

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

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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	
<b>Sciences</b>			

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
<b>Agricultural Education</b>		
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
<b>Other Professional Education</b>		
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
<b>Teaching Content Courses</b>		
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	
<b>Horticulture Science Concentration</b>		
HS 201	The World of Horticulture: Principles and Practices	3
HS 301	Plant Propagation	4
CS 211 or HS 215	Plant Genetics Agricultural Genetics	3
HS 411 or HS 440	Nursery Management Greenhouse Management	3
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
Total hours of free electives vary in order to allow the minimum hours required for the degree to equal 120 hours.		

**Total Hours** **120**

<sup>1</sup> A grade of C- or higher is required.

**Horticulture Science Electives**

Code	Title	Hours	Counts towards
ANS 215	Agricultural Genetics	3	

CS 410	Community Food Systems	3	HS 303	Ornamental Plant Identification I	3
CS 480	Sustainable Food Production (capstone)	1	HS 304	Ornamental Plant Identification II	3
CS 502	Plant Disease: Methods & Diagnosis	2	HS 357	Landscape Grading and Drainage	4
CS 541	Plant Breeding Methods	3	HS 400	Residential Landscaping	6
FS 462	Postharvest Physiology	3	HS 410	Community Food Systems	3
FS 562	Postharvest Physiology	3	HS 411	Nursery Management	3
HS 131	Fruit & Vegetable Production	3	HS 416	Planting Design	4
HS 144	Weeds & Diseases of Ornamentals	3	HS 418	Digital Media Graphic for Landscape Designers	3
HS 200	Home Horticulture	3	HS 420	Green Infrastructure	3
HS 201	The World of Horticulture: Principles and Practices	3	HS 421	Temperate-Zone Tree Fruits: Physiology and Culture	3
HS 202	Home Plant Identification	3	HS 422	Small Fruit Production	3
HS 203	Home Plant Propagation	3	HS 423	Viticulture	3
HS 204	Home Landscape Maintenance	3	HS 428	Service-Learning in Urban Agriculture Systems	1
HS 205	Home Food Production	3	HS 431	Vegetable Production	4
HS 215	Agricultural Genetics	3	HS 432	Introduction to Permaculture	3
HS 242	Introduction to Small Scale Landscape Design	3	HS 433	Public Garden Administration	3
HS 250	Home Landscape Design: Creating Garden Spaces	3	HS 440	Greenhouse Management	3
HS 252	Landscape Graphic Communication	2	HS 442	Floriculture Crop Production	3
HS 272	Landscape Design/Build	6	HS 451	Plant Nutrition	3
HS 280	Hands-On-Horticulture	3	HS 462	Postharvest Physiology	3
HS 290	Horticulture: Careers and Opportunities	1	HS 471	Landscape Ecosystem Management	4
HS 301	Plant Propagation	4	HS 475	Horticulture Entrepreneurship	3
HS 302	Gardening with Herbaceous Perennials	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
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## 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
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
<b>Hours</b>		<b>15</b>

### Second Year

#### Fall Semester

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 ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/</a> )		3
<b>Hours</b>		<b>15</b>

#### 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 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
<b>Hours</b>		<b>13</b>
<b>Third Year</b>		
<b>Fall Semester</b>		
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
<b>Hours</b>		<b>17</b>
<b>Spring Semester</b>		
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 344	School and Society <sup>1</sup>	3
Horticulture Science Elective (p. 2)		3
<b>Hours</b>		<b>15</b>
<b>Fourth Year</b>		
<b>Fall Semester</b>		
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
<b>Hours</b>		<b>16</b>
<b>Spring Semester</b>		
AEE 424	Planning Agricultural Educational Programs	3
AEE 427	Student Teaching in Agriculture	8
AEE 491	Seminar in Agricultural Education	1
<b>Hours</b>		<b>12</b>
<b>Total Hours</b>		<b>120</b>

<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.

<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.