HORTICULTURE, B.S.

Horticulturists work to enrich our lives by integrating and applying plant science, environmental science, molecular biology, biotechnology, genetics, physiology, and management. Specifically, horticultural science deals with the development, production, growth, distribution, and use of fruits, vegetables, greenhouse crops, ornamentals, turf, and specialty plant crops (used for flavoring and medicine). Horticultural science is one of the most diverse biological sciences one can study at a university. Not only are the biology and genetics of crop plants interesting, but the application of this knowledge is equally important in a myriad of situations. Undergraduate horticulture majors will obtain specialized training in greenhouse/field management and the production and use of fruits, vegetables, nuts, herbaceous/woody ornamentals, and turfgrass through the bachelor of science degree program.

In addition to obtaining a job with an undergraduate degree in horticulture, the major provides an excellent background for graduate study in the field of plant sciences. Areas of graduate study include plant breeding and plant genetics, horticulture, agronomy, plant pathology, or other related fields such as biology, environmental science, natural resource management, agroecology, and genetics.

Students with either undergraduate or graduate degrees in horticulture have a variety of career opportunities. Recent studies show that there are more jobs in agriculture in the US than there are students graduating with agricultural Bachelor of Science degrees to fill them. Estimates in 2015 showed that there were 57,900 job openings in agriculture and related fields and only 35,400 students graduating annually in those areas. As our world grapples with the need to contribute science-based solutions to feeding 9 billion people by 2050, students trained in the agricultural and horticultural sciences will be called on to contribute.

Horticulture graduates may find opportunities in working on developing higher yielding crops or crops that can withstand more stressful growing conditions. Others may find opportunities working on improving qualities such as flavor, appearance, texture, and postharvest shelf life for a wide range of horticultural commodities from fruits to vegetables to flowers. Sustainable production is a particular area of growth where horticultural expertise can make a contribution. Students may wish to read a recent report from the United States Department of Agriculture and Purdue University (https://www.purdue.edu/usda/employment/wp-content/uploads/2015/04/2-Page-USDA-Employ.pdf) on the subject of employment opportunities in this area.

The horticulture degree serves as excellent preparation for careers in food production, plant nurseries, community supported agriculture (CSA), public gardens, landscaping, greenhouse production, teaching, public parks, vegetable fields, golf courses, urban agriculture, extension and community based educational work, work in research labs, and the health sciences. In addition, many horticultural science majors go on to work in public sector jobs including city and state positions with the Department of Natural Resources, the Wisconsin Department of Agriculture, and University of Wisconsin Extension. Students with degrees in horticulture also work in hospitals (horticultural therapy), aerospace (food and recycling in space labs), and zoos (managing environments for animals and visitors). Although the career opportunities are numerous, horticulture students have a common desire to work intensively with plants to improve our environment and our health.

HOW TO GET IN

To declare this major, students must be admitted to UW–Madison and the College of Agricultural and Life Sciences (CALS). For information about becoming a CALS first-year or transfer student, see Entering the College (http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#enteringthecollegetext).

Students who attend Student Orientation, Advising, and Registration (SOAR) with the College of Agricultural and Life Sciences have the option to declare this major at SOAR. Students may otherwise declare after they have begun their undergraduate studies. For more information, contact the advisor listed under the Advising and Careers tab.

REQUIREMENTS

UNIVERSITY GENERAL EDUCATION REQUIREMENTS

All undergraduate students at the University of Wisconsin–Madison are required to fulfill a minimum set of common university general education requirements to ensure that every graduate acquires the essential core of an undergraduate education. This core establishes a foundation for living a productive life, being a citizen of the world, appreciating aesthetic values, and engaging in lifelong learning in a continually changing world. Various schools and colleges will have requirements in addition to the requirements listed below. Consult your advisor for assistance, as needed. For additional information, see the university Undergraduate General Education Requirements (http://guide.wisc.edu/undergraduate/#requirementsforundergraduatethestudytext) section of the Guide.

Requirements Detail

General Education

- Breadth—Humanities/Literature/Arts: 6 credits
- Breadth—Natural Science: 4 to 6 credits, consisting of one 4- or 5-credit course with a laboratory component; or two courses providing a total of 6 credits
- Breadth—Social Studies: 3 credits
- Communication Part A & Part B
- Ethnic Studies
- Quantitative Reasoning Part A & Part B

* The mortarboard symbol appears before the title of any course that fulfills one of the Communication Part A or Part B, Ethnic Studies, or Quantitative Reasoning Part A or Part B requirements.

