

Forest Management (BS)

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

The curriculum in Forest Management is a professional program accredited by the Society of American Foresters that has long been ranked as one of the best in the country. The Forest Management curriculum satisfies the education requirements to become registered (licensed) forester by the North Carolina State Board of Registration for Foresters. With a rigorous math and science base, the curriculum produces graduates with a broad education in natural sciences, humanities and social sciences, communications skills, technology and the practical knowledge and skills needed for sound management of the multiple resources of natural and managed forest ecosystems. Preparatory courses in the freshman and sophomore years are followed by the nine-week forestry summer camp where the woods knowledge and field skills that are essential for all foresters are acquired. Core courses of the junior and senior years focus on forest ecosystem processes, applied economics, operational practices in forest stand management, measurement and analysis of forest stand components, policy issues in natural resource management and the management decision-making tools and skills needed to develop and implement forest management plans. Production and Ecology options have been created to further flexibility. For information on entrance requirements, contact Kimber Lunsford at E-mail: ktlunsfo@ncsu.edu.

Forestry Summer Practicum

An intensive, full-time, nine-week summer practicum with training in the Coastal Plain, Piedmont, and Mountain regions of North Carolina is required in the Forest Management curricula. The experience is based at the college's Hill Demonstration Forest located in Durham County, NC with trips taken to other regions. Students gain this practical experience between the sophomore and junior year and earn nine-semester credits in required courses that provide a base of knowledge and skills for the advanced courses in the junior and senior years.

Plan Requirements

Forest Management (BS): 128 Total Units

Course	Title	Hours
First Year		
ENV 100	Student Success in Environmental First Year ¹	1
PB 200	Plant Life	4
SMT 202	Anatomy and Properties of Renewable Materials ¹	3
MA 114	Introduction to Finite Mathematics with Applications	3
MA 121	Elements of Calculus	3
CH 101 & CH 102	Chemistry - A Molecular Science and General Chemistry Laboratory	4
FOR 150	Critical Thinking and Data Analysis ¹	2
ENG 101	Academic Writing and Research ¹	4
Hours		24
Second Year		
Select one of the following:		4

CH 201 & CH 202	Chemistry - A Quantitative Science and Quantitative Chemistry Laboratory	
PY 211	College Physics I	
FOR 172	Forest System Mapping and Mensuration I ¹	2
FOR 260	Forest Ecology ¹	4
FOR 339	Dendrology ¹	4
SSC 200 & SSC 201	Soil Science and Soil Science Laboratory	4
ST 311	Introduction to Statistics	3
FOR 250	Professional Development II: Communications in Natural Resources ¹	1
Economics Elective (p. 2)		3
Technical Electives (p. 2)		4
Hours		29

Summer

FOR 204	Silviculture ¹	2
FOR 261	Forest Communities ¹	2
FOR 264	Forest Wildlife ¹	1
FOR 265	Fire Management ¹	1
FOR 273	Forest System Mapping and Mensuration II ¹	3
Hours		9

Third Year

Select one of the following:		3
ENG 331	Communication for Engineering and Technology	
ENG 332	Communication for Business and Management	
ENG 333	Communication for Science and Research	
FOR 303	Silvics and Forest Tree Physiology ¹	3
FOR 304	Theory of Silviculture ¹	4
FOR 319	Forest Economics ¹	3
FOR 334	Operations Research Applications in Natural Resources ¹	1
FOR 350	Professional Development III: Ethical Dilemmas in Natural Resource Management ¹	1
FOR 353 or GIS 510	GIS and Remote Sensing for Environmental Analysis and Assessment ¹ or Fundamentals of Geospatial Information Science and Technology	3
FOR 430	Forest Health and Protection	3
FOR 374	Forest Measurement, Modeling, and Inventory ¹	3
Advised Electives (p. 3)		6
Hours		30

Fourth Year

FW 404	Wildlife Habitat Management ¹	3
FOR 405	Forest Management ¹	4
FOR 406	Forest Inventory, Analysis and Planning ¹	4
NR 460	Renewable Natural Resource Management and Policy ¹	3

Technical Electives (p. 2)	5
Hours	19
Total Hours	111

¹ A grade of C- or better required.

Code	Title	Hours
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 Additional Breadth (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/) (Humanities/Social Sciences/Visual and Performance Arts)	3
	GEP Interdisciplinary Perspectives (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/)	5
	GEP U.S. Diversity (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-us-diversity/) (verify requirement)	
	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/) Foreign (verify requirement)	
Total Hours		16

Economics Electives

Code	Title	Hours
ARE 201	Introduction to Agricultural & Resource Economics	3
ARE 201A	Introduction to Agricultural & Resource Economics	3
EC 201	Principles of Microeconomics	3
EC 205	Fundamentals of Economics	3

Technical Electives

Code	Title	Hours
FOR/FW/NR Technical Electives		
AEC 420	Introduction to Fisheries Science	3
AEC 423	Introduction to Fisheries Sciences Laboratory	1
ENT 402	Forest Entomology	3
FOR 248	Forest History, Technology and Society	3
FOR 293	Independent Study in Forest Management	1-6
FOR 294	Independent Study in Forest Management	1-6
FOR 295	Special Topics in Forestry	1-6
FOR 318	Forest Pathology	3
FOR 330	North Carolina Forests	3
FOR 402	Forest Entomology	3
FOR 408	Hardwood Management	3
FOR 411	Forest Tree Genetics and Biology	3
FOR 414	World Forestry	3
FOR 415	World Forestry Study Tour	1
FOR 420	Watershed and Wetlands Hydrology	4

