

Forest Management (BS): Production Concentration

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

The forest management, production concentration, trains professionals who will work for forest owners (industrial and individuals) to produce wood fiber and timber, wildlife habitat, and related services forested ecosystems provide. The program of study concentrates attention on the technical planning and economics of forest investments, harvesting, regeneration and operations. Subjects upon which forest management depends include botany, chemistry, ecology, entomology, forest measurements, hydrology, mapping, mathematics, plant physiology, soil science, and statistics.

The forest management program includes a nine-week summer practicum between the second and third years of coursework. The purpose of the practicum is to study forest measurement and management skills in the field during concentrated hands-on experiences. Seven weeks of this residential practicum occur at George Watts Hill Forest, north of Durham, North Carolina.

The Society of American Foresters accredits the North Carolina State forest management program.

For more information examine our website or contact one of the following:

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Plan Requirements

First Year		Hours
ENV 101	Exploring the Environment	2
ENV 100	Student Success in Environmental First Year	1
SMT 202	Anatomy and Properties of Renewable Materials ¹	3
MA 114	Introduction to Finite Mathematics with Applications	3
PB 200	Plant Life	4
CH 101 & CH 102	Chemistry - A Molecular Science and General Chemistry Laboratory	4
FOR 150	Critical Thinking and Data Analysis ¹	2

MA 121 or MA 131	Elements of Calculus or Calculus for Life and Management Sciences A	3
Acad Writing Research (p. 2) ¹		4
Hours		26

Second Year		Hours
Chemistry or Physics Elective (p. 2)		4
FOR 172	Forest System Mapping and Mensuration I ¹	2
FOR 339	Dendrology ¹	4
ST 311	Introduction to Statistics	3
Economics Elective (p. 2)		3
FOR 260	Forest Ecology ¹	4
FOR 250	Professional Development II: Communications in Natural Resources ¹	1
Soil Science & Lab (p. 2)		4
Technical Electives (p. 3)		3
Hours		28

Summer		Hours
FOR 204	Silviculture ¹	2
FOR 261	Forest Communities	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		Hours
FOR 303	Silvics and Forest Tree Physiology ¹	3
FOR 430	Forest Health and Protection	3
FOR 319	Forest Economics ¹	3
FOR 374	Forest Measurement, Modeling, and Inventory ¹	3
NR 301	Practicum for Professional Development I	1
Advanced Communication Elective (p. 14)		3
Spatial Technology Elective (p. 14)		3
FOR 350	Professional Development III: Ethical Dilemmas in Natural Resource Management ¹	1
FOR 304	Theory of Silviculture ¹	4
Technical Electives (p. 3)		3
Hours		27

Fourth Year		Hours
FW 404	Wildlife Habitat Management	3
FOR 405	Forest Management	4
NR 460	Renewable Natural Resource Management and Policy ¹	3
FOR 406	Forest Inventory, Analysis and Planning ¹	4
Technical Electives (p. 3)		4
Technical Electives (p. 3)		3
Hours		21
Total Hours		111

¹ A grade of C- or better is required.

Code	Title	Hours	Counts towards
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	

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 202	Disciplinary Perspectives in Writing		
ENG 1GEP	100 Level English Composition	3	

Chemistry or Physics Electives

Code	Title	Hours	Counts towards
CH 201	Chemistry - A Quantitative Science	3	
CH 202	Quantitative Chemistry Laboratory	1	
CH 220	Introductory Organic Chemistry	3	
CH 221	Organic Chemistry I	3	
CH 222	Organic Chemistry I Lab	1	
PY 131	Conceptual Physics	4	
PY 211	College Physics I	4	

Economics Electives

Code	Title	Hours	Counts towards
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	
NR 219	Natural Resource Markets	3	

Soil Science and Labs

Code	Title	Hours	Counts towards
FOR 472	Forest Soils	4	
NR 460	Renewable Natural Resource Management and Policy	3	
NR 560	Renewable Natural Resource Management and Policy	3	
SSC 200	Soil Science	3	
SSC 201	Soil Science Laboratory	1	

