

# Horticulture

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Instruction and study in horticulture is focused on fruits, vegetables, and woody and herbaceous landscape plants, including propagation, production, culture, marketing, processing, and utilization. Horticulture encompasses the design and planting for landscapes, parks, highways, and public facilities, including interiorscapes, in rural, suburban, and urban areas. It includes skills for management of nursery, garden center, greenhouse, seed, fruit, vegetable, biotechnology, and specialty crop enterprises, as well as floral design and flower shops.

The Horticulture major is a four-year curriculum leading to the B.S. degree. Students also may minor in Horticulture. Prospective students should consult with horticulture faculty regarding programs and options so their educational needs may best be fulfilled. Master of Science and Ph.D. degree programs also are available. For more complete details, see the Graduate Bulletin (<http://bulletin.ndsu.edu/past-bulletin-archive/2015-16/graduate>).

## Curriculum Options

Horticulture majors may select one or more options of study. All of the requirements for the major and the supporting disciplines must be met to complete any horticulture option. Students may select from the following five options:

- **Horticulture Biotechnology:** This option is for students who plan to engage in laboratory research or further their education in the biotechnology of horticultural crops.
- **Horticulture Science:** This option is for students who plan to continue formal graduate school education leading to careers in research, teaching, and extension.
- **Landscape Design:** This option is for students interested in planning, designing, and installing landscape plantings for functional and aesthetic purposes (a 19-credit minor in landscape architecture is required).
- **Production Business:** This option is for students who wish to grow, market, and process horticultural crops, for example, nursery and/or greenhouse landscape, fruit, and vegetable crops.
- **Urban Forestry and Parks:** This option is for students who desire a career in the management of urban forests and park-like areas, including arboreta and botanic gardens. It also includes maintenance of residential landscapes.

## Special Opportunities

**Pre-Forestry:** A student who desires to major in forestry may select a two-year pre-forestry curriculum. However, the forestry student must transfer to another institution that offers a Forestry program to complete degree requirements.

**Horticulture and Forestry Club:** This club meets twice each month. Members take field trips to botanical gardens, arboreta, trade shows, parks and other horticultural sites. They also are actively involved in growing and marketing flowers and foliage plants, regional and national judging contests, flower shows, and horticulture science and education programs.

## Major Requirements

### Major: Horticulture

Degree Type: B.S.

Required Degree Credits to Graduate: 128

### General Education Requirements

#### First Year Experience (F):

AGRI 189	Skills for Academic Success (Students transferring in 24 or more credits do not need to take AGRI 189.)	1
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#### Communication (C):

ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
One Course in Upper Level Writing: Select one of the following:		
ENGL 320	Business and Professional Writing	
ENGL 321	Writing in the Technical Professions	
ENGL 324	Writing in the Sciences	
COMM 110	Fundamentals of Public Speaking	3

#### Quantitative Reasoning (R):

STAT 330	Introductory Statistics	3
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#### Science & Technology (S):

CHEM 121 & 121L	General Chemistry I and General Chemistry I Laboratory	4
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CHEM 122	General Chemistry II	3
CSCI 114	Microcomputer Packages	3-4
or CSCI 116	Business Use of Computers	
<b>Humanities &amp; Fine Arts (A): Select from current general education list</b>		<b>6</b>
<b>Social &amp; Behavioral Sciences (B):</b>		
ECON 201	Principles of Microeconomics	3
or ECON 202	Principles of Macroeconomics	
Select course from current general education list		3
<b>Wellness (W): Select from current general education list</b>		<b>2</b>
<b>Cultural Diversity (D): Select from current general education list</b>		
<b>Global Perspectives (G):</b>		
ECON 201	Principles of Microeconomics	3
<b>Total Credits</b>		<b>40</b>