FOR 491	Special Topics in Forestry and Related Natural Resources	1-4
FOR 493	Independent Study in Forest Management	1-6
FOR 494	Independent Study in Forest Management	1-6
FOR 508	Hardwood Management	3
FOR 520	Watershed and Wetlands Hydrology	4
FW 221	Conservation of Natural Resources	3
FW 293	Independent Study in Fisheries, Wildlife, and Conservation Biology	1-6
FW 294	Independent Study in Fisheries, Wildlife, and Conservation Biology	1-6
FW 311	Piedmont Wildlife Ecology and Management	3
FW 312	Fisheries Techniques and Management	1
FW 313	Mountain Wildlife Ecology and Management	1
FW 314	Coastal Ecology and Management	1
FW 333	Conservation Biology in Practice	3
FW 353	Wildlife Management	3
FW 373	Vertebrate Natural History	3
FW 403	Urban Wildlife Management	3
FW 405	Tropical Wildlife Ecology	3
FW 411	Human Dimensions of Wildlife and Fisheries	3
FW 415	Professional Development in Fisheries, Wildlife, and Conservation Biology	1
FW 444	Mammalogy	3
FW 445	Human Dimensions of Conservation Biology in the Bahamas	3
FW 453	Principles of Wildlife Science	4
FW 460	International Wildlife Management and Conservation	3
FW 465	African Ecology and Conservation	4
FW 492	External Learning Experience	1-6
FW 493	Independent Study in Fisheries, Wildlife, and Conservation Biology	1-6
FW 494	Independent Study in Fisheries, Wildlife, and Conservation Biology	1-6
FW 495	Special Topics in Fisheries and Wildlife Science	1-3
FW 511	Human Dimensions of Wildlife and Fisheries	3
FW 544	Mammalogy	3
FW 560	International Wildlife Management and Conservation	3
FW 565	African Ecology and Conservation	4
IDS 303	Humans and the Environment	3
NR 219	Natural Resource Markets	3
NR 293	Independent Study in Natural Resources	1-6
NR 294	Independent Study in Natural Resources	1-6
NR 295	Special Topics in Natural Resources	1-3
NR 300	Natural Resource Measurements	4
NR 301	Practicum for Professional Development I	1
NR 303	Humans and the Environment	3
NR 350	International Sustainable Resource Use	4
NR 360	Internship Experience	3
NR 400	Natural Resource Management	4
NR 406	Conservation of Biological Diversity	3
NR 420	Watershed and Wetlands Hydrology	4

NR 421	Wetland Assessment, Delineation and Regulation	3	FOR 334	Operations Research Applications in Natural Resources	1
NR 484	Environmental Impact Assessment	4	FOR 339	Dendrology	4
NR 491	Special Topics in Forestry and Related Natural Resources	1-4	FOR 350	Professional Development III: Ethical Dilemmas in Natural Resource Management	1
NR 493	Independent Study in Natural Resources	1-6	FOR 353	GIS and Remote Sensing for Environmental Analysis and Assessment	3
NR 494	Independent Study in Natural Resources, Teaching Experience in Nutrition Science	1-3	FOR 374	Forest Measurement, Modeling, and Inventory	3
NR 500	Natural Resource Management	4	FOR 405	Forest Management	4
NR 520	Watershed and Wetlands Hydrology	4	FOR 406	Forest Inventory, Analysis and Planning	4
NR 521	Wetland Assessment, Delineation and Regulation	3	FOR 422	Consulting Forestry	3
PP 318	Forest Pathology	3	FOR 430	Forest Health and Protection	3
Technical Electives			FOR 434	Forest Operations and Analysis	3
ET 201	Environmental Technology Laboratory I	1	FOR 472	Forest Soils	4
ET 202	Environmental Technology Laboratory II	1	FOR 501	Dendrology	3
ET 203	Pollution Prevention	1	FOR 503	Tree Physiology	1
ET 220	Solar Photovoltaics Assessment	3	FOR 504	The Practice of Silviculture	3
ET 255	Hydro, Wind, and Bioenergy Assessment	3	FOR 505	Forest Management	4
ET 262	Renewable Energy Adoption: Barriers and Incentives	3	FOR 506	Silviculture Laboratory	1
ET 293	Independent Study in Environmental Technology & Management	1-6	FOR 507	Silviculture Mini Course	1
ET 294	Independent Study in Environmental Technology & Management	1-6	FOR 519	Forest Economics	3
ET 295	Special Topics in Environmental Technology & Management	1-6	FOR 522	Consulting Forestry	3
ET 301	Environmental Technology Laboratory III	1	FOR 534	Forest Operations and Analysis	3
ET 302	Environmental Technology Laboratory IV	1	FOR 561	Forest Communities of the Southeastern Coastal Plain	1
ET 303	Laboratory Safety Systems and Management	1	FOR 562	Forest Communities of the Southern Appalachians	1
ET 310	Environmental Monitoring and Analysis	3	FOR 574	Forest Mensuration and Modeling	3
ET 320	Fundamentals of Air Pollution	3	FW 404	Wildlife Habitat Management	3
ET 330	Environmental Technology Practicum	3	GIS 205	Spatial Thinking with GIS	3
ET 401	Environmental Technology Laboratory V	1	GIS 280	Introduction to GIS	3
ET 455	Adaptive Management and Governance	3	GIS 295	Special Topics in Geospatial Information Science	1-4
ET 460	Practice of Environmental Technology	3	GIS 510	Fundamentals of Geospatial Information Science and Technology	3
ET 493	Independent Study in Environmental Technology & Management	1-6	MEA 320	Fundamentals of Air Pollution	3
ET 494	Independent Study in Environmental Technology & Management	1-6	NR 460	Renewable Natural Resource Management and Policy	3
ET 495	Special Topics in Environmental Technology & Management	1-6	NR 560	Renewable Natural Resource Management and Policy	3
FOR 150	Critical Thinking and Data Analysis	2	PB 200	Plant Life	4
FOR 172	Forest System Mapping and Mensuration I	2	SMT 202	Anatomy and Properties of Renewable Materials	3
FOR 204	Silviculture	2	SSC 200	Soil Science	3
FOR 250	Professional Development II: Communications in Natural Resources	1	SSC 201	Soil Science Laboratory	1
FOR 252	Introduction to Forest Science	3	Advised Electives		
FOR 260	Forest Ecology	4	Code	Title	Hours
FOR 261	Forest Communities	2	ACC 200	Introduction to Managerial Accounting	3
FOR 264	Forest Wildlife	1	ACC 210	Concepts of Financial Reporting	3
FOR 265	Fire Management	1	ACC 220	Introduction to Managerial Accounting	3
FOR 273	Forest System Mapping and Mensuration II	3	ACC 230	Individual Income Taxation	3
FOR 303	Silvics and Forest Tree Physiology	3	ACC 280	Survey of Financial and Managerial Accounting	3
FOR 304	Theory of Silviculture	4	ACC 295	Special Topics in Accounting	1-6
FOR 319	Forest Economics	3	ACC 310	Intermediate Financial Accounting I	3
			ACC 311	Intermediate Financial Accounting II	3

