

# Agricultural Education (BS): Agronomy Concentration

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

The Agricultural Education major within the Department of Agricultural and Human Sciences prepares graduates to teach agriculture, serve as FFA advisors, and supervise agricultural experiences (SAE) in public and private schools.

The Agronomy concentration is one of seven concentrations offered for the Bachelor of Science in Agricultural Education.

- Students interested in Agricultural Education may be eligible to apply for the North Carolina Teaching Fellows Program at NC State.
- Student teachers of agriculture may apply for Ed Scholars through NC State.
- Many alumni pursue careers in middle and high schools, universities and community colleges, county extension offices, and in the agricultural industry

## Teacher Licensure

Completion of the B.S. program in Agricultural Education leads to teacher licensure in North Carolina for grades 6-12. Because of North Carolina's reciprocity agreements, graduates also can pursue certification in about 35 states. Download the Teacher Licensure Checklist (<https://cals.ncsu.edu/agricultural-and-human-sciences/wp-content/uploads/sites/13/2017/06/Teacher-Licensure-Checklist.pdf>) to review the requirements for admissions to teacher education candidacy and help you stay on course.

For more information about this program, including contact information, visit our website (<https://cals.ncsu.edu/agricultural-and-human-sciences/undergraduate/#agricultural-education-major>).

## Contact

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## Plan Requirements

Code	Title	Hours	Counts towards
<b>Orientation</b>			
AEE 103	Fundamentals of Agricultural and Extension Education	1	
or ALS 103	Freshman Transitions and Diversity in Agriculture & Life Sciences		
or ALS 303	Transfer Transitions and Diversity in Agriculture & Life Sciences		
<b>Writing and Speaking</b>			
COM 110	Public Speaking	3	

### Sciences

BIO 181	Introductory Biology: Ecology, Evolution, and Biodiversity	4
BIO 183	Introductory Biology: Cellular and Molecular Biology	4
CH 101 & CH 102	Chemistry - A Molecular Science and General Chemistry Laboratory	4

### Agricultural Education

AEE 101	Introduction to Career and Technical Education <sup>1</sup>	1
AEE 206	Introduction to Teaching Agriculture <sup>1</sup>	3
AEE 226	Computer Applications and Information Technology in Agricultural & Extension Ed <sup>1</sup>	3
AEE 303	Administration and Supervision of Student Organizations <sup>1</sup>	3
AEE 322	Experiential Learning in Agriculture <sup>1</sup>	3
AEE 326	Teaching Diverse Learners in AED <sup>1</sup>	3
AEE 327	Conducting Summer Programs in Agricultural Education	1
AEE 424	Planning Agricultural Educational Programs <sup>1</sup>	3
AEE 426	Methods of Teaching Agriculture <sup>1</sup>	3
AEE 427	Student Teaching in Agriculture <sup>1</sup>	8
AEE 491	Seminar in Agricultural Education	1

### Other Professional Education

EDP 304	Educational Psychology <sup>1</sup>	3
ELP 344	School and Society <sup>1</sup>	3
ED 311 & ED 312	Classroom Assessment Principles and Practices and Classroom Assessment Principles and Practices Professional Learning Lab <sup>1</sup>	3

**Teaching Content Courses**

BAET 201	Shop Processes and Management	3
or TDE 110	Materials & Processes Technology	
ANS 150 & ANS 151	Introduction to Animal Science and Introduction to Animal Science Lab	4
SSC 200 & SSC 201	Soil Science and Soil Science Laboratory	4
Select one of the following	Economics courses:	3
ARE 201	Introduction to Agricultural & Resource Economics	
EC 201	Principles of Microeconomics	
EC 205	Fundamentals of Economics	

**Agronomy Concentration**

CS 213	Crop Science	4
CS 230	Introduction to Agroecology	3
CS 411	Crop Ecology	3
SSC 341	Soil Fertility and Nutrient Management	3
SSC 342	Soil and Plant Nutrient Analysis	1
PB 321	Introduction to Whole Plant Physiology	3
or PB 421	Plant Physiology	
Agronomy Elective (p. 12)		3
Agriculture Elective (p. 2)		3