COLLEGE OF AGRICULTURAL AND LIFE SCIENCES REQUIREMENTS

In addition to the University General Education Requirements, all undergraduate students in CALS must satisfy a set of college and major requirements. Specific requirements for all majors in the college and other information on academic matters can be obtained from the Office of Academic Affairs (http://www.cals.wisc.edu/academics), College of Agricultural and Life Sciences, 116 Agricultural Hall, 1450 Linden Drive, Madison, WI 53706; 608-262-3003. Academic departments and advisors also have information on requirements. Courses may not double count within university requirements (General Education and Breadth) or within college requirements (First-Year Seminar, International Studies...
and Science), but courses counted toward university requirements may also be used to satisfy a college and/or a major requirement; similarly, courses counted toward college requirements may also be used to satisfy a university and/or a major requirement.

COLLEGE REQUIREMENTS FOR ALL CALS B.S. DEGREE PROGRAMS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Quality of Work: Students must maintain a minimum cumulative grade point average of 2.000 to remain in good standing and be eligible for graduation.</td>
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</tr>
<tr>
<td></td>
<td>Residency: Students must complete 30 degree credits in residence at UW–Madison after earning 86 credits toward their undergraduate degree.</td>
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<tr>
<td></td>
<td>First Year Seminar (<a href="http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#requirementstext">http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#requirementstext</a>)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>International Studies (<a href="http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#requirementstext">http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#requirementstext</a>)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Physical Science Fundamentals</td>
<td>4-5</td>
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<tr>
<td>CHEM 103</td>
<td>General Chemistry I</td>
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</tr>
<tr>
<td>or CHEM 108</td>
<td>Chemistry in Our World</td>
<td></td>
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<tr>
<td>or CHEM 109</td>
<td>Advanced General Chemistry</td>
<td></td>
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<tr>
<td></td>
<td>Biological Science</td>
<td>5</td>
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<tr>
<td></td>
<td>Additional Science (Biological, Physical, or Natural)</td>
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<tr>
<td></td>
<td>Science Breadth (Biological, Physical, Natural, or Social)</td>
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</tr>
<tr>
<td></td>
<td>CALS Capstone Learning Experience: included in the requirements for each CALS major (see &quot;Major Requirements&quot;) (<a href="http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#requirementstext">http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#requirementstext</a>)</td>
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MAJOR REQUIREMENTS

Courses may not double count within the major (unless specifically noted otherwise), but courses counted toward the major requirements may also be used to satisfy a university requirement and/or a college requirement. A minimum of 15 credits must be completed in the major that are not used elsewhere.

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
<td></td>
<td>Mathematics and Statistics</td>
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<tr>
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<td>Select one of the following (or may be satisfied by placement exam):</td>
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<tr>
<td>MATH 112 &amp; MATH 113</td>
<td>Algebra and Trigonometry</td>
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<tr>
<td>MATH 114</td>
<td>Algebra and Trigonometry</td>
<td></td>
</tr>
<tr>
<td>MATH 171</td>
<td>Calculus with Algebra and Trigonometry I</td>
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<td>Select one of the following:</td>
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<tr>
<td>MATH 211</td>
<td>Calculus</td>
<td></td>
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<tr>
<td>MATH 217</td>
<td>Calculus with Algebra and Trigonometry II</td>
<td></td>
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<tr>
<td>MATH 221</td>
<td>Calculus and Analytic Geometry 1</td>
<td></td>
</tr>
<tr>
<td>MATH 222</td>
<td>Calculus and Analytic Geometry 2</td>
<td></td>
</tr>
<tr>
<td>STAT 301</td>
<td>Introduction to Statistical Methods</td>
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<tr>
<td>STAT 371</td>
<td>Introductory Applied Statistics for the Life Sciences</td>
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<tr>
<th>Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>COMP SCI 300</td>
<td>Programming II</td>
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</table>

Chemistry

Select one of the following: | 5-9 |
| CHEM 103 & CHEM 104 | General Chemistry I and General Chemistry II | |
| CHEM 109 | Advanced General Chemistry | |

Biology

Select one of the following options: | 10-12 |
| Option 1: | |
| BOTANY/BIOLOGY 130 | General Botany | |
| ZOOLOGY/BIOLOGY 101 | Animal Biology | |
| ZOOLOGY/BIOLOGY 102 | Animal Biology Laboratory | |
| Option 2: | |
| BIOLOGY/BOTANY/ZOOLOGY 151 | Introductory Biology | |
| BIOLOGY/BOTANY/ZOOLOGY 152 | Introductory Biology | |
| Option 3: | |
| BIOCORE 381 | Evolution, Ecology, and Genetics | |
| BIOCORE 383 | Cellular Biology | |
| And select two of the following: | |
| BIOCORE 382 | Evolution, Ecology, and Genetics Laboratory | |
| BIOCORE 384 | Cellular Biology Laboratory | |
| BIOCORE 486 | Organismal Biology Laboratory | |