ACC 330	An Introduction To Income Taxation	3	ARE 420	Taxation in Agriculture, Production, and Agribusiness	3
ACC 340	Accounting Information Systems	3	ARE 425	Contracts and Organizations in Agriculture	3
ACC 411	Business Valuation	3	ARE 433	U.S. Agricultural Policy	3
ACC 420	Cost Accounting for Effective Management	3	ARE 444	Ethics in Agribusiness	3
ACC 440	Enterprise Resource Planning Systems	3	ARE 448	International Agricultural Trade	3
ACC 450	Auditing and Assurance Services	3	ARE 455	Agribusiness Analytics	3
ACC 451	Internal Auditing	3	ARE 470	Agribusiness Entrepreneurship Clinical Skills Development	3
ACC 460	Governmental and Nonprofit Accounting	3	ARE 475	Food Policy	3
ACC 495	Special Topics in Accounting	1-6	ARE 490	Career Seminar in Agriculture & Resource Economics	1
ACC 498	Independent Study in Accounting	1-6	ARE 492	External Learning Experience	1-6
ACC 499	Internship in ACC	1-6	ARE 493	Special Problems/Research Exploration	1-6
AEC 360	Ecology	4	ARE 494	Agribusiness Study Abroad	1-6
AEC 420	Introduction to Fisheries Science	3	ARE 495	Special Topics in Agricultural and Resource Economics	1-6
AEC 423	Introduction to Fisheries Sciences Laboratory	1	BAE 200	Computer Methods in Biological Engineering	2
AEE 208	Agricultural Biotechnology: Issues and Implications	3	BAE 202	Introduction to Biological and Agricultural Engineering Methods	4
BAET 201	Shop Processes and Management	3	BAE 203	Introduction to AutoCAD Civil 3D for Environmental & Ecological Engineers	2
BAET 323	Water Management	3	BAE 204	Introduction to Environmental and Ecological Engineering	2
BAET 332	Management of Animal Environments	4	BAE 302	Transport Phenomena	3
BAET 333	Processing Agricultural Products	4	BAE 305	Biological Engineering Circuits	4
BAET 343	Agricultural Electrification	4	BAE 321	Bioprocessing Engineering Fundamentals	3
BAET 411	Agricultural Machinery and Power Units	4	BAE 322	Introduction to Food Process Engineering	3
BAET 432	Agricultural and Environmental Safety and Health	3	BAE 325	Introductory Geomatics	3
ANS 208	Agricultural Biotechnology: Issues and Implications	3	BAE 361	Analytical Methods in Engineering Design	3
ANS 215	Agricultural Genetics	3	BAE 371	Fundamentals of Hydrology for Engineers	3
ARE 201	Introduction to Agricultural & Resource Economics	3	BAE 376	Watershed Assessment and Water Quality Protection	3
ARE 201A	Introduction to Agricultural & Resource Economics	3	BAE 401	Sensors and Controls	3
ARE 215	Small Business Accounting	3	BAE 425	Industrial Microbiology and Bioprocessing	3
ARE 260	Marketing and Risk Management in the Pork Industry	1	BAE 435	Precision Agriculture Technology	3
ARE 270	Principles of Agribusiness Entrepreneurship	3	BAE 451	Engineering Design I	2
ARE 295	Special Topics in Agricultural & Resource Economics (200 Level)	1-6	BAE 452	Engineering Design II	2
ARE 301	Intermediate Microeconomics	3	BAE 462	Machinery Design and Applications	3
ARE 303	Farm Management	3	BAE 472	Irrigation and Drainage	3
ARE 304	Agribusiness Management	3	BAE 473	Introduction to Hydrologic and Water Quality Modeling	3
ARE 306	Agricultural Law	3	BAE 474	Principles and Applications of Ecological Engineering	3
ARE 309	Environmental Law & Economic Policy	3	BAE 478	Agricultural Waste Management	3
ARE 311	Agricultural Markets	3	BAE 481	Structures & Environment	3
ARE 312	Agribusiness Marketing	3	BAE 488	Postharvest Engineering	3
ARE 321	Agricultural Financial Management	3	BAE 492	External Learning Experience	1-6
ARE 323	Agribusiness Finance	3	BAE 493	Special Problems in Biological and Agricultural Engineering	1-6
ARE 332	Human Resource Management for Agribusiness	3	BAE 495	Special Topics in Biological and Agricultural Engineering	1-3
ARE 336	Introduction to Resource and Environmental Economics	3	BAE 501	Sensors and Controls	3
ARE 345	Global Agribusiness Management	3	BAE 525	Industrial Microbiology and Bioprocessing	3
ARE 370	Agribusiness New Venture Development	3			
ARE 395	Special Topics in Agricultural and Resource Economics (300 level)	1-6			
ARE 404	Advanced Agribusiness Management	3			
ARE 412	Advanced Agribusiness Marketing	3			
ARE 413	Applied Agribusiness Marketing	3			
ARE 415	Introduction to Commodity Futures Markets	3			