Technical Electives

Code Title Hours Counts towards

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 204	Silviculture	2	
FOR 248	Forest History, Technology and Society	3	
FOR 250	Professional Development II: Communications in Natural Resources	1	
FOR 252	Introduction to Forest Science	3	
FOR 260	Forest Ecology	4	
FOR 261	Forest Communities	2	
FOR 264	Forest Wildlife	1	
FOR 265	Fire Management	1	
FOR 273	Forest System Mapping and Mensuration II	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 303	Silvics and Forest Tree Physiology	3	
FOR 304	Theory of Silviculture	4	
FOR 318	Forest Pathology	3	
FOR 319	Forest Economics	3	
FOR 330	North Carolina Forests	3	
FOR 334	Operations Research Applications in Natural Resources	1	
FOR 339	Dendrology	4	

FOR 350	Professional Development III: Ethical Dilemmas in Natural Resource Management	1	
FOR 353	GIS and Remote Sensing for Environmental Analysis and Assessment	3	
FOR 374	Forest Measurement, Modeling, and Inventory	3	
FOR 402	Forest Entomology	3	
FOR 405	Forest Management	4	
FOR 406	Forest Inventory, Analysis and Planning	4	
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 422	Consulting Forestry	3	
FOR 430	Forest Health and Protection	3	
FOR 434	Forest Operations and Analysis	3	
FOR 472	Forest Soils	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 505	Forest Management	4	
FOR 508	Hardwood Management	3	
FOR 520	Watershed and Wetlands Hydrology	4	

FOR 522	Consulting Forestry	3	FW 445	Human Dimensions of Conservation Biology in the Bahamas	3
FOR 534	Forest Operations and Analysis	3	FW 453	Principles of Wildlife Science	4
FW 221	Conservation of Natural Resources	3	FW 460	International Wildlife Management and Conservation	3
FW 293	Independent Study in Fisheries, Wildlife, and Conservation Biology	1-6	FW 465	African Ecology and Conservation	4
FW 294	Independent Study in Fisheries, Wildlife, and Conservation Biology	1-6	FW 492	External Learning Experience	1-6
FW 311	Piedmont Wildlife Ecology and Management	3	FW 493	Independent Study in Fisheries, Wildlife, and Conservation Biology	1-6
FW 312	Fisheries Techniques and Management	1	FW 494	Independent Study in Fisheries, Wildlife, and Conservation Biology	1-6
FW 313	Mountain Wildlife Ecology and Management	1	FW 495	Special Topics in Fisheries and Wildlife Science	1-3
FW 314	Coastal Ecology and Management	1	FW 511	Human Dimensions of Wildlife and Fisheries	3
FW 333	Conservation Biology in Practice	3	FW 544	Mammalogy	3
FW 353	Wildlife Management	3	FW 560	International Wildlife Management and Conservation	3
FW 373	Vertebrate Natural History	3	FW 565	African Ecology and Conservation	4
FW 403	Urban Wildlife Management	3	IDS 303	Humans and the Environment	3
FW 404	Wildlife Habitat Management	3	NR 219	Natural Resource Markets	3
FW 405	Tropical Wildlife Ecology	3	NR 293	Independent Study in Natural Resources	1-6
FW 411	Human Dimensions of Wildlife and Fisheries	3	NR 294	Independent Study in Natural Resources	1-6
FW 415	Professional Development in Fisheries, Wildlife, and Conservation Biology	1	NR 295	Special Topics in Natural Resources	1-3
FW 444	Mammalogy	3	NR 300	Natural Resource Measurements	4

NR 301	Practicum for Professional Development I	1	ACC 210	Concepts of Financial Reporting	3
NR 303	Humans and the Environment	3	ACC 220	Introduction to Managerial Accounting	3
NR 350	International Sustainable Resource Use	4	ACC 230	Individual Income Taxation	3
NR 360	Internship Experience	3	ACC 280	Survey of Financial and Managerial Accounting	3
NR 400	Natural Resource Management	4	ACC 295	Special Topics in Accounting	1-6
NR 406	Conservation of Biological Diversity	3	ACC 310	Intermediate Financial Accounting I	3
NR 420	Watershed and Wetlands Hydrology	4	ACC 311	Intermediate Financial Accounting II	3
NR 421	Wetland Science and Management	3	ACC 330	An Introduction To Income Taxation	3
NR 460	Renewable Natural Resource Management and Policy	3	ACC 340	Accounting Information Systems	3
NR 484	Environmental Impact Assessment	4	ACC 411	Business Valuation	3
NR 491	Special Topics in Forestry and Related Natural Resources	1-4	ACC 420	Cost Accounting for Effective Management	3
NR 493	Independent Study in Natural Resources	1-6	ACC 440	Enterprise Resource Planning Systems	3
NR 494	Independent Study in Natural Resources		ACC 450	Auditing and Assurance Services	3
NR 500	Natural Resource Management	4	ACC 451	Internal Auditing	3
NR 520	Watershed and Wetlands Hydrology	4	ACC 460	Governmental and Nonprofit Accounting	3
NR 521	Wetland Science and Management	3	ACC 495	Special Topics in Accounting	1-6
NR 560	Renewable Natural Resource Management and Policy	3	ACC 498	Independent Study in Accounting	1-6
PP 318	Forest Pathology	3	ACC 499	Internship in ACC	1-6
SMT 202	Anatomy and Properties of Renewable Materials	3	AEC 360	Ecology	4
Technical Electives-Other			AEE 208	Agricultural Biotechnology: Issues and Implications	3
ACC 200	Introduction to Managerial Accounting	3	BAET 323	Water Management	

