

Natural Resources (BS): Policy and Administration Concentration

To see more about what you will learn in this program, visit the Learning Outcomes website (<https://apps.oirp.ncsu.edu/pgas/>)!

Two natural resources curricula are offered by the Department of Forestry and Environmental Resources. The curricula are also accredited by the Society of American Foresters and produce natural resources professionals with a broad interdisciplinary background coupled with specifically focused skills needed to manage natural resources. The Natural Resources curricula include a series of common courses to highlight the integrated nature of work by interdisciplinary teams.

The curriculum in Natural Resources Ecosystem Assessment produces graduates who have knowledge and skills to inventory and describe ecosystems characteristics and to evaluate the impacts of management decisions. Ecosystem assessment or environmental impact assessment is an important part of development planning that calls for individuals who understand ecosystem structure and processes; who can identify, measure, inventory, and describe ecosystems; and who can apply standard evaluation and classification systems such as wildlife habitat evaluation procedures and the federal wetland delineation criteria. The curriculum entails a strong science base, as well as advanced courses in sampling and measurements, vegetation, soils, hydrology, and wildlife and fisheries are added. The 400-level courses also address techniques and issues of natural resource management.

The curriculum in Natural Resources Policy and Administration produces graduates who have knowledge and skills to manage natural resources programs in a variety of settings and organizations with an emphasis on public agencies. The advanced courses of the curriculum provide background in economics, policy, government, public administration, and natural resources management. An economics track begins with introductory microeconomics and culminates with environmental economics and public finance. Courses in government and public administration provide knowledge of how public institutions work. Courses in forestry, wildlife and fisheries, and outdoor recreation provide techniques of managing natural ecosystems for various uses. A common thread of how public policy on natural resources is influenced and developed runs through many of the courses already noted and culminates in two senior courses that focus on policy. For information on entrance requirements, contact the program coordinator:

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Plan Requirements

First Year		Hours
ENV 100	Student Success in Environmental First Year	1
ENV 101	Exploring the Environment	2
BIO 181	Introductory Biology: Ecology, Evolution, and Biodiversity	4
CH 101 & CH 102	Chemistry - A Molecular Science and General Chemistry Laboratory	4
Math Electives (p. 2)		6
FOR 150	Critical Thinking and Data Analysis	2
Acad Writing Research (p.)	¹	4
Select one of the following:		3
ARE 201	Introduction to Agricultural & Resource Economics	
ARE 201A	Introduction to Agricultural & Resource Economics	
EC 201	Principles of Microeconomics	
EC 205	Fundamentals of Economics	
Hours		26
Second Year		
COM 110 or COM 112	Public Speaking or Interpersonal Communication	3
Physics Elective (p. 2)		4
FOR 252	Introduction to Forest Science	3
FOR 339	Dendrology	4
SSC 200 & SSC 201	Soil Science and Soil Science Laboratory	4
PS 201 or PS 202	American Politics and Government or State and Local Government	3
Hours		21
Third Year		
ENG 333	Communication for Science and Research	3
Select one of the following:		4
AEC 360	Ecology	
FOR 260	Forest Ecology	
PB 360	Ecology	
NR 300	Natural Resource Measurements	4
NR 301	Practicum for Professional Development I	1
Spatial Technology Elective (p. 2)		3
ST 311	Introduction to Statistics	3
ARE 336	Introduction to Resource and Environmental Economics	3
Hours		21
Summer		
NR 360	Internship Experience	3
Hours		3
Fourth Year		
NR 400	Natural Resource Management	4
NR 460	Renewable Natural Resource Management and Policy	3
NR 484	Environmental Impact Assessment	4
Select one of the following:		3

FW 333	Conservation Biology in Practice	
FW 353	Wildlife Management	
FW 404	Wildlife Habitat Management	
Hours		14
Total Hours		85

¹ A grade of C- or better is required.

Code	Title	Hours	Counts towards
Technical Electives			
Management Sciences (p. 3) ¹		15	
Resource Sciences (p. 3)		7	
GEP Courses			
GEP Humanities (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/)		6	
GEP Health and Exercise Studies (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/)		2	
GEP US Diversity, Equity, and Inclusion (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-usdei/)		3	
GEP Interdisciplinary Perspectives (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/)		2	
GEP Global Knowledge (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-global-knowledge/) (verify requirement)			
Foreign Language Proficiency (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/foreign-language-proficiency/) (verify requirement)			
Total Hours		35	

¹ At least one from each

Acad Writing Research

Code	Title	Hours	Counts towards
Acad Writing Research			
ENG 101	Academic Writing and Research	4	
FLE 101	Academic Writing and Research	4	
Transfer Sequence			
ENG 1GEP		3	

ENG 202	Disciplinary Perspectives in Writing	3
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Math Electives