BAE 535	Precision Agriculture Technology	3	CH 335	Principles of Green Chemistry	4
BAE 572	Irrigation and Drainage	3	CH 345	Chemistry and War	3
BAE 573	Introduction to Hydrologic and Water Quality Modeling	3	CH 401	Systematic Inorganic Chemistry I	3
BAE 578	Agricultural Waste Management	3	CH 403	Systematic Inorganic Chemistry II	3
BIO 330	Evolutionary Biology	3	CH 415	Analytical Chemistry II	3
BIO 414	Cell Biology	3	CH 431	Physical Chemistry I	3
BIT 476	Applied Bioinformatics	2	CH 433	Physical Chemistry II	3
BIT 481	Plant Tissue Culture and Transformation	2	CH 435	Introduction to Quantum Chemistry	3
BUS 350	Economics and Business Statistics	3	CH 437	Physical Chemistry for Engineers	4
CE 225	Mechanics of Solids	3	CH 441	Forensic Chemistry	3
CE 282	Hydraulics	3	CH 442	Advanced Synthetic Techniques	4
CE 301	Civil Engineering Surveying and Geomatics	3	CH 444	Advanced Synthetic Techniques II	4
CE 305	Traffic Engineering	3	CH 452	Advanced Measurement Techniques I	4
CE 324	Structural Behavior Measurement	1	CH 454	Advanced Measurement Techniques II	4
CE 325	Structural Analysis I	3	CH 463	Molecular Origins of Life	3
CE 327	Reinforced Concrete Design	3	CH 495	Special Topics in Chemistry	1-4
CE 332	Materials of Construction	3	CH 499	Undergraduate Research in Chemistry	1-3
CE 339	Civil Engineering Systems	3	CH 563	Molecular Origins of Life	3
CE 342	Engineering Behavior of Soils and Foundations	4	CS 200	Introduction to Turfgrass Management	4
CE 365	Construction Equipment and Methods	3	CS 210	Lawns and Sports Turf	3
CE 367	Mechanical and Electrical Systems in Buildings	3	CS 211	Plant Genetics	3
CE 373	Fundamentals of Environmental Engineering	3	CS 213	Crop Science	3
CE 378	Environmental Chemistry and Microbiology	4	CS 214	Crop Science Laboratory	1
CE 381	Hydraulics Systems Measurements Lab	1	CS 216	Southern Row Crop Production - Cotton, Peanuts, and Tobacco	3
CE 383	Hydrology and Urban Water Systems	3	CS 218	Southern Row Crop Production - Corn, Small Grains and Soybeans	3
CE 390	Engineering Economics	1	CS 224	Seeds, Biotechnology and Societies	3
CE 437	Civil Engineering Computing	3	CS 230	Introduction to Agroecology	3
CH 201	Chemistry - A Quantitative Science	3	CS 312	Grassland Management for Natural Resources Conservation	3
CH 202	Quantitative Chemistry Laboratory	1	CS 400	Turf Cultural Systems	3
CH 203	General Chemistry II for Students in Chemical Sciences	3	CS 410	Community Food Systems	3
CH 204	General Chemistry Laboratory II for Students in Chemical Sciences	1	CS 411	Crop Ecology	3
CH 220	Introductory Organic Chemistry	3	CS 413	Plant Breeding	2
CH 221	Organic Chemistry I	3	CS 414	Weed Science	4
CH 222	Organic Chemistry I Lab	1	CS 415	Integrated Pest Management	3
CH 223	Organic Chemistry II	3	CS 418	Introduction to Regulatory Science in Agriculture	3
CH 224	Organic Chemistry II Lab	1	CS 424	Seed Physiology	3
CH 225	Organic Chemistry I for Students in Chemical Sciences	3	CS 430	Advanced Agroecology	4
CH 226	Organic Chemistry Laboratory I for Students in Chemical Sciences	1	CS 465	Turf Management Systems and Environmental Quality	3
CH 227	Organic Chemistry II for Students in Chemical Sciences	3	CS 470	Advanced Turfgrass Pest Management	2
CH 228	Organic Chemistry Laboratory II for Students in Chemical Sciences	1	CS 480	Sustainable Food Production (capstone)	1
CH 230	Computational Chemistry Lab I	1	CS 518	Introduction to Regulatory Science in Agriculture	3
CH 232	Computational Chemistry Lab II	1	CS 524	Seed Physiology	3
CH 295	Special Topics in Chemistry	1-3	CS 565	Turf Management Systems and Environmental Quality	3
CH 315	Quantitative Analysis	3	CSC 416	Introduction to Combinatorics	3
CH 316	Quantitative Analysis Laboratory	1	CSC 427	Introduction to Numerical Analysis I	3
CH 331	Introductory Physical Chemistry	4	CSC 428	Introduction to Numerical Analysis II	3
			CSC 442	Introduction to Data Science	3
			CSSC 290	Professional Development in Crop & Soil Sciences	1