**GEP Courses In The Major**

ENG 101	Academic Writing and Research <sup>1</sup>	4
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GEP Humanities ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/</a> )	6
GEP Mathematical Sciences ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-mathematical-sciences/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-mathematical-sciences/</a> )	6
GEP Health and Exercise Studies ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/</a> )	2
GEP US Diversity, Equity, and Inclusion ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-usdei/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-usdei/</a> )	3
GEP Interdisciplinary Perspectives ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/</a> )	2
GEP Global Knowledge ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-global-knowledge/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-global-knowledge/</a> ) (verify requirement)	
Foreign Language Proficiency ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/foreign-language-proficiency/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/foreign-language-proficiency/</a> ) (verify requirement)	
<b>Free Electives <sup>2</sup></b>	<b>3</b>
<b>Total Hours</b>	<b>120</b>

<sup>1</sup> A grade of C- or higher is required.<sup>2</sup> Courses graded "S" for Satisfactory are allowed.**Agriculture Electives**

Code	Title	Hours	Counts towards
<b>Agriculture Elective</b>			
ARE 215	Small Business Accounting	3	
ARE 260	Marketing and Risk Management in the Pork Industry	1	
ARE 270	Principles of Agribusiness Entrepreneurship	3	
ARE 295	Special Topics in Agricultural & Resource Economics (200 Level)	1-6	
ARE 301	Intermediate Microeconomics	3	

ARE 303	Farm Management	3	ARE 448	International Agricultural Trade	3
ARE 304	Agribusiness Management	3	ARE 455	Agribusiness Analytics	3
ARE 306	Agricultural Law	3	ARE 470	Agribusiness Entrepreneurship	3
ARE 309	Environmental Law & Economic Policy	3		Clinical Skills Development	
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	ARE 590	Special Topics in ARE	1-99
ARE 370	Agribusiness New Venture Development	3	EC 301	Intermediate Microeconomics	3
ARE 395	Special Topics in Agricultural and Resource Economics (300 level)	1-6	EC 336	Introduction to Resource and Environmental Economics	3
ARE 404	Advanced Agribusiness Management	3	<b>Group C - Applied Sci &amp; Tech</b>		
ARE 412	Advanced Agribusiness Marketing	3	AEE 101	Introduction to Career and Technical Education	1
ARE 413	Applied Agribusiness Marketing	3	AEE 206	Introduction to Teaching Agriculture	3
ARE 415	Introduction to Commodity Futures Markets	3	AEE 208	Agricultural Biotechnology: Issues and Implications	3
ARE 420	Taxation in Agriculture, Production, and Agribusiness	3	AEE 230	Introduction to Cooperative Extension	3
ARE 425	Contracts and Organizations in Agriculture	3	AEE 303	Administration and Supervision of Student Organizations	3
ARE 433	U.S. Agricultural Policy	3	AEE 311	Communication Methods and Media	3
ARE 444	Ethics in Agribusiness	3	AEE 322	Experiential Learning in Agriculture	3

AEE 323	Leadership Development in Agriculture and Life Sciences	3	AEE 533	Leadership and Management of Volunteers in Agricultural and Extension Education	3
AEE 325	Planning and Delivering Non-Formal Education	3	ALS 110	Academic and Career Skills Seminar	1
AEE 326	Teaching Diverse Learners in AED	3	ANS 105	Introduction to Companion Animal Science	3
AEE 327	Conducting Summer Programs in Agricultural Education	1	ANS 110	Introduction to Equine Science	3
AEE 350	Personal Leadership Development in Agriculture and Life Sciences	3	ANS 150	Introduction to Animal Science	3
AEE 360	Developing Team Leadership in Agriculture and Life Sciences	3	ANS 151	Introduction to Animal Science Lab	1
AEE 423	Practicum in Agricultural Extension/ Industry	8	ANS 201	Techniques of Animal Care	2
AEE 424	Planning Agricultural Educational Programs	3	ANS 208	Agricultural Biotechnology: Issues and Implications	3
AEE 426	Methods of Teaching Agriculture	3	ANS 225	Principles of Animal Nutrition	3
AEE 427	Student Teaching in Agriculture	8	ANS 303	Principles of Equine Evaluation	2
AEE 433	Leadership and Management of Volunteers in Agricultural and Extension Education	3	ANS 304	Dairy Cattle Evaluation	2
AEE 435	Professional Presentations in Agricultural Organizations	3	ANS 309	Livestock Evaluation	3
AEE 460	Organizational Leadership Development in Agriculture and Life Sciences	3	ANS 322	Muscle Foods and Eggs	3
AEE 478	Advanced Issues in Extension Education	3	ANS 324	Milk and Dairy Products	3
AEE 490	Seminar in Agricultural and Extension Education	1	ANS 400	Companion Animal Management	3
			ANS 402	Beef Cattle Management	3
			ANS 403	Swine Management	3
			ANS 404	Dairy Cattle Management	3
			ANS 408	Small Ruminant Management	3
			ANS 410	Equine Breeding Farm Management	3
			ANS 425	Feed Manufacturing Technology	3
			ANS 440	Animal Genetic Improvement	3

