

# Agricultural Education (BS): Horticultural Science 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 and be FFA advisors 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
- 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 more about this program, including contact information, visit our website (<https://cals.ncsu.edu/agricultural-and-human-sciences/undergraduate/#agricultural-education-major>).

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## Plan Requirements

**Agricultural Education (BS): Horticultural Science Concentration:  
120 Total Units**

Code	Title	Hours
<b>Orientation</b>		
Select one of the following:		1
AEE 103	Fundamentals of Agricultural and Extension Education	
ALS 103	Freshman Transitions and Diversity in Agriculture & Life Sciences	
ALS 303	Transfer Transitions and Diversity in Agriculture & Life Sciences	
<b>Writing and Speaking</b>		
COM 110	Public Speaking	3
<b>Sciences</b>		
BIO 181	Introductory Biology: Ecology, Evolution, and Biodiversity	4

BIO 183	Introductory Biology: Cellular and Molecular Biology	4
CH 101	Chemistry - A Molecular Science	3
CH 102	General Chemistry Laboratory	1

### 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	Classroom Assessment Principles and Practices <sup>1</sup>	2
ED 312	Classroom Assessment Principles and Practices Professional Learning Lab <sup>1</sup>	1

### Teaching Content Courses

BAET 201	Shop Processes and Management	3
or TDE 110	Materials & Processes Technology	
ANS 150	Introduction to Animal Science	3
ANS 151	Introduction to Animal Science Lab	1
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 301	Plant Propagation	4
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
<b>GEP Courses In The Major</b>		
ENG 101	Academic Writing and Research <sup>1</sup>	4

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 Additional Breadth ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/</a> ) (Mathematical Sciences/Natural Sciences/Engineering)	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> )	5
GEP U.S. Diversity ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-us-diversity/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-us-diversity/</a> ) (verify requirement)	
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</b>	
Select 12 hours of Free Electives	5
<b>Total Hours</b>	<b>120</b>

<sup>1</sup> 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 131	Fruit & Vegetable Production	3
HS 144	Weeds & Diseases of Ornamentals	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	Introduction to Small Scale Landscape Design	3
HS 250	Home Landscape Design: Creating Garden Spaces	3
HS 252	Landscape Graphic Communication	2
HS 272	Landscape Design/Build	6
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 Grading and Drainage	4
HS 400	Residential Landscaping	6
HS 410	Community Food Systems	3
HS 411	Nursery Management	3
HS 416	Planting Design	4
HS 418	Digital Media Graphic for Landscape Designers	3
HS 420	Green Infrastructure	3
HS 421	Temperate-Zone Tree Fruits: Physiology and Culture	3
HS 422	Small Fruit Production	3
HS 423	Viticulture	3
HS 428	Service-Learning in Urban Agriculture Systems	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	Horticulture Entrepreneurship	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	Planting Design	4
HS 520	Green Infrastructure	3
HS 521	Temperate-Zone Tree Fruits: Physiology and Culture	3
HS 523	Viticulture	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 583	Advanced Floral Crop Production and Handling	3
HS 590	Special Problems in Horticultural Science	1-6
PP 144	Weeds & Diseases of Ornamentals	3
PP 502	Plant Disease: Methods & Diagnosis	2
SSC 428	Service-Learning in Urban Agriculture Systems	1

## Semester Sequence

This is a sample.

Course	Title	Hours
<b>First Year</b>		
<b>Fall Semester</b>		
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
Hours		17
<b>Spring Semester</b>		
AEE 226	Computer Applications and Information Technology in Agricultural & Extension Ed <sup>1</sup>	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 ( <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
Hours		15
<b>Second Year</b>		
<b>Fall Semester</b>		
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		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
Hours		15
<b>Spring Semester</b>		
CH 101	Chemistry - A Molecular Science	3
CH 102	General Chemistry Laboratory	1
Select one of the following:		3
CS 211	Plant Genetics	
HS 215	Agricultural Genetics	
ANS 215	Agricultural Genetics	
Horticultural Science Elective		3

GEP Additional Breadth (<http://catalog.ncsu.edu/undergraduate/gep-category-requirements/>) (Mathematical Sciences/Natural Sciences/Engineering) 3

Hours 13

### Third Year

#### Fall Semester

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 ( <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> )		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 <sup>1</sup>	1
ELP School and Society <sup>1</sup>		3
Horticulture Elective		3

Hours 15

### Fourth Year

#### Fall Semester

AEE 327	Conducting Summer Programs in Agricultural Education	1
AEE 426	Methods of Teaching Agriculture <sup>1</sup>	3
HS 411 or HS 440	Nursery Management or Greenhouse Management	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
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
Free Electives <sup>3</sup>		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

<sup>1</sup> 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.

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<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.