CSSC 490	Senior Seminar in Crop Science and Soil Science	1	ET 302	Environmental Technology Laboratory IV	1
CSSC 492	Professional Internship Experience in Crop and Soil Sciences	1-3	ET 303	Laboratory Safety Systems and Management	1
CSSC 493	Research Experience in Crop and Soil Sciences	1-3	ET 310	Environmental Monitoring and Analysis	3
CSSC 495	Special Topics in Crop and Soil Sciences	1-6	ET 320	Fundamentals of Air Pollution	3
EC 201	Principles of Microeconomics	3	ET 330	Environmental Technology Practicum	3
EC 202	Principles of Macroeconomics	3	ET 401	Environmental Technology Laboratory V	1
EC 205	Fundamentals of Economics	3	ET 455	Adaptive Management and Governance	3
EC 301	Intermediate Microeconomics	3	ET 460	Practice of Environmental Technology	3
EC 336	Introduction to Resource and Environmental Economics	3	ET 493	Independent Study in Environmental Technology & Management	1-6
EC 351	Econometrics I	3	ET 494	Independent Study in Environmental Technology & Management	1-6
EC 404	Money, Financial Markets, and the Economy	3	ET 495	Special Topics in Environmental Technology & Management	1-6
EC 410	Public Finance	3	FOR 248	Forest History, Technology and Society	3
EC 413	Industrial Organization	3	FOR 293	Independent Study in Forest Management	1-6
EC 431	Labor Economics	3	FOR 294	Independent Study in Forest Management	1-6
EC 437	Health Economics	3	FOR 295	Special Topics in Forestry	1-6
EC 449	International Finance	3	FOR 318	Forest Pathology	3
EC 451	Econometrics II	3	FOR 330	North Carolina Forests	3
EC 468	Game Theory	3	FOR 402	Forest Entomology	3
EC 474	Economics of Financial Institutions and Markets	3	FOR 408	Hardwood Management	3
EC 480	Introduction to Economic Research	3	FOR 411	Forest Tree Genetics and Biology	3
EC 490	Research Seminar in Economics	3	FOR 414	World Forestry	3
EC 495	Special Topics in Economics	1-6	FOR 415	World Forestry Study Tour	1
EC 498	Independent Study in Economics	1-6	FOR 420	Watershed and Wetlands Hydrology	4
ECE 488	Systems Biology Modeling of Plant Regulation	3	FOR 491	Special Topics in Forestry and Related Natural Resources	1-4
ECE 588	Systems Biology Modeling of Plant Regulation	3	FOR 493	Independent Study in Forest Management	1-6
ENT 201	Insects and People	3	FOR 494	Independent Study in Forest Management	1-6
ENT 203	An Introduction to the Honey Bee and Beekeeping	3	FOR 508	Hardwood Management	3
ENT 207	Insects and Human Disease	3	FOR 520	Watershed and Wetlands Hydrology	4
ENT 212	Basic Entomology	1	FS 462	Postharvest Physiology	3
ENT 305	Introduction to Forensic Entomology	3	FS 562	Postharvest Physiology	3
ENT 401	Honey Bee Biology and Management	3	FW 221	Conservation of Natural Resources	3
ENT 402	Forest Entomology	3	FW 293	Independent Study in Fisheries, Wildlife, and Conservation Biology	1-6
ENT 425	General Entomology	3	FW 294	Independent Study in Fisheries, Wildlife, and Conservation Biology	1-6
ENT 470	Advanced Turfgrass Pest Management	2	FW 311	Piedmont Wildlife Ecology and Management	3
ENT 492	External Learning Experience	1-6	FW 312	Fisheries Techniques and Management	1
ENT 493	Special Problems in Entomology	1-6	FW 313	Mountain Wildlife Ecology and Management	1
ENT 495	Special Topics in Entomology	1-3	FW 314	Coastal Ecology and Management	1
ET 201	Environmental Technology Laboratory I	1	FW 333	Conservation Biology in Practice	3
ET 202	Environmental Technology Laboratory II	1	FW 353	Wildlife Management	3
ET 203	Pollution Prevention	1	FW 373	Vertebrate Natural History	3
ET 220	Solar Photovoltaics Assessment	3	FW 403	Urban Wildlife Management	3
ET 255	Hydro, Wind, and Bioenergy Assessment	3	FW 405	Tropical Wildlife Ecology	3
ET 262	Renewable Energy Adoption: Barriers and Incentives	3	FW 411	Human Dimensions of Wildlife and Fisheries	3
ET 293	Independent Study in Environmental Technology & Management	1-6	FW 415	Professional Development in Fisheries, Wildlife, and Conservation Biology	1
ET 294	Independent Study in Environmental Technology & Management	1-6	FW 444	Mammalogy	3
ET 295	Special Topics in Environmental Technology & Management	1-6			
ET 301	Environmental Technology Laboratory III	1			