Agricultural Breadth

| ENTOM/ZOOLOGY 302 | Introduction to Entomology | 3-4 |
| or ENTOM 351 | Principles of Economic Entomology | |
| GENETICS 466 | Principles of Genetics | 3 |
| Select one of the following: | 3-4 |
| BOTANY 300 | Plant Anatomy | |
| BOTANY 305 | Plant Morphology and Evolution | |
| BOTANY 500 | Plant Physiology | |
| PL PATH 300 | Introduction to Plant Pathology | 3-4 |
| or PL PATH/F&W ECOL/HORT/LAND ARC 309 | Diseases of Trees and Shrubs | |
| SOIL SCI 301 | General Soil Science | 4 |

Horticultural Core

| HORT 120 | Survey of Horticulture | 3 |
| HORT 121 | Horticulture Colloquium | 1 |
| HORT 227 | Propagation of Horticultural Plants | 3 |
| HORT 320 | Environment of Horticultural Plants | 3 |
| HORT/AGRONOMY/SOIL SCI 326 | Plant Nutrition Management | 3 |
| Select one of the following: | 3 |
| HORT 334 & HORT 335 | Greenhouse Cultivation and Greenhouse Cultivation Lab | |

1. MATH 114 can be substituted for MATH 112.
2. HORT 335 is highly recommended for students preparing to become greenhouse managers or for those who plan to pursue graduate study in horticulture.
HORT 375  Special Topics (Organic Vegetable Production)
Select three of the following: 9
HORT 234  Ornamental Plants
HORT/PL PATH 261 & HORT/PL PATH 262 Sustainable Turfgrass Use and Management and Turfgrass Management Laboratory
HORT 375  Special Topics (Arboriculture and Landscape Maintenance) or HORT/LAND ARC 263 Landscape Plants I
HORT 345  Fruit Crop Production (alternate years) 2
HORT 370  World Vegetable Crops

Electives
Select 5 elective credits (see list below) 5

Capstone
Select one of the following: 1-3
A course as approved by advisor and chair of the curriculum committee, usually taken as the following: 3
HORT 376  Tropical Horticultural Systems & Tropical Horticultural Systems International Field Study
HORT 399  Coordinative Internship/Cooperative Education
HORT 699  Special Problems

Total Credits 70-84

1 If MATH 171 is taken, MATH 217 must also be taken.
2 Alternate years.
3 Example activities include broad-based internships or broad-based international study.

ELECTIVE COURSES
Students may not double count courses within the major requirements (Agricultural Breadth, Horticultural Core, Electives, Capstone)

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<tbody>
<tr>
<td>Business and Economics</td>
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<tr>
<td>A A E 215</td>
<td>Introduction to Agricultural and Applied Economics</td>
<td>3</td>
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<tr>
<td>A A E/ENVIR ST 244</td>
<td>The Environment and the Global Economy</td>
<td>3</td>
</tr>
<tr>
<td>A A E 246</td>
<td>Climate Change Economics and Policy</td>
<td>3</td>
</tr>
<tr>
<td>A A E 319</td>
<td>The International Agricultural Economy</td>
<td>3</td>
</tr>
<tr>
<td>A A E 320</td>
<td>Farming Systems Management</td>
<td>3</td>
</tr>
<tr>
<td>A A E 323</td>
<td>Cooperatives</td>
<td>3</td>
</tr>
<tr>
<td>A A E/ECON/ENVIR ST 343</td>
<td>Environmental Economics</td>
<td>3-4</td>
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<tr>
<td>GEN BUS 310</td>
<td>Fundamentals of Accounting and Finance for Non-Business Majors</td>
<td>3</td>
</tr>
<tr>
<td>GEN BUS 311</td>
<td>Fundamentals of Management and Marketing for Non-Business Majors</td>
<td>3</td>
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</table>

