

Agricultural Education (BS): Horticultural Science Concentration

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 Horticultural Science 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, 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
Orientation		
AEE 103	Fundamentals of Agricultural and Extension Education	1
or ALS 103	First-year Success in Agriculture and Life Sciences	
or ALS 303	Transfer Success in Agriculture and Life Sciences	
Writing and Speaking		
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 ¹	1
AEE 206	Introduction to Teaching Agriculture ¹	3
AEE 226	Computer Applications and Information Technology in Agricultural & Extension Ed ¹	3
AEE 303	Administration and Supervision of Student Organizations ¹	3
AEE 322	Experiential Learning in Agriculture ¹	3
AEE 326	Teaching Diverse Learners in AED ¹	3
AEE 327	Conducting Summer Programs in Agricultural Education	1
AEE 424	Planning Agricultural Educational Programs ¹	3
AEE 426	Methods of Teaching Agriculture ¹	3
AEE 427	Student Teaching in Agriculture ¹	8
AEE 491	Seminar in Agricultural Education	1

Other Professional Education

EDP 304	Educational Psychology ¹	3
ELP 344	School and Society ¹	3
ED 311	Classroom Assessment Principles and Practices ¹	2
ED 312	Classroom Assessment Principles and Practices Professional Learning Lab ¹	1

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 Electives:		3
ARE 201	Introduction to Agricultural & Resource Economics	
ARE 201A	Introduction to Agricultural & Resource Economics	
EC 201	Principles of Microeconomics	
EC 205	Fundamentals of Economics	

Horticulture Science Concentration

HS 201	The World of Horticulture: Principles and Practices	3
HS 203	Home Plant Propagation	3
or HS 301	Plant Propagation	
CS 211	Plant Genetics	3
or HS 215	Agricultural Genetics	
HS 411	Nursery Management	3
or HS 440	Greenhouse Management	
Select one of the following:		3
HS 421	Temperate-Zone Tree Fruits: Physiology and Culture	
HS 422	Small Fruit Production	
HS 431	Vegetable Production	
Horticulture Science Elective (p. 2)		2

GEP Courses In The Major

ENG 101	Academic Writing and Research ¹	4
GEP Humanities (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/)		6
GEP Mathematical Sciences (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-mathematical-sciences/)		6
GEP Health and Exercise Studies (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/)		2
GEP US Diversity, Equity, and Inclusion (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-usdei/)		3
GEP Interdisciplinary Perspectives (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/)		5
GEP Global Knowledge (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-global-knowledge/) (verify requirement)		
World Language Proficiency (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/world-language-proficiency/) (verify requirement)		
Free Electives		
Select 12 hours of Free Electives		5
Total hours of free electives vary in order to allow the minimum hours required for the degree to equal 120 hours.		
Total Hours		119

¹ A grade of C- or higher is required.

Horticulture Science Electives

Code	Title	Hours
ANS 215	Agricultural Genetics	3
CS 410	Community Food Systems	3
CS 480	Sustainable Food Production (capstone)	1
CS 502	Plant Disease: Methods & Diagnosis	2
CS 541	Plant Breeding Methods	3
FS 462	Postharvest Physiology	3
FS 562	Postharvest Physiology	3
HS 200	Home Horticulture	3
HS 201	The World of Horticulture: Principles and Practices	3
HS 202	Home Plant Identification	3
HS 203	Home Plant Propagation	3
HS 204	Home Landscape Maintenance	3
HS 205	Home Food Production	3
HS 215	Agricultural Genetics	3
HS 242	Landscape Design Introduction	3
HS 250	Home Landscape Design: Creating Garden Spaces	3
HS 252	Landscape Design Graphic Communication	2
HS 272	Landscape Design/Build	6
HS 275	Floral Design	3
HS 280	Hands-On-Horticulture	3
HS 290	Horticulture: Careers and Opportunities	1
HS 301	Plant Propagation	4
HS 302	Gardening with Herbaceous Perennials	3
HS 303	Ornamental Plant Identification I	3
HS 304	Ornamental Plant Identification II	3