ANS 453	Physiology and Genetics of Growth and Development	3	BAE 474	Principles and Applications of Ecological Engineering	3
ANS 454	Lactation, Milk and Nutrition	3	BAE 481	Structures & Environment	3
ANS 525	Feed Manufacturing Technology	3	BAE 501	Sensors and Controls	3
ANS 540	Animal Genetic Improvement	3	BAE 535	Precision Agriculture Technology	3
ANS 553	Physiology and Genetics of Growth and Development	3	BAE 572	Irrigation and Drainage	3
ANS 554	Lactation, Milk and Nutrition	3	BAE 573	Introduction to Hydrologic and Water Quality Modeling	3
BAE 100	Introduction to Biological and Agricultural Engineering and Technology	1	BAET 201	Shop Processes and Management	3
BAE 202	Introduction to Biological and Agricultural Engineering Methods	4	BAET 323	Water Management	3
BAE 302	Transport Phenomena	3	BAET 332	Management of Animal Environments	4
BAE 322	Introduction to Food Process Engineering	3	BAET 333	Processing Agricultural Products	4
BAE 361	Analytical Methods in Engineering Design	3	BAET 343	Agricultural Electrification	4
BAE 371	Fundamentals of Hydrology for Engineers	3	BAET 411	Agricultural Machinery and Power Units	4
BAE 401	Sensors and Controls	3	BAET 432	Agricultural and Environmental Safety and Health	3
BAE 435	Precision Agriculture Technology	3	BAET 443	Environmental Restoration Implementation	3
BAE 451	Engineering Design I	2	BEC 330	Principles and Applications of Bioseparations	2
BAE 452	Engineering Design II	2	BEC 436	Introduction to Downstream Process Development	2
BAE 462	Machinery Design and Applications	3	BEC 440		3
BAE 472	Irrigation and Drainage	3	BEC 536	Introduction to Downstream Process Development	2
BAE 473	Introduction to Hydrologic and Water Quality Modeling	3	BEC 540		3
			BME 203		3
			BME 207	Biomedical Electronics	4
			BME 342		3
			BME 385	Bioinstrumentation	3

BME 412	Biomedical Signal Processing	3	SSC 440	Geographic Information Systems (GIS) in Soil Science and Agriculture	3
BME 425	Bioelectricity	3	SSC 473	Introduction to Hydrologic and Water Quality Modeling	3
BME 525	Bioelectricity	3	SSC 540	Geographic Information Systems (GIS) in Soil Science and Agriculture	3
CS 470	Advanced Turfgrass Pest Management	2	SSC 573	Introduction to Hydrologic and Water Quality Modeling	3
ECI 424	Student Teaching in Modern Foreign Languages	12	USC 291	Service Learning Program Leader Development I	1
ENT 470	Advanced Turfgrass Pest Management	2	USC 292	Service Learning Program Leader Development II	2
FM 425	Feed Manufacturing Technology	3	<b>Group C - Applied Sci &amp; Tech</b>		
FM 525	Feed Manufacturing Technology	3	AEC 420	Introduction to Fisheries Science	3
FS 322	Muscle Foods and Eggs	3	AEE 206	Introduction to Teaching Agriculture	3
FS 324	Milk and Dairy Products	3	AEE 303	Administration and Supervision of Student Organizations	3
FS 435	Food Safety Management Systems	3	AEE 322	Experiential Learning in Agriculture	3
FS 535	Food Safety Management Systems	3	AEE 327	Conducting Summer Programs in Agricultural Education	1
MSE 203		3	AEE 424	Planning Agricultural Educational Programs	3
NTR 425	Feed Manufacturing Technology	3	AEE 426	Methods of Teaching Agriculture	3
NTR 454	Lactation, Milk and Nutrition	3	AEE 427	Student Teaching in Agriculture	8
NTR 525	Feed Manufacturing Technology	3	ANS 322	Muscle Foods and Eggs	3
PB 208	Agricultural Biotechnology: Issues and Implications	3	ANS 324	Milk and Dairy Products	3
PO 322	Muscle Foods and Eggs	3	ANS 330	Laboratory Animal Science	3
PO 425	Feed Manufacturing Technology	3			
PO 525	Feed Manufacturing Technology	3			
PP 470	Advanced Turfgrass Pest Management	2			