Code	Title	Hours	Counts towards
MA 114	Introduction to Finite Mathematics with Applications	3	
MA 121	Elements of Calculus	3	
MA 131	Calculus for Life and Management Sciences A	3	
MA 141	Calculus I	4	
MA 231	Calculus for Life and Management Sciences B	3	
MA 241	Calculus II	4	

Physics Electives

Code	Title	Hours	Counts towards
PY 131	Conceptual Physics	4	
PY 205	Physics for Engineers and Scientists I	3	
PY 206	Physics for Engineers and Scientists I Laboratory	1	
PY 211	College Physics I	4	

Spatial Technology Electives

Code	Title	Hours	Counts towards
GIS 280	Introduction to GIS	3	
FOR 353	GIS and Remote Sensing for Environmental Analysis and Assessment	3	
GIS 510	Fundamentals of Geospatial Information Science and Technology	3	
SSC 440	Geographic Information Systems (GIS) in Soil Science and Agriculture	3	

SSC 540	Geographic Information Systems (GIS) in Soil Science and Agriculture	3
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Management Science Electives

Code	Title	Hours	Counts towards
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At least one course from each category:

Management Category

ACC 200	Introduction to Managerial Accounting	3
ACC 220	Introduction to Managerial Accounting	3
ACC 280	Survey of Financial and Managerial Accounting	3
FOR 248	Forest History, Technology and Society	3
FW 221	Conservation of Natural Resources	3
FW 333	Conservation Biology in Practice	3
GIS 295	Special Topics in Geospatial Information Science	1-4
HI 381	NGO Nonprofits in a Global Context	3
LAR 430	Site Planning	3
NR 350	International Sustainable Resource Use	4
PRT 350	Outdoor Recreation Management	3
PRT 451	Principles of Recreation Planning and Facility Development	3

Economics Category

ARE 301	Intermediate Microeconomics	3
ARE 304	Agribusiness Management	3
EC 301	Intermediate Microeconomics	3

EC 348	Introduction to International Economics	3
EC 410	Public Finance	3
FOR 319	Forest Economics	3

Policy Category

ARE 309	Environmental Law & Economic Policy	3
FOR 414	World Forestry	3
FW 411	Human Dimensions of Wildlife and Fisheries	3
FW 511	Human Dimensions of Wildlife and Fisheries	3
MIE 305	Legal and Regulatory Environment	3
NR 406	Conservation of Biological Diversity	3
PS 201	American Politics and Government	3
PS 202	State and Local Government	3
PS 312	Introduction to Public Administration	3
PS 320	U.S. Environmental Law and Politics	3
PS 336	Global Environmental Politics	3
PS 401	American Political Parties	3

Resource Science Electives

Code	Title	Hours	Counts towards
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Flora

CS 414	Weed Science	4
FOR 204	Silviculture	2
FOR 261	Forest Communities	2
FOR 265	Fire Management	1
FOR 273	Forest System Mapping and Mensuration II	3
FOR 303	Silvics and Forest Tree Physiology	3
FOR 318	Forest Pathology	3

FOR 330	North Carolina Forests	3	FW 312	Fisheries Techniques and Management	1
FOR 411	Forest Tree Genetics and Biology	3	FW 313	Mountain Wildlife Ecology and Management	1
PB 220	Local Flora	3	FW 314	Coastal Ecology and Management	1
PB 345	Economic Botany	3	FW 353	Wildlife Management	3
PB 400	Plant Diversity and Evolution	4	FW 373	Vertebrate Natural History	3
PB 403	Systematic Botany	4	FW 403	Urban Wildlife Management	3
PB 421	Plant Physiology	3	FW 404	Wildlife Habitat Management	3
PB 464	Rare Plants of North Carolina	3	FW 405	Tropical Wildlife Ecology	3
PB 503	Systematic Botany	4	FW 444	Mammalogy	3
PB 564	Rare Plants of North Carolina	3	FW 544	Mammalogy	3
PP 318	Forest Pathology	3	FW 586	Aquaculture	3
Fauna			MEA 220	Marine Biology	3
AEC 419	Freshwater Ecology	4	ZO 333	Captive Animal Biology	3
AEC 420	Introduction to Fisheries Science	3	Earth Sciences		
AEC 423	Introduction to Fisheries Sciences Laboratory	1	AEC 380	Water Resources: Global Issues in Ecology, Policy, Management, and Advocacy	3
AEC 441	Biology of Fishes	3	ES 150	Water and the Environment	3
AEC 442	Biology of Fishes Laboratory	1	ES 200	Climate Change and Sustainability	3
AEC 460	Field Ecology and Methods	4	FOR 420	Watershed and Wetlands Hydrology	4
AEC 501	Avian Ecology	4	FOR 520	Watershed and Wetlands Hydrology	4
AEC 509	Ecology and Conservation of Freshwater Invertebrates	3	GEO 200	Principles of Geography	3
AEC 519	Freshwater Ecology	4	MEA 200	Introduction to Oceanography	3
AEC 586	Aquaculture	3	MEA 210	Oceanography Lab	1
ENT 402	Forest Entomology	3	MEA 250	Introduction to Coastal Environments	3
ENT 425	General Entomology	3	MEA 251	Introduction to Coastal Environments Laboratory	1
ENT 509	Biology of Aquatic Insects	3	MEA 300	Environmental Geology	4
FOR 264	Forest Wildlife	1			
FOR 402	Forest Entomology	3			
FOR 430	Forest Health and Protection	3			
FW 311	Piedmont Wildlife Ecology and Management	3			