ANS 208	Agricultural Biotechnology: Issues and Implications	3	ARE 370	Agribusiness New Venture Development	3
ANS 215	Agricultural Genetics	3	ARE 395	Special Topics in Agricultural and Resource Economics (300 level)	1-6
ARE 201	Introduction to Agricultural & Resource Economics	3	ARE 404	Advanced Agribusiness Management	3
ARE 201A	Introduction to Agricultural & Resource Economics	3	ARE 412	Advanced Agribusiness Marketing	3
ARE 215	Small Business Accounting	3	ARE 413	Applied Agribusiness Marketing	3
ARE 260	Marketing and Risk Management in the Pork Industry	1	ARE 415	Introduction to Commodity Futures Markets	3
ARE 270	Principles of Agribusiness Entrepreneurship	3	ARE 420	Taxation in Agriculture, Production, and Agribusiness	3
ARE 295	Special Topics in Agricultural & Resource Economics (200 Level)	1-6	ARE 425	Contracts and Organizations in Agriculture	3
ARE 301	Intermediate Microeconomics	3	ARE 433	U.S. Agricultural Policy	3
ARE 303	Farm Management	3	ARE 444	Ethics in Agribusiness	3
ARE 304	Agribusiness Management	3	ARE 448	International Agricultural Trade	3
ARE 306	Agricultural Law	3	ARE 455	Agribusiness Analytics	3
ARE 309	Environmental Law & Economic Policy	3	ARE 470	Agribusiness Entrepreneurship Clinical Skills Development	3
ARE 311	Agricultural Markets	3	ARE 475	Food Policy	3
ARE 312	Agribusiness Marketing	3	ARE 490	Career Seminar in Agriculture & Resource Economics	1
ARE 321	Agricultural Financial Management	3	ARE 492	External Learning Experience	1-6
ARE 323	Agribusiness Finance	3	ARE 493	Special Problems/ Research Exploration	1-6
ARE 332	Human Resource Management for Agribusiness	3	ARE 494	Agribusiness Study Abroad	1-6
ARE 336	Introduction to Resource and Environmental Economics	3	ARE 495	Special Topics in Agricultural and Resource Economics	1-6
ARE 345	Global Agribusiness Management	3			

