

BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCE

The curriculum in the bachelor's degree program provides a strong foundation in the sciences and introduces students to the interdisciplinary breadth of [environmental science](#) through a selection of core courses dealing with the geographical, physical, social and living environments.

- **Senior Staff Assistant/Curriculum Coordinator:** [Ann Moore](#)

Students have the flexibility to satisfy their core requirements by completing courses in biology, chemistry, ecology, geography, engineering, forestry, environmental studies and other areas of study. College-wide general education requirements provide additional opportunities for students to complete courses in the arts, humanities and social sciences to develop a broader context for personal and professional growth.

Required Courses

APM 105	Survey Of Calc & Appl I	4
APM 106	Survey Of Calc & Appl II	4
APM 210	Intro/Probability&Stats	3
EFB 101	Gen Bio I:Organismal Bio&Ecol	3
EFB 102	General Biology I Laboratory	1
EFB 103	Gen Bio II:Cell Bio & Genetics	3
EFB 104	General Biology II Laboratory	1
EFB 120	The Global Envirnmnt & Society	3
EFB 320	General Ecology	4
ENS 132	Orientation Seminar:EnvSci	1
ESF 300	Intro/Geospatial Info Tech	3
EWP 190	Writing And The Envrnment	3
EWP 290	Research Writing & Humanities	3
EWP 407	Writing/Env & Sci Professionls	3
FCH 150	General Chemistry I	3
FCH 151	General Chemistry I Lab	1
FCH 152	General Chemistry II	3
FCH 153	General Chemistry II Lab	1

FOR 207	Introduction To Economics	3
EPH 201	Calculus Based Physics I	3
EPH 202	Calculus Based Physics I Lab	1
EPH 203	Calculus Based Physics II	3
EPH 204	Calculus Based Physics II Lab	1

Lower Division Electives

Course	Codes*	Credits
Free electives		12
General Education Course in two of the following categories: US History & Civic Engagement, The Arts, World History and Global Awareness, World Languages	G	6
General Education Course in Diversity, Equity, Inclusion and Social Justice	G	3

Environmental Science Core

Students must complete one course from each of the following environmental science core areas.

NOTE: Courses used to complete the advanced chemistry, biology, or mathematics requirements, environmental science core requirements, or option requirements may NOT be used to satisfy more than one of these requirements.

The Physical Environment

EAR 305	Earth Science of Energy	3
EAR 403	Geomorphology	3
ERE 380	Energy Systems Engineering	3
EST 231	Environmental Geology	3
FCH 210	Elements Of Organic Chem	4
FCH 221 AND	Organic Chemistry 1	3

FCH 222	Organic Chemistry Lab 1	1
FCH 360	Physical Chemistry I	3
FOR 338	Meteorology	3
FOR 340	Watershed Hydrology	3
FOR 345	Introduction to Soils	3
GNE 172	Statics and Dynamics	4
<i>The Living Environment</i>		
EFB 303	Intro Envrn Microbiology	4
EFB 326	Plant Evol,Diversificatn&Cons	3
EFB 327	Adirondack Flora	3
EFB 336	Dendrology I	3
EFB 342	Fungal Diversity & Ecology	3
EFB 351	Forest Entomology	3
EFB 355	Invertebrate Zoology	4
EFB 351	Forest Entomology	3
EFB 355	Invertebrate Zoology	4
EFB 384	Field Herpetology	3
EFB 388	Ecology/Adirondack Fishes	3
EFB 440	Mycology	3
EFB 462	Animal Physiol:Envrn&Ecol	4
EFB 483	Mammal Diversity	4
EFB 485	Herpetology	3
EFB 486	Ichthyology	3
<i>The Social Environment</i>		
EST 220	Urban Ecology	3
EFB 337	Field Ethnobotany	3

EST 361	Diverse Histories of Amer Env Mgmt	3
EST 390	Social Processes & Environ	3
EST 450	Sustainable Enterprise	3
EWP 390	Literature of Nature	3
FOR 465	Natural Resources Policy	3
FOR 487	Environmental Law and Policy	3
FOR 489	Natural Resources Law & Policy	3

Advanced Courses in Chemistry, Biology or Mathematics

An advanced course is one that has at least one prerequisite or is numbered 300 or above. Note: Courses used to complete the advanced courses in chemistry, biology or mathematics requirement may NOT be used to complete the environmental science core or option requirements.

Required Courses

Course	Codes*	Credits
Advanced Courses in science or mathematics		6

Option Area

Students must complete at least 15 credits in ONE of the following option areas of study. Courses used to complete the advanced chemistry, biology, or mathematics requirements; environmental science core requirements; or upper division electives may not be used to satisfy the option area requirements.