ANS 411	Management of Growing and Performance Horses	3
ANS 425	Feed Manufacturing Technology	3
ANS 525	Feed Manufacturing Technology	3
BAE 325	Introductory Geomatics	3
BAE 425	Industrial Microbiology and Bioprocessing	3
BAE 435	Precision Agriculture Technology	3
BAE 525	Industrial Microbiology and Bioprocessing	3
BAE 535	Precision Agriculture Technology	3
BBS 201	Introduction to Biopharmaceutica Science	3
BBS 301	Process Validation Science	3
BBS 426	Upstream Biomanufacturing Laboratory	2
BBS 526	Upstream Biomanufacturing Laboratory	2
BCH 220	Role of Biotechnology in Society	3
BEC 426	Upstream Biomanufacturing Laboratory	2
BEC 483	Tissue Engineering Technologies	2
BEC 526	Upstream Biomanufacturing Laboratory	2
BEC 583	Tissue Engineering Technologies	2
BME 444	Orthopaedic Biomechanics	3
BME 451	BME Senior Design: Product Development	3

BME 452	BME Senior Design: Product Implementation and Strategy	3
BME 466	Polymeric Biomaterials Engineering	3
BME 467	Mechanics of Tissues & Implants Requirements	3
BME 483	Tissue Engineering Technologies	2
BME 484	Fundamentals of Tissue Engineering	3
BME 544	Orthopaedic Biomechanics	3
BME 566	Polymeric Biomaterials Engineering	3
BME 583	Tissue Engineering Technologies	2
BME 584	Fundamentals of Tissue Engineering	3
CS 200	Introduction to Turfgrass Management	4
CS 210	Lawns and Sports Turf	3
CS 213	Crop Science	3
CS 216	Southern Row Crop Production - Cotton, Peanuts, and Tobacco	3
CS 218	Southern Row Crop Production - Corn, Small Grains and Soybeans	3
CS 230	Introduction to Agroecology	3
CS 312		3
CS 400	Turf Cultural Systems	3
CS 411	Crop Ecology	3
CS 413	Plant Breeding	2
CS 414	Weed Science	4
CS 415	Integrated Pest Management	3
CS 424	Seed Physiology	3
CS 430	Advanced Agroecology	4

CS 465	Turf Management Systems and Environmental Quality	3	FS 290	Careers in Food and Bioprocessing Sciences	1
CS 524	Seed Physiology	3	FS 322	Muscle Foods and Eggs	3
CS 565	Turf Management Systems and Environmental Quality	3	FS 324	Milk and Dairy Products	3
CSSC 490	Senior Seminar in Crop Science and Soil Science	1	FS 330	Science of Food Preparation	3
ECI 424	Student Teaching in Modern Foreign Languages	12	FS 352	Introduction to Microbiological Food Safety Hazards	3
ENT 203	An Introduction to the Honey Bee and Beekeeping	3	FS 354	Food Sanitation	3
ENT 401	Honey Bee Biology and Management	3	FS 416	Quality Control in Food and Bioprocessing	3
ES 100	Introduction to Environmental Sciences	3	FS 421	Food Preservation	3
ES 200	Climate Change and Sustainability	3	FS 426	Upstream Biomanufacturing Laboratory	2
ES 300	Energy and Environment	3	FS 435	Food Safety Management Systems	3
ES 400	Analysis of Environmental Issues	3	FS 453	Food Laws and Regulations	3
FM 425	Feed Manufacturing Technology	3	FS 462	Postharvest Physiology	3
FM 460	Feed Mill Operations and Leadership	3	FS 475	Problems and Design in Food and Bioprocessing Science	3
FM 480	Feed Quality Assurance & Formulation	3	FS 516	Quality Control in Food and Bioprocessing	3
FM 490	Feed Science Seminar	1	FS 521	Food Preservation	3
FM 525	Feed Manufacturing Technology	3	FS 526	Upstream Biomanufacturing Laboratory	2
FOR 318	Forest Pathology	3	FS 535	Food Safety Management Systems	3
FOR 420	Watershed and Wetlands Hydrology	4	FS 553	Food Laws and Regulations	3
FOR 472	Forest Soils	4	FS 562	Postharvest Physiology	3
FOR 520	Watershed and Wetlands Hydrology	4	FW 221	Conservation of Natural Resources	3
FS 201	Introduction to Food Science	3	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 353	Wildlife Management	3
FW 403	Urban Wildlife Management	3
FW 411	Human Dimensions of Wildlife and Fisheries	3
FW 453	Principles of Wildlife Science	4
FW 460	International Wildlife Management and Conservation	3
FW 465	African Ecology and Conservation	4
FW 511	Human Dimensions of Wildlife and Fisheries	3
FW 560	International Wildlife Management and Conservation	3
FW 565	African Ecology and Conservation	4
GPH 201	Fundamentals of Global Public Health	3
HS 432	Introduction to Permaculture	3
HS 462	Postharvest Physiology	3
HS 532	Introduction to Permaculture	3
HS 562	Postharvest Physiology	3
IDS 303	Humans and the Environment	3
NR 303	Humans and the Environment	3
NR 350	International Sustainable Resource Use	4
NR 406	Conservation of Biological Diversity	3
NR 420	Watershed and Wetlands Hydrology	4