## Major Requirements

<b>General Education Requirements</b>		<b>40</b>
<b>Required Courses for Horticulture</b>		
AGRI 150	Agriculture Orientation (Students transferring in 24 or more credits do not need to take AGRI 150.)	1
BIOL 150 & 150L	General Biology I and General Biology I Laboratory	4
ENT 350	General Entomology	3
PLSC 210	Horticulture Science	3
PLSC 211	Horticulture Science Lab	1
PLSC 315	Genetics	3
PLSC 355	Woody Landscape Plants	3
PLSC 457	Horticulture and Turfgrass Systems (Capstone)	3
PLSC 491	Seminar	1
PPTH 324	Introductory Plant Pathology	3
<b>Options: Select one of the five options listed below.</b>		<b>38-53</b>
Students must select one option of most interest. The standard option for this major is Production-Business. Student who wish to declare an option other than the standard option must officially declare that option with the Office of Registration and Records.		
<b>Degree Requirements: Potential of a minimum of 25 credits to reach 128.</b>		<b>25</b>
<b>Total Credits</b>		<b>128-143</b>

### Production-Business Option - 47 Credits

Standard option for the major of horticulture.

ACCT 102	Fundamentals of Accounting	3
BOT 372	Structure and Diversity of Plants and Fungi	4
BOT 380	Plant Physiology	3
MGMT 320	Foundations of Management	3
MGMT 450	Human Resource Management	3
MATH 103	College Algebra	3
PLSC 315L	Genetics Laboratory	1
PLSC 323	Principles of Weed Science	3
PLSC 360	Horticultural Food Crops	4
PLSC 368	Plant Propagation	3
PLSC 412	Nursery Production and Management	3
PLSC 422	Greenhouse Production and Management	3
PLSC 486	Applied Crop Physiology	3
PPTH 455	Plant Disease Management	3
or PPTH 457	Landscape Plant Pathology	
SOIL 210	Introduction to Soil Science	3

<b>Plant Science Electives: Select one of the following:</b>	<b>2</b>
PLSC 362	Potato Science
PLSC 365	Herbaceous Landscape Plants
PLSC 375	Turfgrass Management
PLSC 465	Advanced Landscape Plants
PLSC 484	Plant Tissue Culture and Biotechnology
PLSC 485	Arboriculture Science
PLSC 296/496	Field Experience
<b>Total Credits</b>	<b>47</b>

### Horticulture Biotechnology Option - 53 Credits

This option also requires the completion of the Biotechnology minor.

BIOC 460 & 460L	Foundations of Biochemistry and Molecular Biology I and Foundations of Biochemistry I Laboratory	4
BIOC 461	Foundations of Biochemistry and Molecular Biology II	3
BIOC 474	Methods of Recombinant DNA Technology	3
BOT 372	Structure and Diversity of Plants and Fungi	4
BOT 380	Plant Physiology	3
CHEM 122L	General Chemistry II Laboratory	1
CHEM 341 & 341L	Organic Chemistry I and Organic Chemistry I Laboratory	4
CHEM 342	Organic Chemistry II	3
MATH 146	Applied Calculus I	4
MICR 202 & 202L	Introductory Microbiology and Introductory Microbiology Lab	3
PLSC 315L	Genetics Laboratory	1
PLSC 360	Horticultural Food Crops	4
PLSC 368	Plant Propagation	3
PLSC 484	Plant Tissue Culture and Biotechnology	3
PLSC 486	Applied Crop Physiology	3
MATH 103	College Algebra (or higher level)	3
Plant Science Electives: Select 4 credits from the following:		4
PLSC 296/496	Field Experience	
PLSC 444	Applied Plant Breeding and Research Methods	
PLSC Elective Course	No more than 2 credits of co-op allowed	
<b>Total Credits</b>		<b>53</b>

### Horticulture Science Option - 50 Credits

BOT 372	Structure and Diversity of Plants and Fungi	4
BOT 380	Plant Physiology	3
CHEM 122L	General Chemistry II Laboratory	1
CHEM 260	Elements of Biochemistry	4
CHEM 341 & 341L	Organic Chemistry I and Organic Chemistry I Laboratory	4
MATH 103	College Algebra (or higher based on math placement)	3
MATH 146	Applied Calculus I	4
PHYS 120	Fundamentals of Physics	3
PLSC 315L	Genetics Laboratory	1
PLSC 323	Principles of Weed Science	3
PLSC 360	Horticultural Food Crops	4
PLSC 368	Plant Propagation	3
PLSC 484	Plant Tissue Culture and Biotechnology	3
PLSC 486	Applied Crop Physiology	3