NR 420	Watershed and Wetlands Hydrology	4
NR 421	Wetland Science and Management	3
NR 520	Watershed and Wetlands Hydrology	4
NR 521	Wetland Science and Management	3
SSC 421	Role of Soils in Environmental Management	3
SSC 442	Soil and Environmental Biogeochemistry	3
SSC 452	Soil Classification	4
SSC 455	Soils, Environmental Quality and Global Challenges	3
SSC 461	Soil Physical Properties and Plant Growth	3
SSC 470	Wetland Soils	3
SSC 570	Wetland Soils	3

Semester Sequence

This is a sample.

First Year

Fall Semester	Hours
BIO 181 Introductory Biology: Ecology, Evolution, and Biodiversity	4
GEP Health and Science Studies	1
ENG 101 Academic Writing and Research ¹	4
Math Elective	3
ENV 100 Student Success in Environmental First Year	1
ENV 101 Exploring the Environment	2
Hours	15

Spring Semester

CH 101 & CH 102 Chemistry - A Molecular Science and General Chemistry Laboratory	4
FOR 150 Critical Thinking and Data Analysis	2
GEP Requirement (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/)	3
Math Elective (p. 2)	3
ARE 201 or EC 201 Introduction to Agricultural & Resource Economics or Principles of Microeconomics	3
Hours	15

Second Year

Fall Semester	
Physics Elective (p. 2)	4

GEP Health and Exercise Studies (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/)	1
FOR 339 Dendrology	4
GEP Requirement (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/)	3

Hours 12

Spring Semester

FOR 252 Introduction to Forest Science	3
SSC 200 Soil Science	3
PS 201 American Politics and Government or PS 202 or State and Local Government	3
COM 110 Public Speaking or COM 112 or Interpersonal Communication	3

Hours 12

Third Year

Fall Semester

Ecology Elective (p. 1)	4
NR 301 Practicum for Professional Development I	1
Spatial Technology Elective (p. 2)	3
ST 311 Introduction to Statistics	3
Technical Elective (p.)	4

Hours 15

Spring Semester

ARE 336 Introduction to Resource and Environmental Economics	3
ENG 333 Communication for Science and Research	3
NR 300 Natural Resource Measurements	4
GEP Requirement (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/)	3
Technical Elective (p.)	3

Hours 16

Summer

NR 360 Internship Experience	3
Hours	3

Fourth Year

Fall Semester

Technical Electives (p.)	6
NR 460 Renewable Natural Resource Management and Policy	3
NR 484 Environmental Impact Assessment	4
Wildlife Elective (p. 1)	3
Hours	16

Spring Semester

NR 400 Natural Resource Management	4
GEP Requirement (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/)	3
Technical Electives (p.)	9

Hours 16

Total Hours 120

¹ A grade of C- or better is required.

Career Opportunities

Graduates of the Natural Resources Ecosystem Assessment curriculum work in environmental service firms, public agencies, non-governmental organizations, and industries. The U.S. Environmental Protection Agency, the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the N.C. Division of Water Quality, and county and city governments employ graduates to help manage compliance with county, state, and federal environmental regulations, particularly wetlands and protected species. Non-governmental organizations and private engineering and environmental consulting firms employ graduates to prepare environmental impact statements and assessments, delineate wetlands, and conduct searches for threatened or endangered plant and animal species. The broad background in natural resources provided by this curriculum also provides a strong base for students interested in graduate school or environmental law.

The curriculum in Natural Resources Policy and Administration produces managers and administrators for public agencies and private organizations involved with management, administration, policy-making, planning, preservation, or regulation of natural resources. Examples are the USDI National Park Service, the US Environmental Protection Agency, the US Geological Survey, state and local government agencies, and not-for-profit environmental organizations. Background in government, economics, policy, and natural resource management also provides a strong base for students who wish to pursue a graduate program in natural resources economics and policy or environmental law.