Crookston Campus

Horticulture B.S.

Agriculture and Natural Resources

Academic Affairs

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2021
- Required credits to graduate with this degree: 120
- Required credits within the major: 66 to 69
- This program requires summer terms.
- Degree: Bachelor of Science

The BS in horticulture is a career-oriented program that combines science-based education, liberal arts education, and technical training. All horticulture students are introduced to botany, woody plants, entomology, plant pathology, and soil science as part of the program requirements. These courses together with liberal arts courses and program specific courses prepare students for careers in the green industry. Students select from three areas of emphasis: environmental landscaping, horticulture production, or urban forestry.

Program outcomes for graduates:
Demonstrate competency in identification of plant species, diseases, pests, and disorders of horticultural plants
Understand the use of horticultural plants for aesthetic improvement and sustainability of the environment
Apply principles of plant science, nutrition, soils, and pest management, and exhibit an awareness of environmental health and safety issues
Demonstrate an awareness of the need for continuing professional development
Demonstrate communication skills, ability to make sound decisions, and willingness to work as part of a team in providing leadership and accountability
Use computer technology to effectively communicate, manage, and enhance business operations

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Admission Requirements

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements. For more information, see the graduation requirements.

Program Requirements

Students must complete 40 upper-division credits.

A maximum of two D grades are allowed for core courses required in the program, subplan/emphasis, and technology requirements. This includes grades earned at UMC or transferred in from another institution.

Horticulture Core

Take exactly 31 credit(s) from the following:
•AGRO 3230 - Introduction to Plant Pathology (3.0 cr)
•HORT 1010 - Introduction to Horticulture (3.0 cr)
•HORT 1021 - Woody Plant Materials (4.0 cr)
•NATR 4652 - Seminar (1.0 cr)
•SOIL 1293 - Soil Science (3.0 cr)
•SOIL 3414 - Soil Fertility and Plant Nutrition (4.0 cr)
•SPAN 1104 - Beginning Spanish I [GLOB PERSP] (4.0 cr)
•Choose one of the following:
•COMM 3008 - Business Writing (3.0 cr)
or COMM 3431 - Persuasion (3.0 cr)
or WRIT 3303 - Writing in Your Profession (3.0 cr)
•Choose one of the following:

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•AGRO 2573 - Entomology (3.0 cr)
or NATR 2573 - Entomology (3.0 cr)
Pre-Internship Seminar
Choose one of the following:
NATR 2899 - Pre-Internship Seminar (0.5 cr)
or NATR 3899 - Pre-Internship Seminar (0.5 cr)
Internship
Take 2 or more credit(s) from the following:
•NATR 3900 - Internship (0.5 - 4.0 cr)
Post-Internship Seminar
NATR 3901 - Post-Internship Seminar (0.5 cr)

Liberal Education
This program requires a minimum of 40 credits of liberal education and completion of the ten goal areas of the Minnesota Transfer Curriculum. The following are specific required liberal education courses.
Take exactly 6 course(s) totaling exactly 20 credit(s) from the following:
•BIOL 1009 - General Biology [BIOL SCI, PEOPLE/ENV] (4.0 cr)
•CHEM 1001 - Introductory Chemistry [PHYS SCI] (4.0 cr)
•COMP 1011 - Composition I [COMMUNICAT] (3.0 cr)
•COMP 1013 - Composition II [COMMUNICAT] (3.0 cr)
•COMM 1101 - Public Speaking [COMMUNICAT] (3.0 cr)
•Choose one of the following:
•MATH 1031 - College Algebra [MATH THINK] (3.0 cr)
or MATH 1150 - Introduction to Statistics [MATH THINK] (3.0 cr)

Technology
Take exactly 1 course(s) totaling exactly 3 credit(s) from the following:
•AGEC 2310 - Agribusiness Financial Records (3.0 cr)
•CA 1xxx
•CA 2xxx

Program Sub-plans
Students are required to complete one of the following sub-plans.

Environmental Landscaping
Environmental landscaping includes courses in landscape design, planning and development of residential and commercial landscapes, and plant science. Reducing impact on the environment and sustainability are a major focus as well as appropriate use of plants and proper installation and management of landscape features. Many students include business courses in their elective curriculum to prepare them for all aspects of the industry. Graduates are prepared to be a landscape designer, installer, or contractor. They may also choose landscape supply sales, nursery management, land reclamation, or garden center management.