FW 445	Human Dimensions of Conservation Biology in the Bahamas	3	HS 442	Floriculture Crop Production	3
FW 453	Principles of Wildlife Science	4	HS 451	Plant Nutrition	3
FW 460	International Wildlife Management and Conservation	3	HS 462	Postharvest Physiology	3
FW 465	African Ecology and Conservation	4	HS 471	Landscape Ecosystem Management	4
FW 492	External Learning Experience	1-6	HS 475	Horticulture Entrepreneurship	3
FW 493	Independent Study in Fisheries, Wildlife, and Conservation Biology	1-6	HS 476	Crop Physiology and Production in Controlled Environments	3
FW 494	Independent Study in Fisheries, Wildlife, and Conservation Biology	1-6	HS 480	Sustainable Food Production (capstone)	1
FW 495	Special Topics in Fisheries and Wildlife Science	1-3	HS 491	Sustainable Agriculture Entrepreneurship Study Abroad	3
FW 511	Human Dimensions of Wildlife and Fisheries	3	HS 492	Horticulture Internship	1-3
FW 544	Mammalogy	3	HS 493	Research Experience in Horticultural Science	1-3
FW 560	International Wildlife Management and Conservation	3	HS 494	Teaching Experience in Horticultural Science	1-3
FW 565	African Ecology and Conservation	4	HS 495	Experimental Courses in Horticultural Science	1-6
GIS 205	Spatial Thinking with GIS	3	HS 516	Planting Design	4
GIS 280	Introduction to GIS	3	HS 520	Green Infrastructure	3
GIS 295	Special Topics in Geospatial Information Science	1-4	HS 521	Temperate-Zone Tree Fruits: Physiology and Culture	3
GPH 404	Epidemiology and Statistics in Global Public Health	3	HS 523	Viticulture	3
HS 200	Home Horticulture	3	HS 532	Introduction to Permaculture	3
HS 201	The World of Horticulture: Principles and Practices	3	HS 533	Public Garden Administration	3
HS 202	Home Plant Identification	3	HS 551	Plant Nutrition	3
HS 203	Home Plant Propagation	3	HS 562	Postharvest Physiology	3
HS 204	Home Landscape Maintenance	3	HS 576	Crop Physiology and Production in Controlled Environments	3
HS 205	Home Food Production	3	IDS 303	Humans and the Environment	3
HS 215	Agricultural Genetics	3	LOG 335	Symbolic Logic	3
HS 242	Introduction to Small Scale Landscape Design	3	MA 205	Elements of Matrix Computations	3
HS 250	Home Landscape Design: Creating Garden Spaces	3	MA 225	Foundations of Advanced Mathematics	3
HS 252	Landscape Graphic Communication	2	MA 231	Calculus for Life and Management Sciences B	3
HS 272	Landscape Design/Build	6	MA 241	Calculus II	4
HS 280	Hands-On-Horticulture	3	MA 242	Calculus III	4
HS 290	Horticulture: Careers and Opportunities	1	MA 302	Numerical Applications to Differential Equations	1
HS 303	Ornamental Plant Identification I	3	MA 303	Linear Analysis	3
HS 304	Ornamental Plant Identification II	3	MA 305	Introductory Linear Algebra and Matrices	3
HS 400	Residential Landscaping	6	MA 315	Mathematics Methods in Atmospheric Sciences	4
HS 410	Community Food Systems	3	MA 325	Introduction to Applied Mathematics	3
HS 411	Nursery Management	3	MA 331	Differential Equations for the Life Sciences	3
HS 416	Planting Design	4	MA 335	Symbolic Logic	3
HS 418	Digital Media Graphic for Landscape Designers	3	MA 341	Applied Differential Equations I	3
HS 420	Green Infrastructure	3	MA 351	Introduction to Discrete Mathematical Models	3
HS 421	Temperate-Zone Tree Fruits: Physiology and Culture	3	MA 401	Applied Differential Equations II	3
HS 422	Small Fruit Production	3	MA 402	Mathematics of Scientific Computing	3
HS 423	Viticulture	3	MA 403	Introduction to Modern Algebra	3
HS 428	Service-Learning in Urban Agriculture Systems	1	MA 405	Introduction to Linear Algebra	3
HS 431	Vegetable Production	4	MA 407	Introduction to Modern Algebra for Mathematics Majors	3
HS 432	Introduction to Permaculture	3	MA 408	Foundations of Euclidean Geometry	3
HS 433	Public Garden Administration	3	MA 410	Theory of Numbers	3
HS 440	Greenhouse Management	3	MA 412	Long-Term Actuarial Models	3
			MA 413	Short-Term Actuarial Models	3
			MA 416	Introduction to Combinatorics	3
			MA 421	Introduction to Probability	3

MA 425	Mathematical Analysis I	3	PB 295	Special Topics in Botany	1-4
MA 426	Mathematical Analysis II	3	PB 321	Introduction to Whole Plant Physiology	3
MA 427	Introduction to Numerical Analysis I	3	PB 325	Culinary Botany	3
MA 428	Introduction to Numerical Analysis II	3	PB 345	Economic Botany	3
MA 430	Mathematical Models in the Physical Sciences	3	PB 346	Economic Botany Lab	1
MA 432	Mathematical Models in Life and Social Sciences	3	PB 360	Ecology	4
MA 437	Applications of Algebra	3	PB 400	Plant Diversity and Evolution	4
MA 440	Game Theory	3	PB 403	Systematic Botany	4
MA 444	Problem Solving Strategies for Competitions	1	PB 413	Plant Anatomy	2
MA 450	Methods of Applied Mathematics I	3	PB 421	Plant Physiology	3
MA 451	Methods of Applied Mathematics II	3	PB 445	Paleobotany	4
MA 491	Reading in Honors Mathematics	1-6	PB 464	Rare Plants of North Carolina	3
MA 493	Special Topics in Mathematics	1-6	PB 480	Introduction to Plant Biotechnology	3
MA 494	Major Paper in Math	1	PB 481	Plant Tissue Culture and Transformation	2
MA 499	Independent Research in Mathematics	1-6	PB 492	External Learning Experience	1-6
MAE 214	Solid Mechanics	3	PB 493	SP Problems in BO	1-6
MAE 308	Fluid Mechanics	3	PB 495	Special Topics in Botany	1-6
MEA 315	Mathematics Methods in Atmospheric Sciences	4	PB 503	Systematic Botany	4
MEA 320	Fundamentals of Air Pollution	3	PB 513	Plant Anatomy	2
MEA 323	Geochemistry of Natural Waters	3	PB 545	Paleobotany	4
MEA 473	Principles of Chemical Oceanography	3	PB 564	Rare Plants of North Carolina	3
MEA 573	Principles of Chemical Oceanography	3	PB 580	Introduction to Plant Biotechnology	3
NR 219	Natural Resource Markets	3	PP 222	Kingdom of Fungi	3
NR 293	Independent Study in Natural Resources	1-6	PP 232	Big Data in Your Pocket: Call it a Smartphone	3
NR 294	Independent Study in Natural Resources	1-6	PP 241	The Worm's Tale: Parasites In Our Midst	3
NR 295	Special Topics in Natural Resources	1-3	PP 315	Principles of Plant Pathology	4
NR 300	Natural Resource Measurements	4	PP 318	Forest Pathology	3
NR 301	Practicum for Professional Development I	1	PP 470	Advanced Turfgrass Pest Management	2
NR 303	Humans and the Environment	3	PP 492	External Learning Experience	1-6
NR 350	International Sustainable Resource Use	4	PP 493	Special Problems in Plant Pathology	1-6
NR 360	Internship Experience	3	PP 495	Special Topics in Plant Pathology	1-3
NR 400	Natural Resource Management	4	PSE 335	Principles of Green Chemistry	4
NR 406	Conservation of Biological Diversity	3	PSY 240	Introduction to Behavioral Research I	3
NR 420	Watershed and Wetlands Hydrology	4	PSY 241	Introduction to Behavioral Research I Lab	1
NR 421	Wetland Assessment, Delineation and Regulation	3	PSY 242	Introduction to Behavioral Research II	3
NR 484	Environmental Impact Assessment	4	PSY 243	Introduction to Behavioral Research II Lab	2
NR 491	Special Topics in Forestry and Related Natural Resources	1-4	SMT 200	Introduction to Sustainable Materials and Technology	3
NR 493	Independent Study in Natural Resources	1-6	SMT 201	Sustainable Materials for Green Housing	2
NR 494	Independent Study in Natural Resources, Teaching Experience in Nutrition Science	1-3	SMT 203	Physical Properties of Sustainable Materials	4
NR 500	Natural Resource Management	4	SMT 206	Wood Manufacturing Site Visits	1
NR 520	Watershed and Wetlands Hydrology	4	SMT 210	Sustainable Materials Internship	1
NR 521	Wetland Assessment, Delineation and Regulation	3	SMT 232	Recycling to Create a Sustainable Environment	2
PB 205	Our Green World	3	SMT 240	Introduction to Wood Products Industries	2
PB 208	Agricultural Biotechnology: Issues and Implications	3	SMT 293	Independent Study in Sustainable Materials & Technology	1-6
PB 213	Plants and Civilization	3	SMT 294	Independent Study in Sustainable Materials & Technology	1-6
PB 215	Medicinal Plants	3	SMT 295	Special Topics in Sustainable Materials and Technology	1-3
PB 219	Plants in Folklore, Myth, and religion	3	SMT 301	Chemistry of Sustainable Materials	3
PB 220	Local Flora	3	SMT 302	Processing of Biomaterials	4
PB 250	Plant Biology	4	SMT 308	Wood Processing	4
PB 277	Space Biology	3			