HS 357	Landscape Design Grading and Drainage	4
HS 400	Residential Landscaping	6
HS 410	Community Food Systems	3
HS 411	Nursery Management	3
HS 416	Landscape Planting Design	4
HS 418	Landscape Design Digital Media Graphics	3
HS 420	Green Infrastructure	3
HS 421	Temperate-Zone Tree Fruits: Physiology and Culture	3
HS 422	Small Fruit Production	3
HS 423		3
HS 428	Soil Management Principles for Sustainable Agriculture	1
HS 431	Vegetable Production	4
HS 432	Introduction to Permaculture	3
HS 433	Public Garden Administration	3
HS 440	Greenhouse Management	3
HS 442	Floriculture Crop Production	3
HS 451	Plant Nutrition	3
HS 462	Postharvest Physiology	3
HS 471	Landscape Ecosystem Management	4
HS 475		3
HS 476	Crop Physiology and Production in Controlled Environments	3
HS 480	Sustainable Food Production (capstone)	1
HS 491	Sustainable Agriculture Entrepreneurship Study Abroad	3
HS 492	Horticulture Internship	1-3
HS 493	Research Experience in Horticultural Science	1-3
HS 494	Teaching Experience in Horticultural Science	1-3
HS 495	Experimental Courses in Horticultural Science	1-6
HS 502	Plant Disease: Methods & Diagnosis	2
HS 516	Landscape Planting Design	4
HS 520	Green Infrastructure	3
HS 521	Temperate-Zone Tree Fruits: Physiology and Culture	3
HS 523		3
HS 532	Introduction to Permaculture	3
HS 533	Public Garden Administration	3
HS 541	Plant Breeding Methods	3
HS 550	Environmental Nursery Production	3
HS 551	Plant Nutrition	3
HS 562	Postharvest Physiology	3
HS 576	Crop Physiology and Production in Controlled Environments	3
HS 590	Special Problems in Horticultural Science	1-6
PP 502	Plant Disease: Methods & Diagnosis	2
SSC 428	Soil Management Principles for Sustainable Agriculture	1

Semester Sequence

This is a sample.

First Year

Fall Semester		Hours
AEE 101	Introduction to Career and Technical Education ¹	1
AEE 103	Fundamentals of Agricultural and Extension Education ²	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 (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-mathematical-sciences/)		3
GEP Health and Exercise Studies (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/)		1
Hours		17

Spring Semester

AEE 226	Computer Applications and Information Technology in Agricultural & Extension Ed ¹	3
ANS 150	Introduction to Animal Science	3
ANS 151	Introduction to Animal Science Lab	1
BIO 183	Introductory Biology: Cellular and Molecular Biology	4
GEP Mathematical Sciences (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-mathematical-sciences/)		3
GEP Health and Exercise Studies (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/)		1
Hours		15

Second Year

Fall Semester		Hours
AEE 206	Introduction to Teaching Agriculture	3
HS 201	The World of Horticulture: Principles and Practices	3
BAET 201 or TDE 110	Shop Processes and Management or Materials & Processes Technology	3
Economics Elective (p. 1)		3
GEP Humanities (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/)		3
Hours		15

Spring Semester

CH 101 & CH 102	Chemistry - A Molecular Science and General Chemistry Laboratory	4
Select one of the following:		3
CS 211	Plant Genetics	
HS 215	Agricultural Genetics	
ANS 215	Agricultural Genetics	
Horticulture Science Elective (p. 2)		3
GEP US Diversity, Equity, and Inclusion (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-usdei/)		3
Hours		13

Third Year

Fall Semester		Hours
AEE 322	Experiential Learning in Agriculture	3
HS 301	Plant Propagation	4
EDP 304	Educational Psychology	3
SSC 200	Soil Science	3
SSC 201	Soil Science Laboratory	1
GEP Interdisciplinary Perspectives (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/)		3
Hours		17