Ecology, Conservation, and the Environment
BOTANY/F&W ECOL/ZOOLOGY 460  General Ecology 4
F&W ECOL/C&E SOC/SOC 248  Environment, Natural Resources, and Society 3
F&W ECOL/ENVIR ST/ZOOLOGY 360  Extinction of Species 3
F&W ECOL/BOTANY 455  The Vegetation of Wisconsin 4
F&W ECOL 550  Forest Ecology 3
F&W ECOL/LAND ARC/ZOOLOGY 565  Principles of Landscape Ecology 2
F&W ECOL/BOTANY/ENVIR ST/ZOOLOGY 651  Conservation Biology 3
GEOG/ENVIR ST 120  Introduction to the Earth System 3
GEOG/ENVIR ST 127  Physical Systems of the Environment 5
GEOG/ENVIR ST 139  Living in the Global Environment: An Introduction to People-Environment Geography 3-4
GEOG/BOTANY 338  Environmental Biogeography 3
GEOG/ENVIR ST 339  Environmental Conservation 4
GEOSCI/ENVIR ST 106  Environmental Geology 3
HISTORY/ENVIR ST/GEOG 460  American Environmental History 4
LAND ARC/ENVIR ST 361  Wetlands Ecology 3
ZOOLOGY/ENVIR ST 315  Limnology-Conservation of Aquatic Resources 2
ZOOLOGY 316  Laboratory for Limnology-Conservation of Aquatic Resources 2-3

Food, Health and Human Well-being:
A A E/C&E SOC/SOC 340  Issues in Food Systems 3-4
AGRONOMY/ENTOM/NUTR SCI 203  Introduction to Global Health 3
AGRONOMY 300  Cropping Systems 3
AGRONOMY/A A E/INTER-AG/NUTR SCI 350  World Hunger and Malnutrition 3
AGRONOMY 377  Cropping Systems of the Tropics 3
C&E SOC/SOC 222  Food, Culture, and Society 3
C&E SOC/SOC 650  Sociology of Agriculture 3
FOOD SCI/AN SCI 321  Food Laws and Regulations 1
GEOG/ENVIR ST 309  People, Land and Food: Comparative Study of Agriculture Systems 3
HORT 345  Fruit Crop Production 3
HORT 350  Plants and Human Wellbeing 2
HORT 370  World Vegetable Crops 3
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>HORT 375</td>
<td>Special Topics (Organic Vegetable Production)</td>
<td>1-4</td>
</tr>
<tr>
<td>NUTR SCI 132</td>
<td>Nutrition Today</td>
<td>3</td>
</tr>
<tr>
<td>PL PATH 311</td>
<td>Global Food Security (Food Systems, Sustainability, and Climate Change)</td>
<td>3</td>
</tr>
<tr>
<td>PL PATH 375</td>
<td>Special Topics</td>
<td>1-4</td>
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### Landscape Horticulture

<table>
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<tr>
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<tbody>
<tr>
<td>BSE 201</td>
<td>Land Surveying Fundamentals</td>
<td>1</td>
</tr>
<tr>
<td>BSE 243</td>
<td>Operating and Management Principles of Off-Road Vehicles</td>
<td>3</td>
</tr>
<tr>
<td>F&amp;W ECOL 375</td>
<td>Special Topics (Tree Risk Assessment and Decay Detection)</td>
<td>1-4</td>
</tr>
<tr>
<td>HORT 234</td>
<td>Ornamental Plants</td>
<td>3</td>
</tr>
<tr>
<td>HORT/PL PATH 261</td>
<td>Sustainable Turfgrass Use and Management</td>
<td>2</td>
</tr>
<tr>
<td>HORT/PL PATH 262</td>
<td>Turfgrass Management Laboratory</td>
<td>1</td>
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<tr>
<td>HORT/ LAND ARC 263</td>
<td>Landscape Plants I</td>
<td>3</td>
</tr>
<tr>
<td>HORT/SOIL SCI 332</td>
<td>Turfgrass Nutrient and Water Management</td>
<td>3</td>
</tr>
<tr>
<td>HORT 334</td>
<td>Greenhouse Cultivation</td>
<td>2</td>
</tr>
<tr>
<td>HORT 335</td>
<td>Greenhouse Cultivation Lab</td>
<td>1</td>
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<tr>
<td>HORT 375</td>
<td>Special Topics (Arboriculture and Landscape Maintenance)</td>
<td>1-4</td>
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<tr>
<td>LAND ARC 250</td>
<td>Survey of Landscape Architecture Design</td>
<td>3</td>
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<tr>
<td>LAND ARC 260</td>
<td>History of Landscape Architecture</td>
<td>3</td>
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<tr>
<td>LAND ARC 262</td>
<td>Landscape Inventory and Evaluation Methods</td>
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### Pest Management