SMT 310	Introduction to Industrial Ecology	3	ST 430	Introduction to Regression Analysis	3
SMT 320	Industrial Chemical Pollutants	2	ST 431	Introduction to Experimental Design	3
SMT 330	Project Management for Sustainability	3	ST 432	Introduction to Survey Sampling	3
SMT 346	Sustainable Materials Business Marketing	3	ST 433	Applied Spatial Statistics	3
SMT 441	Mechanical Properties of Sustainable Materials	4	ST 434	Applied Time Series	3
SMT 444	Sustainable Composites and Biopolymers	3	ST 435	Statistical Methods for Quality and Productivity Improvement	3
SMT 450	Sustainable Business and Innovation	2	ST 437	Applied Multivariate and Longitudinal Data Analysis	3
SMT 483	Capstone in Sustainable Materials and Technology	3	ST 440	Applied Bayesian Analysis	3
SMT 493	Independent Study in Sustainable Materials & Technology	1-6	ST 442	Introduction to Data Science	3
SMT 494	Independent Study in Sustainable Materials & Technology	1-6	ST 445	Introduction to Statistical Computing and Data Management	3
SSC 332	Environmental Soil Microbiology	3	ST 446	Intermediate SAS Programming with Applications	3
SSC 341	Soil Fertility and Nutrient Management	3	ST 491	Statistics in Practice	3
SSC 342	Soil and Plant Nutrient Analysis	1	ST 495	Special Topics in Statistics	1-6
SSC 410	Soil Judging for Land Evaluation	1	ST 497	Professional Experience in Statistics	1-3
SSC 421	Role of Soils in Environmental Management	3	ST 498	Independent Study In Statistics	1-6
SSC 427	Biological Approaches to Sustainable Soil Systems	3	ST 499	Research Experience in Statistics	1-3
SSC 428	Service-Learning in Urban Agriculture Systems	1	ST 505	Applied Nonparametric Statistics	3
SSC 440	Geographic Information Systems (GIS) in Soil Science and Agriculture	3	ST 533	Applied Spatial Statistics	3
SSC 442	Soil and Environmental Biogeochemistry	3	ST 534	Applied Time Series	3
SSC 452	Soil Classification	4	ST 535	Statistical Methods for Quality and Productivity Improvement	3
SSC 455	Soils, Environmental Quality and Global Challenges	3	ST 537	Applied Multivariate and Longitudinal Data Analysis	3
SSC 461	Soil Physical Properties and Plant Growth	3	ST 540	Applied Bayesian Analysis	3
SSC 462	Soil-Crop Management Systems	3	FL* Non-CoReq		
SSC 470	Wetland Soils	3	ECI 427	Methods and Materials in Teaching English as a Second Language	3
SSC 473	Introduction to Hydrologic and Water Quality Modeling	3	ECI 436	Perspectives on English as a New Language	3
SSC 540	Geographic Information Systems (GIS) in Soil Science and Agriculture	3	ECI 505	Issues and Trends in Foreign Language Education: Theory & Practice	3
SSC 570	Wetland Soils	3	ECI 527	Methods and Materials in Teaching English as a Second Language	3
SSC 573	Introduction to Hydrologic and Water Quality Modeling	3	ECI 536	Perspectives on English as a New Language	3
ST 305	Statistical Methods	4	ED 299	Field Experience for 21st Century Teaching	1
ST 307	Introduction to Statistical Programming- SAS	1	ENG 219	Studies in Great Works of Non-Western Literature	3
ST 308	Introduction to Statistical Programming - R	1	ENG 220	Studies in Great Works of Western Literature	3
ST 311	Introduction to Statistics	3	ENG 221	Literature of the Western World I	3
ST 312	Introduction to Statistics II	3	ENG 222	Literature of the Western World II	3
ST 350	Economics and Business Statistics	3	ENG 223	Contemporary World Literature I	3
ST 370	Probability and Statistics for Engineers	3	ENG 224	Contemporary World Literature II	3
ST 371	Introduction to Probability and Distribution Theory	3	ENG 246	Literature of the Holocaust	3
ST 372	Introduction to Statistical Inference and Regression	3	ENG 275	Literature and War	3
ST 380	Probability and Statistics for the Physical Sciences	3	ENG 325	Spoken and Written Traditions of American English Dialects	3
ST 401	Experiences in Data Analysis	4	ENG 392	Major World Author	3
ST 404	Epidemiology and Statistics in Global Public Health	3	ENG 393	Studies in Literary Genre	3
ST 405	Applied Nonparametric Statistics	3	ENG 394	Studies in World Literature	3
ST 412	Long-Term Actuarial Models	3	ENG 406	Modernism	3
ST 413	Short-Term Actuarial Models	3	ENG 407	Postmodernism	3
ST 421	Introduction to Mathematical Statistics I	3	ENG 539	Seminar In World Literature	3
ST 422	Introduction to Mathematical Statistics II	3	ENG 541	Literary and Cultural Theory	3