NR 460	Renewable Natural Resource Management and Policy	3
NR 520	Watershed and Wetlands Hydrology	4
NR 560	Renewable Natural Resource Management and Policy	3
NTR 425	Feed Manufacturing Technology	3
NTR 525	Feed Manufacturing Technology	3
PO 322	Muscle Foods and Eggs	3
PO 424	Poultry Meat Production	3
PO 425	Feed Manufacturing Technology	3
PO 435	Poultry Incubation & Breeding	4
PO 525	Feed Manufacturing Technology	3
PP 318	Forest Pathology	3
SSC 440	Geographic Information Systems (GIS) in Soil Science and Agriculture	3
SSC 462	Soil-Crop Management Systems	3
SSC 540	Geographic Information Systems (GIS) in Soil Science and Agriculture	3
TE 466	Polymeric Biomaterials Engineering	3
TE 467	Mechanics of Tissues & Implants Requirements	3
TE 566	Polymeric Biomaterials Engineering	3
VMP 401	Poultry Diseases	4
VMP 420	Disease of Farm Animals	3

**Group C - Applied Sci & Tech**

AEC 419	Freshwater Ecology	4	FS 322	Muscle Foods and Eggs	3
AEC 423	Introduction to Fisheries Sciences Laboratory	1	FS 435	Food Safety Management Systems	3
AEC 519	Freshwater Ecology	4	FS 462	Postharvest Physiology	3
BAET 323	Water Management	3	FS 535	Food Safety Management Systems	3
ANS 322	Muscle Foods and Eggs	3	FS 562	Postharvest Physiology	3
ANS 425	Feed Manufacturing Technology	3	FW 221	Conservation of Natural Resources	3
ANS 525	Feed Manufacturing Technology	3	FW 404	Wildlife Habitat Management	3
BIO 227	Understanding Structural Diversity through Biological Illustration	3	FW 460	International Wildlife Management and Conservation	3
BME 204		3	FW 560	International Wildlife Management and Conservation	3
BME 217	Biomedical Electronics Laboratory	1	HS 200	Home Horticulture	3
BME 298	Biomedical Engineering Design and Manufacturing I	2	HS 201	The World of Horticulture: Principles and Practices	3
BME 398	Biomedical Engineering Design and Manufacturing II	2	HS 203	Home Plant Propagation	3
CS 470	Advanced Turfgrass Pest Management	2	HS 242	Introduction to Small Scale Landscape Design	3
CSSC 490	Senior Seminar in Crop Science and Soil Science	1	HS 250	Home Landscape Design: Creating Garden Spaces	3
ENT 470	Advanced Turfgrass Pest Management	2	HS 252	Landscape Graphic Communication	3
FM 425	Feed Manufacturing Technology	3	HS 272	Landscape Design/Build	6
FM 525	Feed Manufacturing Technology	3	HS 290	Horticulture: Careers and Opportunities	1
FOR 318	Forest Pathology	3	HS 301	Plant Propagation	4
FOR 420	Watershed and Wetlands Hydrology	4	HS 302	Gardening with Herbaceous Perennials	3
FOR 472	Forest Soils	4	HS 303	Ornamental Plant Identification I	3
FOR 520	Watershed and Wetlands Hydrology	4	HS 304	Ornamental Plant Identification II	3

