Management and Conservation – take 2 - 3 credit hours from any of the following three sub-categories:	2 - 3	
<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	

Field Monitoring and Assessment for Ecosystem Restoration	5 - 7	
<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	
Species Ecology, Identification and Recording	2 - 3	
<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	
Directed Electives	0 - 4	
<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>		
Ecosystem Science (refer to previous page)		
Resource Management and Conservation (refer to previous page)		
Ecosystem History and Environmental Change		
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	
Practical Experience in Restoration		
ENR 4191 or Professional Practice in Environment and Natural Resources ENR 4998 Undergraduate Research	1-3	
University GE Total/SENR Core Total	95	
Ecosystem Restoration Specialization Total	26	
Degree Total	121	

Environmental Molecular Sciences Specialization	Units	
Biological Sciences	5 - 9	
<i>Select 2 courses</i>		
MICRBIO 4000 Basic & Practical Microbiology	4	
PLNTBIO / MOLGEN 5630 Plant Physiology	3	
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	
Environmental Science	6	
<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	
Geological Sciences	6 - 7	
<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	
Molecular Biology	5 - 8	
<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	
Directed Electives	0-5	
University GE Total/SENR Core Total	95	
Environmental Molecular Sciences Specialization Total	26	
Degree Total	121	

Soil Resources and Environmental Sustainability Specialization	Units	
Required Courses	17 - 19	
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	
Directed Electives	7-9	
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	
University GE Total/SENR Core Total	95	
Soil Resources and Environmental Sustainability Specialization Total	26	
Degree Total	121	

Water Science Specialization	Units	
Water Science Required Courses	14	
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	
Water Resource and Management Courses (select 4)	10 - 14	
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	
Directed Electives	0-2	
University GE Total/SENR Core Total	95	
Water Science Specialization Total	26	
Degree Total	121	