BAE 435	Precision Agriculture Technology	3	EC 336	Introduction to Resource and Environmental Economics	3
BAE 473	Introduction to Hydrologic and Water Quality Modeling	3	EC 348	Introduction to International Economics	3
BAE 535	Precision Agriculture Technology	3	EC 351	Econometrics I	3
BAE 573	Introduction to Hydrologic and Water Quality Modeling	3	EC 404	Money, Financial Markets, and the Economy	3
BIO 330	Evolutionary Biology	3	EC 410	Public Finance	3
BIO 414	Cell Biology	3	EC 413	Industrial Organization	3
BIT 476	Applied Bioinformatics	2	EC 431	Labor Economics	3
BIT 481	Plant Tissue Culture and Transformation	2	EC 437		3
BUS 350	Economics and Business Statistics	3	EC 449	International Finance	3
CS 410	Community Food Systems	3	EC 451	Econometrics II	3
CS 470	Advanced Turfgrass Pest Management	2	EC 468	Game Theory	3
CS 480	Sustainable Food Production (capstone)	1	EC 474	Economics of Financial Institutions and Markets	3
CSC 416	Introduction to Combinatorics	3	EC 480		3
CSC 427	Introduction to Numerical Analysis I	3	EC 490	Research Seminar in Economics	3
CSC 428	Introduction to Numerical Analysis II	3	EC 495	Special Topics in Economics	1-6
CSC 442	Introduction to Data Science	3	EC 498	Independent Study in Economics	1-6
CSSC 490	Senior Seminar in Crop Science and Soil Science	1	ECE 488	Systems Biology Modeling of Plant Regulation	
EC 201	Principles of Microeconomics	3	ECE 588	Systems Biology Modeling of Plant Regulation	
EC 202	Principles of Macroeconomics	3	ENT 201	Insects and People	3
EC 205	Fundamentals of Economics	3	ENT 203	An Introduction to the Honey Bee and Beekeeping	3
EC 301	Intermediate Microeconomics	3	ENT 207	Insects and Human Disease	3
EC 302	Intermediate Macroeconomics	3	ENT 212	Basic Entomology	1
EC 305	A Closer Look at Capitalism	3	ENT 305	Introduction to Forensic Entomology	3
			ENT 401	Honey Bee Biology and Management	3
			ENT 402	Forest Entomology	3

ENT 425	General Entomology	3	ET 330	Environmental Technology Practicum	3
ENT 470	Advanced Turfgrass Pest Management	2	ET 401	Environmental Technology Laboratory V	1
ENT 492	External Learning Experience	1-6	ET 455	Adaptive Management and Governance	3
ENT 493	Special Problems in Entomology	1-6	ET 460	Practice of Environmental Technology	3
ENT 495	Special Topics in Entomology	1-3	ET 493	Independent Study in Environmental Technology & Management	1-6
ET 201	Environmental Technology Laboratory I	1	ET 494	Independent Study in Environmental Technology & Management	1-6
ET 202	Environmental Technology Laboratory II	1	ET 495	Special Topics in Environmental Technology & Management	1-6
ET 203	Pollution Prevention	1	FOR 318	Forest Pathology	3
ET 220	Solar Photovoltaics Assessment	3	FOR 402	Forest Entomology	3
ET 255	Hydro, Wind, and Bioenergy Assessment	3	FS 462	Postharvest Physiology	3
ET 262	Renewable Energy Adoption: Barriers and Incentives	3	FS 562	Postharvest Physiology	3
ET 293	Independent Study in Environmental Technology & Management	1-6	GIS 205	Spatial Thinking with GIS	3
ET 294	Independent Study in Environmental Technology & Management	1-6	GIS 280	Introduction to GIS	3
ET 295	Special Topics in Environmental Technology & Management	1-6	GIS 295	Special Topics in Geospatial Information Science	1-4
ET 301	Environmental Technology Laboratory III	1	GIS 510	Fundamentals of Geospatial Information Science and Technology	3
ET 302	Environmental Technology Laboratory IV	1	GPH 404	Epidemiology and Statistics in Global Public Health	3
ET 303	Laboratory Safety Systems and Management	1	HS 200	Home Horticulture	3
ET 310	Environmental Monitoring and Analysis	3	HS 201	The World of Horticulture: Principles and Practices	3
ET 320	Fundamentals of Air Pollution	3	HS 202	Home Plant Identification	3