HS 357	Landscape Grading and Drainage	4	NR 520	Watershed and Wetlands Hydrology	4
HS 400	Residential Landscaping	6	NR 521	Wetland Science and Management	3
HS 411	Nursery Management	3	NR 560	Renewable Natural Resource Management and Policy	3
HS 416	Planting Design	4	NTR 420		3
HS 421	Temperate-Zone Tree Fruits: Physiology and Culture	3	NTR 425	Feed Manufacturing Technology	3
HS 422	Small Fruit Production	3	NTR 525	Feed Manufacturing Technology	3
HS 423		3	PO 201	Poultry Science and Production	3
HS 431	Vegetable Production	4	PO 201A	Poultry Science and Production	3
HS 440	Greenhouse Management	3	PO 202	Poultry Science and Production Laboratory	1
HS 442	Floriculture Crop Production	3	PO 202A	Poultry Science and Production Laboratory	1
HS 462	Postharvest Physiology	3	PO 290	Poultry Seminar	1
HS 471	Landscape Ecosystem Management	4	PO 322	Muscle Foods and Eggs	3
HS 516	Planting Design	4	PO 340	Live Poultry and Poultry Product Evaluation, Grading, and Inspection	3
HS 521	Temperate-Zone Tree Fruits: Physiology and Culture	3	PO 410	Production and Management of Game Birds in Confinement	3
HS 523		3	PO 411	Agrosecurity	3
HS 562	Postharvest Physiology	3	PO 421	Commercial Egg Production	3
IDS 303	Humans and the Environment	3	PO 425	Feed Manufacturing Technology	3
NR 300	Natural Resource Measurements	4	PO 433	Poultry Processing and Products	3
NR 303	Humans and the Environment	3	PO 525	Feed Manufacturing Technology	3
NR 400	Natural Resource Management	4	PO 533	Poultry Processing and Products	3
NR 420	Watershed and Wetlands Hydrology	4	PP 315	Principles of Plant Pathology	4
NR 421	Wetland Science and Management	3	PP 318	Forest Pathology	3
NR 460	Renewable Natural Resource Management and Policy	3			
NR 484	Environmental Impact Assessment	4			
NR 500	Natural Resource Management	4			

PP 470	Advanced Turfgrass Pest Management	2	BAE 435/535	Precision Agriculture Technology	3
SSC 185	Land and Life	3	BAE 473/573	Introduction to Hydrologic and Water Quality Modeling	3
SSC 341	Soil Fertility and Nutrient Management	3	BAET 323	Water Management	3
SSC 342	Soil and Plant Nutrient Analysis	1	CS 200	Introduction to Turfgrass Management	4
SSC 421	Role of Soils in Environmental Management	3	CS 210	Lawns and Sports Turf	3
SSC 440	Geographic Information Systems (GIS) in Soil Science and Agriculture	3	CS 211	Plant Genetics	3
SSC 442	Soil and Environmental Biogeochemistry	3	CS 213	Crop Science	3
SSC 452	Soil Classification	4	CS 218	Southern Row Crop Production - Corn, Small Grains and Soybeans	3
SSC 461	Soil Physical Properties and Plant Growth	3	CS 224	Seeds, Biotechnology and Societies	3
SSC 462	Soil-Crop Management Systems	3	CS 230	Introduction to Agroecology	3
SSC 470	Wetland Soils	3	CS 251	Production of Forage Crops	3
SSC 540	Geographic Information Systems (GIS) in Soil Science and Agriculture	3	CS 400	Turf Cultural Systems	3
SSC 570	Wetland Soils	3	CS 410	Community Food Systems	3
TOX 201	Poisons, People and the Environment	3	CS 411	Crop Ecology	3
TOX 401	Principles of Toxicology	4	CS 413	Plant Breeding	3
TOX 415	Environmental Toxicology and Chemistry	4	CS 414	Weed Science	4
TOX 501	Principles of Toxicology	4	CS 415	Integrated Pest Management	3
			CS 418	Introduction to Regulatory Science in Agriculture	3
			CS 424	Seed Physiology	3
			CS 428	Advanced Regulatory Science in Agriculture	3
			CS 430	Advanced Agroecology	4
			CS 465	Turf Management Systems and Environmental Quality	3
			CS 470	Advanced Turfgrass Pest Management	2
<b>Agronomy Elective</b>					
<b>Code</b>	<b>Title</b>	<b>Hours</b>	<b>Counts towards</b>		
ALS 103	Freshman Transitions and Diversity in Agriculture & Life Sciences	1			
ALS 303	Transfer Transitions and Diversity in Agriculture & Life Sciences	1			