SOIL 210	Introduction to Soil Science	3
Plant Science Electives: Select 4 credit from the following:		4
PLSC 296/496	Field Experience	
PLSC 412	Nursery Production and Management	
PLSC 422	Greenhouse Production and Management	
PLSC 444	Applied Plant Breeding and Research Methods	
PLSC	Elective	
<b>Total Credits</b>		<b>50</b>

### Landscape Design Option - 38 Credits

This option also requires the completion of the Landscape Architecture minor.

BOT 380	Plant Physiology	3
BOT 460	Plant Ecology	3
BUSN 431	Business Law I-Contracts, Property and Torts	3
MATH 103	College Algebra	3
PLSC 177	Floral Design I	2
PLSC 323	Principles of Weed Science	3
PLSC 341	Landscape Bidding, Contracting and Operations	2
PLSC 365	Herbaceous Landscape Plants	2
PLSC 375 & 375L	Turfgrass Management and Turfgrass Management Laboratory	4
PLSC 465	Advanced Landscape Plants	2
PLSC 485	Arboriculture Science	3
PPTH 457	Landscape Plant Pathology	3
SOIL 210	Introduction to Soil Science	3
Plant Science Electives: Select 2 credits from the following:		2
PLSC 296/496	Field Experience	
PLSC 368	Plant Propagation	
PLSC 412	Nursery Production and Management	
PLSC 422	Greenhouse Production and Management	
PLSC 486	Applied Crop Physiology	
PLSC	Elective	
<b>Total Credits</b>		<b>38</b>

### Urban Forestry & Park Option - 51 Credits

BOT 372	Structure and Diversity of Plants and Fungi	4
BOT 380	Plant Physiology	3
BOT 460	Plant Ecology	3
MGMT 320	Foundations of Management	3
HNES 426	Sport Administration	3
MATH 103	College Algebra	3
NRM 150	Natural Resource Management Orientation	1
PLSC 219	Introduction to Prairie & Community Forestry	2
PLSC 315L	Genetics Laboratory	1
PLSC 323	Principles of Weed Science	3
PLSC 365	Herbaceous Landscape Plants	2
PLSC 375	Turfgrass Management	3
PLSC 465	Advanced Landscape Plants	2
PLSC 485	Arboriculture Science	3
PLSC 486	Applied Crop Physiology	3
POLS 360	Principles of Public Administration	3
PPTH 457	Landscape Plant Pathology	3

SOIL 210	Introduction to Soil Science	3
Plant Science Electives: Select 3 credits from the following:		3
PLSC 296/496	Field Experience	
PLSC 368	Plant Propagation	
PLSC 412	Nursery Production and Management	
PLSC 422	Greenhouse Production and Management	
PLSC	Elective	

**Total Credits** **51**

## Degree Requirements and Notes

- No more than 6 credits may be co-op.

## Minor Requirements

### Horticulture Minor

#### Minor Requirements

**Required Credits: 18**

#### Required Courses

PLSC 210	Horticulture Science	3
PLSC 211	Horticulture Science Lab	1

**Elective Courses: Select 8 credits from the following:** **8**

PLSC 355	Woody Landscape Plants	
PLSC 360	Horticultural Food Crops	
PLSC 365	Herbaceous Landscape Plants	
PLSC 368	Plant Propagation	
PLSC 465	Advanced Landscape Plants	

**Select 6 credits from the courses listed below:** **6**

Any PLSC 300-400 level courses or any of the courses listed below are required to obtain the minimum of 18 credits.

PLSC 300-400 level		
ENT 350	General Entomology	
PPTH 324	Introductory Plant Pathology	
SOIL 210	Introduction to Soil Science	

**Total Credits** **18**

## Minor Requirements and Notes

- A minimum of 8 credits must be taken at NDSU.
- Students must earn a minimum 2.00 GPA for the minor requirements.