HS 203	Home Plant Propagation	3	HS 428	Service-Learning in Urban Agriculture Systems	1
HS 204	Home Landscape Maintenance	3	HS 431	Vegetable Production	4
HS 205	Home Food Production	3	HS 432	Introduction to Permaculture	3
HS 215	Agricultural Genetics	3	HS 433	Public Garden Administration	3
HS 242	Introduction to Small Scale Landscape Design	3	HS 440	Greenhouse Management	3
HS 250	Home Landscape Design: Creating Garden Spaces	3	HS 442	Floriculture Crop Production	3
HS 252	Landscape Graphic Communication	2	HS 451	Plant Nutrition	3
HS 272	Landscape Design/Build	6	HS 462	Postharvest Physiology	3
HS 280	Hands-On-Horticulture	3	HS 471	Landscape Ecosystem Management	4
HS 290	Horticulture: Careers and Opportunities	1	HS 475	Horticulture Entrepreneurship	3
HS 301	Plant Propagation	4	HS 476	Crop Physiology and Production in Controlled Environments	3
HS 302	Gardening with Herbaceous Perennials	3	HS 480	Sustainable Food Production (capstone)	1
HS 303	Ornamental Plant Identification I	3	HS 491	Sustainable Agriculture Entrepreneurship Study Abroad	3
HS 304	Ornamental Plant Identification II	3	HS 492	Horticulture Internship	1-3
HS 357	Landscape Grading and Drainage	4	HS 493	Research Experience in Horticultural Science	1-3
HS 400	Residential Landscaping	6	HS 494	Teaching Experience in Horticultural Science	1-3
HS 410	Community Food Systems	3	HS 495	Experimental Courses in Horticultural Science	1-6
HS 411	Nursery Management	3	HS 516	Planting Design	4
HS 416	Planting Design	4	HS 520	Green Infrastructure	3
HS 418	Digital Media Graphic for Landscape Designers	3	HS 521	Temperate-Zone Tree Fruits: Physiology and Culture	3
HS 420	Green Infrastructure	3	HS 523	Viticulture	3
HS 421	Temperate-Zone Tree Fruits: Physiology and Culture	3	HS 532	Introduction to Permaculture	3
HS 422	Small Fruit Production	3			
HS 423	Viticulture	3			

HS 533	Public Garden Administration	3	MA 407	Introduction to Modern Algebra for Mathematics Majors	3
HS 551	Plant Nutrition	3	MA 408	Foundations of Euclidean Geometry	3
HS 562	Postharvest Physiology	3	MA 410	Theory of Numbers	3
HS 576	Crop Physiology and Production in Controlled Environments	3	MA 412	Long-Term Actuarial Models	3
LOG 335	Symbolic Logic	3	MA 413	Short-Term Actuarial Models	3
MA 205	Elements of Matrix Computations	3	MA 416	Introduction to Combinatorics	3
MA 225	Foundations of Advanced Mathematics	3	MA 421	Introduction to Probability	3
MA 231	Calculus for Life and Management Sciences B	3	MA 425	Mathematical Analysis I	3
MA 241	Calculus II	4	MA 426	Mathematical Analysis II	3
MA 242	Calculus III	4	MA 427	Introduction to Numerical Analysis I	3
MA 302	Numerical Applications to Differential Equations	1	MA 428	Introduction to Numerical Analysis II	3
MA 303	Linear Analysis	3	MA 430	Mathematical Models in the Physical Sciences	3
MA 305	Introductory Linear Algebra and Matrices	3	MA 432	Mathematical Models in Life Sciences	3
MA 315	Mathematics Methods in Atmospheric Sciences	4	MA 437	Applications of Algebra	3
MA 325	Introduction to Applied Mathematics	3	MA 440	Game Theory	3
MA 331	Differential Equations for the Life Sciences	3	MA 444	Problem Solving Strategies for Competitions	1
MA 335	Symbolic Logic	3	MA 450	Methods of Applied Mathematics I	3
MA 341	Applied Differential Equations I	3	MA 451	Methods of Applied Mathematics II	3
MA 351	Introduction to Discrete Mathematical Models	3	MA 491	Reading in Honors Mathematics	1-6
MA 401	Applied Differential Equations II	3	MA 493	Special Topics in Mathematics	1-6
MA 402	Mathematics of Scientific Computing	3	MA 494	Major Paper in Math	1
MA 403	Introduction to Modern Algebra	3	MA 499	Independent Research in Mathematics	1-6
MA 405	Introduction to Linear Algebra	3			