CS 480	Sustainable Food Production (capstone)	1
CS 502	Plant Disease: Methods & Diagnosis	2
CS 518	Introduction to Regulatory Science in Agriculture	3
CS 524	Seed Physiology	3
CS 528	Advanced Regulatory Science in Agriculture	3
CS 535	Root and Rhizosphere Processes for Plant Nutrition	3
CS 541	Plant Breeding Methods	3
CS 565	Turf Management Systems and Environmental Quality	3
CS 590	Special Topics	1-6
CS 591		
CSSC 290	Professional Development in Crop & Soil Sciences	1
CSSC 490	Senior Seminar in Crop Science and Soil Science	1
CSSC 492	Professional Internship Experience in Crop and Soil Sciences	1-3
CSSC 493	Research Experience in Crop and Soil Sciences	1-3
CSSC 495	Special Topics in Crop and Soil Sciences	1-6
ENT 470	Advanced Turfgrass Pest Management	2
FOR 318	Forest Pathology	3
HS 144	Weeds & Diseases of Ornamentals	3
HS 410	Community Food Systems	3

HS 428	Service-Learning in Urban Agriculture Systems	1
HS 502	Plant Disease: Methods & Diagnosis	2
HS 541	Plant Breeding Methods	3
MB 501	Biology of Plant Pathogens	3
MB 532	Soil Microbiology	4
MB 575	Introduction to Mycology	4
PB 501	Biology of Plant Pathogens	3
PB 575	Introduction to Mycology	4
PP 144	Weeds & Diseases of Ornamentals	3
PP 150	Introduction to Plant Molecular Biology	3
PP 222	Kingdom of Fungi	3
PP 232	Big Data in Your Pocket: Call it a Smartphone	3
PP 241	The Worm's Tale: Parasites In Our Midst	3
PP 315	Principles of Plant Pathology	4
PP 318	Forest Pathology	3
PP 470	Advanced Turfgrass Pest Management	2
PP 492	External Learning Experience	1-6
PP 493	Special Problems in Plant Pathology	1-6
PP 495	Special Topics in Plant Pathology	1-3
PP 501	Biology of Plant Pathogens	3
PP 502	Plant Disease: Methods & Diagnosis	2
PP 506	Epidemiology and Plant Disease Control	3
PP 530		
PP 540		
PP 575	Introduction to Mycology	4
PP 590	Special Topics	1-3

SSC 185	Land and Life	3
SSC 200	Soil Science	3
SSC 201	Soil Science Laboratory	1
SSC 332	Environmental Soil Microbiology	3
SSC 341	Soil Fertility and Nutrient Management	3
SSC 342	Soil and Plant Nutrient Analysis	1
SSC 410	Soil Judging for Land Evaluation	1
SSC 421	Role of Soils in Environmental Management	3
SSC 427	Biological Approaches to Sustainable Soil Systems	3
SSC 428	Service-Learning in Urban Agriculture Systems	1
SSC 440	Geographic Information Systems (GIS) in Soil Science and Agriculture	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 462	Soil-Crop Management Systems	3
SSC 470	Wetland Soils	3
SSC 473	Introduction to Hydrologic and Water Quality Modeling	3
SSC 511	Soil Physics	4
SSC 521	Soil Chemistry	3
SSC 532	Soil Microbiology	4
SSC 535	Root and Rhizosphere Processes for Plant Nutrition	3

SSC 540	Geographic Information Systems (GIS) in Soil Science and Agriculture	3
SSC 541	Soil Fertility	3
SSC 545	Remote Sensing Applications in Soil Science and Agriculture	3
SSC 551	Soil Morphology, Genesis and Classification	3
SSC 562	Environmental Applications Of Soil Science	3
SSC 570	Wetland Soils	3
SSC 573	Introduction to Hydrologic and Water Quality Modeling	3
SSC 590	Special Problems in Soil Science	1-6
SSC 592	Special Topics in Soil Science	1-6

## Semester Sequence

This is a sample.