Environmental Landscaping Core
Take 7 or more course(s) totaling 23 or more credit(s) from the following:
•HORT 3030 - Landscape Design (4.0 cr)
•HORT 3031 - Herbaceous Perennial Plant Materials (2.0 cr)
•HORT 3034 - Commercial Floriculture Crops-Spring (4.0 cr)
•HORT 3036 - Plant Propagation (4.0 cr)
•HORT 3040 - Landscape Installation and Maintenance (3.0 cr)
•TURF 1072 - Principles of Turf Management (3.0 cr)
•Choose one of the following:
•BIOL 2020 - Plant Anatomy and Physiology [BIOL SCI, PEOPLE/ENV] (3.0 cr)
or BIOL 2021 - Plant Diversity, Ecology, and Evolution [BIOL SCI, PEOPLE/ENV] (3.0 cr)
or BIOL 2022 - General Botany [BIOL SCI, PEOPLE/ENV] (3.0 cr)
Environmental Landscaping Electives
Take 3 or more course(s) totaling 12 or more credit(s) from the following:
•ACCT 2101 - Principles of Accounting I (3.0 cr)
•AGRO 2640 - Applied Agriculture Chemicals (3.0 cr)
•ASM 1034 - Facility Maintenance and Safety (4.0 cr)
•ASM 3009 - Surveying (4.0 cr)
•CHEM 1401 - Elementary Bioorganic Chemistry [PHYS SCI] (4.0 cr)
•ENTR 2200 - Introduction to Entrepreneurship and Small Business (3.0 cr)
•HORT 1025 - Introduction to Arboriculture (2.0 cr)
•HORT 3025 - Applications in Arboriculture (3.0 cr)
•HORT 3033 - Commercial Floriculture Crops-Fall (4.0 cr)

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•HORT 3045 - Urban Forestry Planning and Management (3.0 cr)
•HORT 3090 - Advanced Landscape Design (3.0 cr)
•MGMT 3200 - Principles of Management (3.0 cr)
•MGMT 3210 - Supervision and Leadership (3.0 cr)
•MGMT 3220 - Human Resource Management (3.0 cr)
•MKTG 3300 - Principles of Marketing (3.0 cr)
•NATR 2630 - Introduction to Geographic Information Systems (3.0 cr)
•NATR 3203 - Park and Recreation Management (3.0 cr)
•NATR 3344 - Land Use Planning (3.0 cr)
•NATR 3364 - Plant Taxonomy (3.0 cr)
•NATR 3374 - Ecology [BIOL SCI] (4.0 cr)
•SPAN 1204 - Beginning Spanish II [GLOB PERSP] (4.0 cr)
•TURF 3074 - Turfgrass Pest Management (3.0 cr)
•TURF 3076 - Turfgrass Management Systems (3.0 cr)

Open Electives

Students must take enough open electives credits to meet the 120 credit graduation requirement. The number of credits needed will depend on liberal education course selections. Approximately 8 credits will be needed.

Production Horticulture

Production horticulture concentrates on crops produced in greenhouses and nurseries. Students experience plant propagation, identification of herbaceous plants, cultivation of indoor and outdoor plants, and floral design. In greenhouse production courses, students produce crops that are sold to industry. Graduates are employed as greenhouse or nursery growers, garden center managers, garden designers, floral designers, and floriculture extension specialists. Faculty work with students to develop a plan of study tailored to the individual.

Production Horticulture Core

Take exactly 8 course(s) totaling exactly 26 credit(s) from the following:
•HORT 1091 - Indoor Flowering and Foliage Plants (2.0 cr)
•HORT 3030 - Landscape Design (4.0 cr)
•HORT 3031 - Herbaceous Perennial Plant Materials (2.0 cr)
•HORT 3033 - Commercial Floriculture Crops-Fall (4.0 cr)
•HORT 3034 - Commercial Floriculture Crops-Spring (4.0 cr)
•HORT 3036 - Plant Propagation (4.0 cr)
•NATR 3364 - Plant Taxonomy (3.0 cr)
•Choose one of the following:
•BIOL 2020 - Plant Anatomy and Physiology [BIOL SCI, PEOPLE/ENV] (3.0 cr)
or BIOL 2021 - Plant Diversity, Ecology, and Evolution [BIOL SCI, PEOPLE/ENV] (3.0 cr)
or BIOL 2022 - General Botany [BIOL SCI, PEOPLE/ENV] (3.0 cr)