Spring Semester

AEE 303	Administration and Supervision of Student Organizations	3
AEE 326	Teaching Diverse Learners in AED	3
ED 311	Classroom Assessment Principles and Practices	2
ED 312	Classroom Assessment Principles and Practices Professional Learning Lab ¹	1
ELP 344	School and Society ¹	3
Horticulture Science Elective (p. 2)		3
Hours		15

Fourth Year

Fall Semester		Hours
AEE 327	Conducting Summer Programs in Agricultural Education	1
AEE 426	Methods of Teaching Agriculture ¹	3
HS 411 or HS 440	Nursery Management or Greenhouse Management	3
GEP Humanities (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/)		3
GEP Interdisciplinary Perspectives (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/)		2
Free Electives ³		4
Hours		16

Spring Semester

AEE 424	Planning Agricultural Educational Programs	3
AEE 427	Student Teaching in Agriculture	8
AEE 491	Seminar in Agricultural Education	1
Hours		12
Total Hours		120

¹ A minimum grade of C is required for teacher licensure.

² Incoming freshmen complete AEE 103 Fundamentals of Agricultural and Extension Education. Transfer students may complete ALS 103 First-year Success in Agriculture and Life Sciences or ALS 303 Transfer Success in Agriculture and Life Sciences.

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

Career Opportunities

The Agricultural Business Management Program prepares graduates for careers in management, marketing, sales, finance, supply chain,

entrepreneurship, and related fields. The program has sufficient flexibility to provide more extensive course work in science and math for those students desiring to prepare for advanced graduate study. The concentration in biological sciences prepares graduates for management, marketing, and sales careers in fields such as biotechnology, pharmaceuticals, health care, environmental protection, and food processing. Graduates specializing in agribusiness entrepreneurship are trained in value creation and prepared to address the strong demand in agtech, biotech, and foodtech.

Career Titles

- Agricultural Inspector
- Agricultural Technician
- Aquaculture Specialist
- Bank and Branch Managers
- Buyer
- Farm and Ranch Manager
- Farm Management Advisor
- Farm Product Buyer
- Farm Products Purchasing Agent
- Farmers and Ranchers
- Financial Analyst
- Food & Drug Inspector
- Greenhouse and Nursery Manager
- Insurance Agent
- Loan Officer
- Market Research Analyst
- Purchasing Manager
- Real Estate Broker
- Sales Representative (Agricultural Products)
- Winemaker / Vinter

Learn More About Careers

NCcareers.org (<https://nccareers.org/>)

Explore North Carolina's central online resource for students, parents, educators, job seekers and career counselors looking for high quality job and career information.

Occupational Outlook Handbook (<https://www.bls.gov/ooh/>)

Browse the Occupational Outlook Handbook published by the Bureau of Labor Statistics to view state and area employment and wage statistics. You can also identify and compare similar occupations based on your interests.

Career One Stop Videos (<https://www.careeronestop.org/>)

View videos that provide career details and information on wages, employment trends, skills needed, and more for any occupation. Sponsored by the U.S. Department of Labor.

Focus 2 Career Assessment (<https://careers.dasa.ncsu.edu/explore-careers/career-assessments/>) (NC State student email address required)

This career, major and education planning system is available to current NC State students to learn about how your values, interests, competencies, and personality fit into the NC State majors and your future career. An NC State email address is required to create an account. Make an appointment with your career counselor (<https://careers.dasa.ncsu.edu/about/hours-appointments/>) to discuss the results.

Focus 2 Apply Assessment (<https://www.focus2career.com/Portal/Register.cfm?SID=1929>) (Available to prospective students)

A career assessment tool designed to support prospective students in exploring and choosing the right major and career path based on your unique personality, interests, skills and values. Get started with Focus 2 Apply and see how it can guide your journey at NC State.

Agricultural and Applied Economics Association (<https://www.aaea.org/employmenttopps/>)

AgCareers.com (<https://www.agcareers.com/newsletters/>)

AgCareers.com-Electronic-Internship-Flyer.htm)

National Agri-Marketing Association (<https://www.nama.org/>)