### First Year

Fall Semester		Hours
AEE 101	Introduction to Career and Technical Education <sup>1</sup>	1
AEE 103	Fundamentals of Agricultural and Extension Education <sup>2</sup>	1
BIO 181	Introductory Biology: Ecology, Evolution, and Biodiversity	4
COM 110	Public Speaking	3
ENG 101	Academic Writing and Research	4
GEP Mathematical Sciences ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-mathematical-sciences/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-mathematical-sciences/</a> )		3
GEP Health and Exercise Studies ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/</a> )		1
<b>Hours</b>		<b>17</b>

### Spring Semester

AEE 226	Computer Applications and Information Technology in Agricultural & Extension Ed <sup>1</sup>	3
CS 213	Crop Science	3
BIO 183	Introductory Biology: Cellular and Molecular Biology	4
GEP Mathematical Sciences ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-mathematical-sciences/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-mathematical-sciences/</a> )		3

GEP Health and Exercise Studies ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/</a> )	1
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<b>Hours</b>	<b>14</b>
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**Second Year****Fall Semester**

AEE 206	Introduction to Teaching Agriculture <sup>1</sup>	3
CS 230	Introduction to Agroecology	3
BAET 201	Shop Processes and Management	3
Economics Elective (p. 1)		3
GEP Interdisciplinary Perspectives ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/</a> )		2

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<b>Hours</b>	<b>14</b>
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**Spring Semester**

ANS 150	Introduction to Animal Science	3
ANS 151	Introduction to Animal Science Lab	1
CH 101	Chemistry - A Molecular Science	3
CH 102	General Chemistry Laboratory	1
Agronomy Elective (p. 12)		3
GEP Humanities ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/</a> )		3
PB 321 or PB 421	Introduction to Whole Plant Physiology or Plant Physiology	3

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<b>Hours</b>	<b>17</b>
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**Third Year****Fall Semester**

AEE 322	Experiential Learning in Agriculture <sup>1</sup>	3
CS 411	Crop Ecology	3
EDP 304	Educational Psychology <sup>1</sup>	3
SSC 200	Soil Science	3
SSC 201	Soil Science Laboratory	1
Free Elective <sup>3</sup>		4

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<b>Hours</b>	<b>17</b>
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**Spring Semester**

AEE 303	Administration and Supervision of Student Organizations <sup>1</sup>	3
AEE 326	Teaching Diverse Learners in AED <sup>1</sup>	3
ELP 344	School and Society <sup>1</sup>	3
GEP US Diversity, Equity, and Inclusion ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-usdei/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-usdei/</a> )		3
Agriculture Electives (p. 2)		3

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<b>Hours</b>	<b>15</b>
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**Fourth Year****Fall Semester**

AEE 327	Conducting Summer Programs in Agricultural Education	1
AEE 426	Methods of Teaching Agriculture <sup>1</sup>	3
SSC 341	Soil Fertility and Nutrient Management	3
SSC 342	Soil and Plant Nutrient Analysis	1
GEP Humanities ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/</a> )		3
ED 311	Classroom Assessment Principles and Practices <sup>1</sup>	2

ED 312	Classroom Assessment Principles and Practices Professional Learning Lab <sup>1</sup>	1
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<b>Hours</b>	<b>14</b>
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**Spring Semester**

AEE 424	Planning Agricultural Educational Programs	3
AEE 427	Student Teaching in Agriculture	8
AEE 491	Seminar in Agricultural Education	1

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<b>Hours</b>	<b>12</b>
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<b>Total Hours</b>	<b>120</b>
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<sup>1</sup> A minimum grade of C- is required for graduation. A minimum grade of C is required for teacher licensure.

<sup>2</sup> Incoming freshmen complete AEE 103 Fundamentals of Agricultural and Extension Education. Transfer students may complete ALS 103 Freshman Transitions and Diversity in Agriculture & Life Sciences or ALS 303 Transfer Transitions and Diversity in Agriculture & Life Sciences.

<sup>3</sup> Total hours of free electives vary in order to allow the minimum hours required for the degree to equal 120 credit hrs.