Production Horticulture Electives

Take 3 or more course(s) totaling 12 or more credit(s) from the following:
•ACCT 2101 - Principles of Accounting I (3.0 cr)
•AGRO 2640 - Applied Agriculture Chemicals (3.0 cr)
•AGRO 3023 - Plant Breeding and Genetics (4.0 cr)
•ASM 1034 - Facility Maintenance and Safety (4.0 cr)
•BIOL 3022 - Principles of Genetics (3.0 cr)
•CHEM 1401 - Elementary Bioorganic Chemistry [PHYS SCI] (4.0 cr)
•ENTR 2200 - Introduction to Entrepreneurship and Small Business (3.0 cr)
•ENTR 3200 - Business Planning (3.0 cr)
•HORT 1092 - Floral Design (2.0 cr)
•HORT 3040 - Landscape Installation and Maintenance (3.0 cr)
•HORT 3090 - Advanced Landscape Design (3.0 cr)
•HORT 3093 - Advanced Floral Design and Florist Operations (2.0 cr)
•MGMT 3200 - Principles of Management (3.0 cr)
•MGMT 3210 - Supervision and Leadership (3.0 cr)
•MGMT 3220 - Human Resource Management (3.0 cr)
•MKTG 2200 - Personal Selling (3.0 cr)
•MKTG 3300 - Principles of Marketing (3.0 cr)
•SPAN 1204 - Beginning Spanish II [GLOB PERSP] (4.0 cr)
•TURF 1072 - Principles of Turf Management (3.0 cr)

Open Electives

Students must take enough open electives credits to meet the 120 credit graduation requirement. The number of credits needed will depend on liberal education course selections. Approximately 7 credits will be needed.

Urban Forestry

Urban forestry combines conservation and horticulture topics presented in an outdoor, applied setting. Different than focusing on large scale forests used for commercial purposes, urban forestry includes municipalities, park districts, utility companies, private

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homeowners, and commercial tree service companies; each utilizing trees for a different purpose. The tree care industry has grown extensively over the years and now includes conservation and management issues. Extensive employment opportunities are available nation-wide as society becomes more urbanized.

Urban Forestry Core

Take exactly 8 course(s) totaling exactly 25 credit(s) from the following:

- BIOL 2022 - General Botany [BIOL SCI, PEOPLE/ENV] (3.0 cr)
- ENTR 2200 - Introduction to Entrepreneurship and Small Business (3.0 cr)
- HORT 1025 - Introduction to Arboriculture (2.0 cr)
- HORT 3025 - Applications in Arboriculture (3.0 cr)
- HORT 3030 - Landscape Design (4.0 cr)
- HORT 3040 - Landscape Installation and Maintenance (3.0 cr)
- HORT 3045 - Urban Forestry Planning and Management (3.0 cr)
- NATR 1244 - Elements of Forestry (4.0 cr)

Urban Forestry Electives

Take 3 or more course(s) totaling 12 or more credit(s) from the following:

- ACCT 2101 - Principles of Accounting I (3.0 cr)
- AGRO 2640 - Applied Agriculture Chemicals (3.0 cr)
- ASM 1034 - Facility Maintenance and Safety (4.0 cr)
- ASM 3009 - Surveying (4.0 cr)
- BIOL 3131 - Plant Physiology (3.0 cr)
- CHEM 1401 - Elementary Bioorganic Chemistry [PHYS SCI] (4.0 cr)
- HORT 3034 - Commercial Floriculture Crops-Spring (4.0 cr)
- HORT 3036 - Plant Propagation (4.0 cr)
- HORT 3090 - Advanced Landscape Design (3.0 cr)
- MGMT 3200 - Principles of Management (3.0 cr)
- MGMT 3210 - Supervision and Leadership (3.0 cr)
- NATR 2630 - Introduction to Geographic Information Systems (3.0 cr)
- NATR 3203 - Park and Recreation Management (3.0 cr)
- NATR 3344 - Land Use Planning (3.0 cr)
- NATR 3374 - Ecology [BIOL SCI] (4.0 cr)
- NATR 4699 - Integrated Resource Management (3.0 cr)
- SPAN 1204 - Beginning Spanish II [GLOB PERSP] (4.0 cr)
- TURF 1072 - Principles of Turf Management (3.0 cr)

Open Electives

Students must take enough open electives credits to meet the 120 credit graduation requirement. The number of credits needed will depend on liberal education course selections. Approximately 9 credits will be needed.

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