

# Horticultural Science (BS): Landscape Design, Construction, and Management Concentration

The Bachelor of Science in Horticultural Science: Landscape Design, Gardens and Urban Environments Concentration is one of the four concentrations offered in by the Department of Horticultural Science. Students are offered a unique look at various aspects of Horticulture.

The Landscape Design, Gardens and Urban Environments concentration is a menu driven concentration that allows students to direct their education in either landscape design or gardens and their uses in urban spaces. Students are required to take two Biology courses, Soil Science, General Chemistry, and Whole Plant Physiology. The remaining courses for the major are selected from a series of topical menus: Plant Protection Electives, Business Electives, and Advised Electives.

Students can follow paths toward residential landscape design, landscape construction and maintenance, public gardens and urban ecosystem management or pursue a graduate degree.

## Coordinator

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## Plan Requirements

Code	Title	Hours
<b>Orientation</b>		
ALS 103	First-year Success in Agriculture and Life Sciences	1
or ALS 303	Transfer Success in Agriculture and Life Sciences	
<b>Communication</b>		<b>3</b>
COM 110	Public Speaking	
or COM 112	Interpersonal Communication	
or COM 202	Small Group Communication	
<b>Mathematics &amp; Sciences</b>		
MA 107	Precalculus I	3
MA 114	Introduction to Finite Mathematics with Applications	3
or MA 121	Elements of Calculus	
or MA 131	Calculus for Life and Management Sciences A	
or ST 311	Introduction to Statistics	
BIO 181	Introductory Biology: Ecology, Evolution, and Biodiversity	4

BIO 183	Introductory Biology: Cellular and Molecular Biology	4
or PB 200	Plant Life	
CH 101	Chemistry - A Molecular Science	3
CH 102	General Chemistry Laboratory	1
ARE 201	Introduction to Agricultural & Resource Economics	3
or EC 201	Principles of Microeconomics	
or EC 205	Fundamentals of Economics	

### Foundational Courses

HS 201	The World of Horticulture: Principles and Practices	3
HS 242	Landscape Design Introduction	3
HS 272	Landscape Design/Build	6
HS 290	Horticulture: Careers and Opportunities	1
HS 301	Plant Propagation	4
HS 303	Ornamental Plant Identification I	3
HS 304	Ornamental Plant Identification II	3
HS 471	Landscape Ecosystem Management	4
SSC 200	Soil Science	3
SSC 201	Soil Science Laboratory	1
PB 321	Introduction to Whole Plant Physiology	3
AEC 360	Ecology	4
or PB 360	Ecology	
Select one of the following Career Experience courses:		<b>3</b>
HS 492	Horticulture Internship	
HS 493	Research Experience in Horticultural Science	
HS 494	Teaching Experience in Horticultural Science	

### Electives

Environmental Electives (p. )	3
Plant Protective Electives (p. 2)	3
Business Elective (p. 2)	3
Broad-Scope Elective (p. 2)	3
Advised Electives (p. 2)	16

### GEP Courses

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 Social Sciences ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-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> )		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)		
World Language Proficiency ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/world-language-proficiency/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/world-language-proficiency/</a> ) (verify requirement)		

### Free Electives

Free Electives (12 Hr S/U Lmt) <sup>2</sup>	6
<b>Total Hours</b>	<b>120</b>

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

<sup>2</sup> Students should consult their academic advisors to determine which courses fill this requirement.

\* Students will have at least one computer-aided design course. HS 418 Landscape Design Digital Media Graphics gives an overview of AutoCAD, Photoshop, Illustrator, etc. as applied to a single semester-long project. If a student plans on pursuing an MLA degree, they should take LAR 210 Digital Drawing for Landscape Architecture and LAR 211 Digital Design Media for Landscape Architecture.

## Environmental Electives

Code	Title	Hours
AEC 380	Water Resources: Global Issues in Ecology, Policy, Management, and Advocacy	3
ES 200	Climate Change and Sustainability	3
NR 303	Humans and the Environment	3
IDS 201	Environmental Ethics	3
IDS 203	Humans and the Environment	3

## Plant Protective Electives

Code	Title	Hours
CS 414	Weed Science	4
CS 415	Integrated Pest Management	3
ENT 425	General Entomology	3
or FOR 402	Forest Entomology	
FOR 318	Forest Pathology	3
or PP 315	Principles of Plant Pathology	
or PP 318	Forest Pathology	

## Business Electives

Code	Title	Hours
ACC 280	Survey of Financial and Managerial Accounting	3
ARE 215	Small Business Accounting	3
ARE 304	Agribusiness Management	3
ARE 306	Agricultural Law	3
ARE 309	Environmental Law & Economic Policy	3
ARE 312	Agribusiness Marketing	3
ARE 321	Agricultural Financial Management	3
ARE 323	Agribusiness Finance	3
ARE 332	Human Resource Management for Agribusiness	3

## Broad-Scope Electives

Code	Title	Hours
AEC 470	Urban Ecology	3
CS 200	Introduction to Turfgrass Management	4
HS 280	Hands-On-Horticulture	3
HS 420	Green Infrastructure	3
HS 432	Introduction to Permaculture	3
HS 451	Plant Nutrition	3

HS 491	Sustainable Agriculture Entrepreneurship Study Abroad	3
SSC 341	Soil Fertility and Nutrient Management	3
SSC 342	Soil and Plant Nutrient Analysis	1
PB 215	Medicinal Plants	3
PB 220	Local Flora	3