MEA 315	Mathematics Methods in Atmospheric Sciences	4	PB 495	Special Topics in Plant Biology	1-6
MEA 320	Fundamentals of Air Pollution	3	PB 503	Systematic Botany	4
PB 200	Plant Life	4	PB 513	Plant Anatomy	2
PB 205	Our Green World	3	PB 545	Paleobotany	4
PB 208	Agricultural Biotechnology: Issues and Implications	3	PB 564	Rare Plants of North Carolina	3
PB 213	Plants and Civilization	3	PB 580	Introduction to Plant Biotechnology	3
PB 215	Medicinal Plants	3	PP 222	Kingdom of Fungi	3
PB 219	Plants in Folklore, Myth, and religion	3	PP 232	Big Data in Your Pocket: Call it a Smartphone	3
PB 220	Local Flora	3	PP 241	The Worm's Tale: Parasites In Our Midst	3
PB 250	Plant Biology	4	PP 315	Principles of Plant Pathology	4
PB 277	Space Biology	3	PP 318	Forest Pathology	3
PB 295	Special Topics in Botany	1-4	PP 470	Advanced Turfgrass Pest Management	2
PB 321	Introduction to Whole Plant Physiology	3	PP 492	External Learning Experience	1-6
PB 325	Culinary Botany	3	PP 493	Special Problems in Plant Pathology	1-6
PB 345	Economic Botany	3	PP 495	Special Topics in Plant Pathology	1-3
PB 346	Economic Botany Lab	1	PSY 240	Introduction to Behavioral Research I	3
PB 360	Ecology	4	PSY 241	Introduction to Behavioral Research I Lab	1
PB 400	Plant Diversity and Evolution	4	PSY 242	Introduction to Behavioral Research II	3
PB 403	Systematic Botany	4	PSY 243	Introduction to Behavioral Research II Lab	2
PB 413	Plant Anatomy	2	SMT 200	Introduction to Sustainable Materials and Technology	3
PB 421	Plant Physiology	3	SMT 201	Sustainable Materials for Green Housing	2
PB 445	Paleobotany	4	SMT 202	Anatomy and Properties of Renewable Materials	3
PB 464	Rare Plants of North Carolina	3	SMT 203	Physical Properties of Sustainable Materials	4
PB 480	Introduction to Plant Biotechnology	3			
PB 481	Plant Tissue Culture and Transformation	2			
PB 488	Systems Biology Modeling of Plant Regulation				
PB 492	External Learning Experience	1-6			
PB 493	Plant Biology Supervised Undergraduate Research Experience	1-6			

SMT 206	Wood Manufacturing Site Visits	1	SMT 483	Capstone in Sustainable Materials and Technology	3
SMT 210	Sustainable Materials Internship	1	SMT 493	Independent Study in Sustainable Materials & Technology	1-6
SMT 232	Recycling to Create a Sustainable Environment	2	SMT 494	Independent Study in Sustainable Materials & Technology	1-6
SMT 240	Introduction to Wood Products Industries	2	SSC 200	Soil Science	3
SMT 293	Independent Study in Sustainable Materials & Technology	1-6	SSC 201	Soil Science Laboratory	1
SMT 294	Independent Study in Sustainable Materials & Technology	1-6	SSC 332	Environmental Soil Microbiology	3
SMT 295	Special Topics in Sustainable Materials and Technology	1-3	SSC 341	Soil Fertility and Nutrient Management	3
SMT 301	Chemistry of Sustainable Materials	3	SSC 342	Soil and Plant Nutrient Analysis	1
SMT 302	Processing of Biomaterials	4	SSC 410	Soil Judging for Land Evaluation	1
SMT 308	Wood Processing	4	SSC 421	Role of Soils in Environmental Management	3
SMT 310	Introduction to Industrial Ecology	3	SSC 427	Biological Approaches to Sustainable Soil Systems	3
SMT 320	Industrial Chemical Pollutants	2	SSC 428	Service-Learning in Urban Agriculture Systems	1
SMT 330	Project Management for Sustainability	3	SSC 440	Geographic Information Systems (GIS) in Soil Science and Agriculture	3
SMT 346	Sustainable Materials Business Marketing	3	SSC 442	Soil and Environmental Biogeochemistry	3
SMT 441	Mechanical Properties of Sustainable Materials	4	SSC 452	Soil Classification	4
SMT 444	Sustainable Composites and Biopolymers	3	SSC 455	Soils, Environmental Quality and Global Challenges	3
SMT 450	Sustainable Business and Innovation	2	SSC 461	Soil Physical Properties and Plant Growth	3
			SSC 462	Soil-Crop Management Systems	3
			SSC 470	Wetland Soils	3