FL 216	Art and Society in France	3
FL 219	Studies in Great Works of Non-Western Literature	3
FL 220	Studies in Great Works of Western Literature	3
FL 221	Literature of the Western World I	3
FL 222	Literature of the Western World II	3
FL 223	Contemporary World Literature I	3
FL 224	Contemporary World Literature II	3
FL 246	Literature of the Holocaust	3
FL 275	Literature and War	3
FL 295	Special Topics in Foreign Languages and/or Literatures	1-6
FL 298	Independent Study in Foreign Language or Literature	1-6
FL 299	Field Experience for 21st Century Teaching	1
FL 392	Major World Author	3
FL 393	Studies in Literary Genre	3
FL 394	Studies in World Literature	3
FL 395	Study Abroad Programs	1-3
FL 406	Modernism	3
FL 407	Postmodernism	3
FL 424	Linguistics for ESL Professionals	3
FL 427	Methods and Materials in Teaching English as a Second Language	3
FL 436	Perspectives on English as a New Language	3
FL 440	Internship in Teaching English as a Second Language	3
FL 492	Senior Seminar in Foreign Languages & Literatures	3
FL 495	Special Topics in Foreign Languages and Literatures	1-6
FL 498	Independent Study in Foreign Language or Literature	1-6
FL 505	Issues and Trends in Foreign Language Education: Theory & Practice	3
FL 506	Instructional Technology in Foreign Language Education: Addressing the Standards	3
FL 507	College Teaching of Foreign Languages	3
FL 508	Second Language Acquisition Research: Interlanguage Development	3
FL 524	Linguistics for ESL Professionals	3
FL 527	Methods and Materials in Teaching English as a Second Language	3
FL 536	Perspectives on English as a New Language	3
FL 539	Seminar In World Literature	3
FL 541	Literary and Cultural Theory	3
FL 595	Special Topics in Foreign Languages and Literatures	1-6

Semester Sequence

This is a sample.

Course	Title	Hours
First Year		
Fall Semester		
SMT 202	Anatomy and Properties of Renewable Materials ¹	3
MA 114	Introduction to Finite Mathematics with Applications	3
ENV 100	Student Success in Environmental First Year ¹	1
PB 200	Plant Life	4
GEP Elective		3
Hours		14
Spring Semester		
CH 101 & CH 102	Chemistry - A Molecular Science and General Chemistry Laboratory	4
ENG 101	Academic Writing and Research ¹	4
FOR 150	Critical Thinking and Data Analysis ¹	2
MA 121	Elements of Calculus	3
GEP Health and Exercise Studies (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/)		1
Hours		14
Second Year		
Fall Semester		
CH 201 & CH 202 or PY 211	Chemistry - A Quantitative Science or College Physics I	4
FOR 172	Forest System Mapping and Mensuration I ¹	2
FOR 339	Dendrology ¹	4
Technical Elective		4
Hours		14
Spring Semester		
ARE 201 or EC 205	Introduction to Agricultural & Resource Economics or Fundamentals of Economics	3
FOR 250	Professional Development II: Communications in Natural Resources ¹	1
FOR 260	Forest Ecology ¹	4
SSC 200 & SSC 201	Soil Science and Soil Science Laboratory	4
ST 311	Introduction to Statistics	3
Hours		15
Summer		
FOR 204	Silviculture ¹	2
FOR 261	Forest Communities ¹	2
FOR 264	Forest Wildlife ¹	1
FOR 265	Fire Management ¹	1
FOR 273	Forest System Mapping and Mensuration II ¹	3
Hours		9
Third Year		
Fall Semester		
FOR 303	Silvics and Forest Tree Physiology ¹	3

FOR 319	Forest Economics ¹	3
FOR 334	Operations Research Applications in Natural Resources ¹	1
FOR 353 or GIS 510	GIS and Remote Sensing for Environmental Analysis and Assessment ¹ or Fundamentals of Geospatial Information Science and Technology	3
FOR 374	Forest Measurement, Modeling, and Inventory ¹	3
GEP Elective		2
Hours		15

graduate school to specialize in a wide variety of forestry and related programs.

Spring Semester

Select one of the following:		3
ENG 331	Communication for Engineering and Technology	
ENG 332	Communication for Business and Management	
ENG 333	Communication for Science and Research	
FOR 304	Theory of Silviculture ¹	4
FOR 350	Professional Development III: Ethical Dilemmas in Natural Resource Management ¹	1
FOR 430	Forest Health and Protection	3
Advised Electives		6
Hours		17

Fourth Year

Fall Semester

FW 404	Wildlife Habitat Management ¹	3
FOR 405	Forest Management ¹	4
NR 460	Renewable Natural Resource Management and Policy ¹	3
GEP Elective		3
GEP Health and Exercise Studies (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/)		1
Hours		14

Spring Semester

FOR 406	Forest Inventory, Analysis and Planning ¹	4
Technical Electives		5
GEP Electives		6
Hours		15
Total Hours		127

¹ A grade of C- or better is required.

Career Opportunities

Graduates in Forest Management are in high demand by state and federal land management agencies, forest products companies growing wood as a raw material, investment firms and insurance companies with land ownership portfolios, state forestry and agriculture extension services, the Peace Corps, environmental and wetland consulting firms, wood procurement companies, nursery and landscape management firms, and environmental organizations. After several years of experience, many graduates start their own businesses in forestry and land management consulting. Some graduates continue their education in