## Advised Electives

Code	Title	Hours
<b>Landscape Design Electives</b>		
HS 252	Landscape Design Graphic Communication	2
HS 357	Landscape Design Grading and Drainage	4
HS 400	Residential Landscaping	6
HS 416	Landscape Planting Design	4
HS 418	Landscape Design Digital Media Graphics	3
<b>Gardens &amp; Urban Environments</b>		
COM 289	Science Communication and Public Engagement	3
HS 357	Landscape Design Grading and Drainage	4
HS 418	Landscape Design Digital Media Graphics	3
HS 428	Soil Management Principles for Sustainable Agriculture	1
HS 433	Public Garden Administration	3
HS 533	Public Garden Administration	3
NPS 340	Fundamentals of Grant Development for Nonprofits	3
PS 203	Introduction to Nonprofits	3
SMT 202	Anatomy and Properties of Renewable Materials	3
SMT 203	Physical Properties of Sustainable Materials	4
SSC 428	Soil Management Principles for Sustainable Agriculture	1

## Semester Sequence

This is a sample.

<b>First Year</b>		
<b>Fall Semester</b>		<b>Hours</b>
ALS 103 or ALS 303	First-year Success in Agriculture and Life Sciences or Transfer Success in Agriculture and Life Sciences	1
BIO 181	Introductory Biology: Ecology, Evolution, and Biodiversity	4
ENG 101	Academic Writing and Research	4
HS 201	The World of Horticulture: Principles and Practices	3
HS 290	Horticulture: Careers and Opportunities	1
MA 107	Precalculus I	3
<b>Hours</b>		<b>16</b>
<b>Spring Semester</b>		
BIO 183 or PB 200	Introductory Biology: Cellular and Molecular Biology or Plant Life	4

COM 110 or COM 112 or COM 202	Public Speaking or Interpersonal Communication or Small Group Communication	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
MA 114 or MA 121 or MA 131 or ST 311	Introduction to Finite Mathematics with Applications or Elements of Calculus or Calculus for Life and Management Sciences A or Introduction to Statistics	3
<b>Hours</b>		<b>13</b>
<b>Second Year</b>		
<b>Fall Semester</b>		
CH 101	Chemistry - A Molecular Science	3
CH 102	General Chemistry Laboratory	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
GEP Social Sciences ( <a href="http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/">http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/</a> )		3
HS 303	Ornamental Plant Identification I	3
PB/AEC 360	Ecology	4
<b>Hours</b>		<b>17</b>
<b>Spring Semester</b>		
Advised Elective (p. 2)		2
ARE 201 or EC 201 or EC 205	Introduction to Agricultural & Resource Economics or Principles of Microeconomics or Fundamentals of Economics	3
HS 242	Landscape Design Introduction	3
HS 304	Ornamental Plant Identification II	3
SSC 200	Soil Science	3
SSC 201	Soil Science Laboratory	1
<b>Hours</b>		<b>15</b>
<b>Third Year</b>		
<b>Fall Semester</b>		
Business Elective (p. 2)		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
Free Elective <sup>2</sup>		3
HS 272	Landscape Design/Build	6
HS 492 or HS 493 or HS 494	Horticulture Internship or Research Experience in Horticultural Science or Teaching Experience in Horticultural Science	1-3
<b>Hours</b>		<b>16</b>
<b>Spring Semester</b>		
Advised Elective (p. 2)		4
Advised Elective (p. 2)		6
Environmental Elective (p. )		3
PB 321	Introduction to Whole Plant Physiology	3
<b>Hours</b>		<b>16</b>

## Fourth Year

### Fall Semester

Advised Elective (p. 2)		4
Advised Elective (p. 2)		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
HS 471	Landscape Ecosystem Management	4
<b>Hours</b>		<b>14</b>

### Spring Semester

Plant Protection Elective (p. )		3
Free Elective		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 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
HS 301	Plant Propagation	4
<b>Hours</b>		<b>13</b>
<b>Total Hours</b>		<b>120</b>

## Career Opportunities

Horticulture graduates fill positions in production, processing, sales, service, and outreach. Among these are:

- County extension agents
- Vocational agriculture teachers
- Plant breeders
- Landscape designers and landscape contractors
- Floral crop grower or floral designer
- Fruit and vegetable growers
- Business owners
- Orchard, nursery, greenhouse, and garden center managers
- Research, production, and promotional specialists with commercial seed, fertilizer chemical, and food companies
- Urban horticulture specialists
- Garden writers
- Quality control technologists
- USDA specialists
- County and state government planners
- Leaders in other phases of agricultural and industrial developments
- Students also prepare for careers in research, teaching or extension in horticulture

## Career Titles

- Agricultural Engineer
- Agricultural Inspector
- Agricultural Sciences Professor
- Agricultural Technician
- Botanist
- Crop Workers Supervisor
- Farm and Ranch Manager
- Farm Management Advisor
- Farm Products Purchasing Agent

- Farmers and Ranchers
- Food & Drug Inspector
- Food Science Technicians
- Golf Course Manager
- Greenhouse and Nursery Manager
- Horticultural Worker Supervisor
- Horticulture Therapist
- Horticulturist
- Irrigation Engineer
- Landscape Architect
- Landscape Contractor
- Plant Breeder
- Sales Representative (Agricultural Products)
- Winemaker / Vintner

## 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.