SSC 473	Introduction to Hydrologic and Water Quality Modeling	3	ST 421	Introduction to Mathematical Statistics I	3
SSC 540	Geographic Information Systems (GIS) in Soil Science and Agriculture	3	ST 422	Introduction to Mathematical Statistics II	3
SSC 570	Wetland Soils	3	ST 430	Introduction to Regression Analysis	3
SSC 573	Introduction to Hydrologic and Water Quality Modeling	3	ST 431	Introduction to Experimental Design	3
ST 305	Statistical Methods	4	ST 432	Introduction to Survey Sampling	3
ST 307	Introduction to Statistical Programming- SAS	1	ST 433	Applied Spatial Statistics	3
ST 308	Introduction to Statistical Programming - R	1	ST 434	Applied Time Series	3
ST 311	Introduction to Statistics	3	ST 435	Statistical Methods for Quality and Productivity Improvement	3
ST 312	Introduction to Statistics II	3	ST 437	Applied Multivariate and Longitudinal Data Analysis	3
ST 350	Economics and Business Statistics	3	ST 440	Applied Bayesian Analysis	3
ST 370	Probability and Statistics for Engineers	3	ST 442	Introduction to Data Science	3
ST 371	Introduction to Probability and Distribution Theory	3	ST 445	Introduction to Statistical Computing and Data Management	3
ST 372	Introduction to Statistical Inference and Regression	3	ST 446	Intermediate SAS Programming with Applications	3
ST 380	Probability and Statistics for the Physical Sciences	3	ST 491	Statistics in Practice	3
ST 401	Experiences in Data Analysis	4	ST 495	Special Topics in Statistics	1-6
ST 404	Epidemiology and Statistics in Global Public Health	3	ST 497	Professional Experience in Statistics	
ST 405	Applied Nonparametric Statistics	3	ST 498	Independent Study In Statistics	1-6
ST 412	Long-Term Actuarial Models	3	ST 499	Research Experience in Statistics	
ST 413	Short-Term Actuarial Models	3	ST 505	Applied Nonparametric Statistics	3
			ST 533	Applied Spatial Statistics	3

ST 534	Applied Time Series	3
ST 535	Statistical Methods for Quality and Productivity Improvement	3
ST 537	Applied Multivariate and Longitudinal Data Analysis	3
ST 540	Applied Bayesian Analysis	3

Advanced Communication Electives

Code	Title	Hours	Counts towards
COM 289	Science Communication and Public Engagement	3	
ENG 331	Communication for Engineering and Technology	3	
ENG 332	Communication for Business and Management	3	
ENG 333	Communication for Science and Research	3	

Spatial Technology Electives

Code	Title	Hours	Counts towards
FOR 353	GIS and Remote Sensing for Environmental Analysis and Assessment	3	
GIS 280	Introduction to GIS	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	

Semester Sequence

This is a sample.

First Year		Hours
Fall Semester		
ENV 101	Exploring the Environment	2
MA 114	Introduction to Finite Mathematics with Applications	3
ENV 100	Student Success in Environmental First Year	1
PB 200 or BIO 181	Plant Life or Introductory Biology: Ecology, Evolution, and Biodiversity	4
SMT 202	Anatomy and Properties of Renewable Materials ¹	3
GEP Health and Exercise Studies (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/)		1
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 or MA 131	Elements of Calculus or Calculus for Life and Management Sciences A	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		
Chemistry or Physics Elective (p. 2)		4
FOR 172	Forest System Mapping and Mensuration I ¹	2
FOR 339	Dendrology ¹	4
ST 311	Introduction to Statistics	3
GEP Requirement (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/)		3
Hours		16
Spring Semester		
FOR 260	Forest Ecology ¹	4
Economics Elective (p. 2)		3
Soil Science Elective with lab (p. 2)		4
FOR 250	Professional Development II: Communications in Natural Resources ¹	4
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 430	Forest Health and Protection	3
FOR 319	Forest Economics ¹	3
FOR 374	Forest Measurement, Modeling, and Inventory ¹	3
GEP Requirement (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/)		3
NR 301	Practicum for Professional Development I	1
Hours		16

Spring Semester

Advanced Communication Elective (p.)		3
Spatial Technology Elective (p. 14)		3
FOR 304	Theory of Silviculture ¹	4
FOR 350	Professional Development III: Ethical Dilemmas in Natural Resource Management ¹	1
GEP Requirement (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/)		3
Technical Elective (p. 3)		3
Hours		17

Fourth Year**Fall Semester**

FW 404	Wildlife Habitat Management	3
FOR 405	Forest Management ¹	4
NR 460	Renewable Natural Resource Management and Policy ¹	3
GEP Requirement (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/)		3
Hours		13

Spring Semester

FOR 406	Forest Inventory, Analysis and Planning ¹	4
Technical Elective (p. 3)		7
GEP Requirement (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/)		3
Hours		14
Total Hours		128

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