Environmental Information and Mapping (16 credits required)

ERE 365	Principles of Remote Sensing	4
ERE 371	Surveying For Engineers	3
FOR 458	Advanced Topics in GIS	3
GEO 381	Cartographic Design	3
LSA 300	Digital Methods & Graphics I	3
OR		
EFB 518	Systems Ecology: Eco Mdlng&Dsgn	3

Watershed Science (15 credits required)

FOR 340	Watershed Hydrology	3
FOR 345	Introduction to Soils	3
FOR 442	Watershed Ecology & Management	3

Choose TWO courses from the list below:

Elective courses

EFB 423	Marine Ecology	4
EFB 424	Limnology:Study Inland Waters	3
EFB 486	Ichthyology	3
EFB 487	Fisheries Science & Mgt	3
EFB 542	Freshwater Wetland Ecosys	3
ERE 412	River Form and Process	3
ERE 508	Water-An Incredible Journey	3
FOR 338	Meteorology	3
GEO 316	River Environments	3
CEE 657	Biogeochemistry	3

NOTE: CIE 657, Ecological Biogeochemistry, is an upper-division Syracuse University course. Access by petition only; confer with your academic advisor.

Health and the Environment (17 credits required)

Required Courses

EHS 250	Foundations/Envrn Health	2
EFB 400	Toxic Health Hazards	3
EFB 360	Epidemiology	3

Elective courses

EFB 303	Intro Envrn Microbiology	4
EFB 307	Principles Of Genetics	3
EFB 308	Prin Of Genetics Lab	1
EFB 325	Cell Biology	3

EFB 385	Comparative Vert Anatomy	4
EFB 453	Parasitology	3
EFB 462	Animal Physiol:Envrn&Ecol	4
EHS 320	Disease Prevention	3
EHS 350	Environmental Health Managemnt	3
EHS 440	Occupational Health and Safety	3
EHS 480	Hazardous Waste Management	3
ENS 470	Environmental Risk Assessment	3
FST 102	Contemporary Food Issues	3

Earth and Atmospheric Systems Science & Analysis

(16 credits required)

Required Courses

FCH 399	Intro/Atmospheric Sciences	3
EFB 424	Limnology:Study Inland Waters	3
FOR 345	Introduction to Soils	3

Choose TWO courses from the list below:

Elective course

APM 307	Multivariable Calculus	4
APM 485	Diff Equat/Engr&Scientist	3
APM 585	Part Diff Equat/Engrs&Scientst	3
CIE 457	Biogeochemistry	3
ERE 365	Principles of Remote Sensing	4
FCH 380	Analytical Chemistry I	2
FCH 381	Analytical Chemistry II	3
FCH 510	Environmental Chemistry I	3
FCH 511	Atmospheric Chemistry	3

FCH 515	Meth/Envrn Chem Analysis	3
MCR 480	Fundamentals of Microscopy	3

NOTE: Upon consultation with option area coordinator, students may select courses beyond those listed above that align with professional goals.

Renewable Energy

(15 credits required)

Required Courses

SRE 441	Biomass Energy	3
OR		
CME 305	Sustainable Energy Sys/Bldgs	3
SRE 325	Energy Systems	3
SRE 337	Energy Resource Assessment	3
SRE 479	Life Cycle Assessment	3

and a minimum of 3 credits from the following:

Elective Course

CME 305	Sustainable Energy Sys/Bldgs	3
ERE 380	Energy Systems Engineering	3
EST 427	Environmental &Energy Auditing	3
FCH 360	Physical Chemistry I	3
ECH 202	Prin Mass/Energy Balance	3
ECH 212	Engr Thermodynamics	3
SRE 422	Energy Markets and Regulation	3
SRE 416	Sustainable Energy Policy	3
SRE 454	Sustainble Energy Fin&Analysis	3

NOTE: Upon consultation with option area coordinator, students may select courses beyond those listed above that align with professional goals.

Upper Division Electives

Course	Codes*	Credits
Electives		15

Students completing the environmental science program must complete 15 credits of upper division electives to satisfy the graduation requirements. Course taken to satisfy the advanced math/science or option areas cannot also be used to satisfy the upper division elective requirement.

Under the guidance of their academic advisor, students may design their own block of electives. Course selection should support the student's capstone research, career or advanced academic study goals. Alternatively, this requirement can also be satisfied by choosing an official college minor. A list of minors is available:

Undergraduate Minors

Senior Synthesis

Capstone Courses

ENS 498	Resrch Prob/Envrn Science	1
ENS 498	Resrch Prob/Envrn Science	3
OR		3
ENS 420	Internship in Env Science	
	Project-Oriented Coursework*	3
ENS 494	Capstone Seminar	1
ENS 498	Resrch Prob/Envrn Science	1 - 5
OR		
ENS 420	Internship in Env Science	1 - 5

NOTE: ENS 498 and ENS 420 are taken for 3 credits

*Students may select from a list of project-oriented coursework to fulfill their senior synthesis requirement. Upon consultation with their advisor, students may also select courses beyond those listed on a case-by-case basis. Acceptable courses include:

- ENS 496 Renewable Energy Capstone Seminar
- ENS 596 International Interdisciplinary Urban Ecosystem Design
- EFB 525 Limnology Practicum (student will need to enroll in an additional credit hour)
- ESF 496 Special Topics classes (must confer with advisor)
- Other

Total Minimum Credits For Degree: 126