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<tr>
<td>AGRONOMY/ HORT 328</td>
<td>Integrated Weed Management</td>
<td>4</td>
</tr>
<tr>
<td>ENTOM/BOTANY/ ZOOLOGY 473</td>
<td>Plant-Insect Interactions</td>
<td>3</td>
</tr>
<tr>
<td>ENTOM/ F&amp;W ECOL 500</td>
<td>Insects in Forest Ecosystem Function and Management</td>
<td>2</td>
</tr>
<tr>
<td>PL PATH/ BOTANY 332</td>
<td>Fungi</td>
<td>4</td>
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### Plant Biology

<table>
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<th>Course Title</th>
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<tbody>
<tr>
<td>BOTANY 300</td>
<td>Plant Anatomy</td>
<td>4</td>
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<tr>
<td>BOTANY 305</td>
<td>Plant Morphology and Evolution</td>
<td>4</td>
</tr>
<tr>
<td>BOTANY 400</td>
<td>Plant Systematics</td>
<td>4</td>
</tr>
<tr>
<td>BOTANY 401</td>
<td>Vascular Flora of Wisconsin</td>
<td>4</td>
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<tr>
<td>BOTANY/ANTHRO/ ZOOLOGY 410</td>
<td>Evolutionary Biology</td>
<td>3</td>
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<tr>
<td>BOTANY 422</td>
<td>Plant Geography</td>
<td>3</td>
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<tr>
<td>BOTANY/AMER IND/ ANTHRO 474</td>
<td>Ethnobotany</td>
<td>3-4</td>
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<tr>
<td>BOTANY 500</td>
<td>Plant Physiology</td>
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<tr>
<td>F&amp;W ECOL 415</td>
<td>Tree Physiology</td>
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### Plant Breeding, Genetics, and Biotechnology

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<tr>
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<tr>
<td>AGRONOMY/ C&amp;E SOC/MED HIST/ PHILOS 565</td>
<td>The Ethics of Modern Biotechnology</td>
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<tr>
<td>BIOCHEM 501</td>
<td>Introduction to Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 341</td>
<td>Elementary Organic Chemistry</td>
<td>3</td>
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<tr>
<td>CHEM 342</td>
<td>Elementary Organic Chemistry Laboratory</td>
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<td>CHEM 343</td>
<td>Introductory Organic Chemistry</td>
<td>3</td>
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<tr>
<td>HORT/ AGRONOMY 338</td>
<td>Plant Biotechnology. Principles and Techniques I</td>
<td>4</td>
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<tr>
<td>HORT/AGRONOMY/ BOTANY 339</td>
<td>Plant Cell Culture and Genetic Engineering</td>
<td>4</td>
</tr>
<tr>
<td>HORT/ AGRONOMY/ BOTANY 340</td>
<td>Genetically Modified Crops: Science, Regulation &amp; Controversy</td>
<td>2</td>
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<tr>
<td>HORT 375</td>
<td>Special Topics (Epigenetics)</td>
<td>1-4</td>
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<tr>
<td>HORT/ GENETICS 550</td>
<td>Molecular Approaches for Potential Crop Improvement</td>
<td>3</td>
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<tr>
<td>HORT/BOTANY/ GENETICS 561</td>
<td>Introductory Cytogenetics</td>
<td>2-3</td>
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<tr>
<td>HIST SCI 202</td>
<td>The Making of Modern Science</td>
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### Public Policy and Environmental Ethics

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<tr>
<td>C&amp;E SOC/SOC 541</td>
<td>Environmental Stewardship and Social Justice</td>
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<tr>
<td>ENVIR ST/GEOG 439</td>
<td>US Environmental Policy and Regulation</td>
<td>3-4</td>
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<tr>
<td>ENVIR ST/ SOIL SCI 575</td>
<td>Assessment of Environmental Impact</td>
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<tr>
<td>POLI SCI 272</td>
<td>Introduction to Public Policy</td>
<td>3-4</td>
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<tr>
<td>POLI SCI/ECON/ ENVIR ST/ URB R PL 449</td>
<td>Government and Natural Resources</td>
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### Soil Science

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<tr>
<td>SOIL SCI 305</td>
<td>Field Study of Soil</td>
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<tr>
<td>SOIL SCI 321</td>
<td>Soils and Environmental Chemistry</td>
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<tr>
<td>SOIL SCI 322</td>
<td>Physical Principles of Soil and Water Management</td>
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<tr>
<td>SOIL SCI/ PL PATH 323</td>
<td>Soil Biology</td>
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<tr>
<td>SOIL SCI/ ENVIR ST 324</td>
<td>Soils and Environmental Quality</td>
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<tr>
<td>SOIL SCI/ ENVIR ST 575</td>
<td>Assessment of Environmental Impact</td>
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### Weather and Climate Change

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<td>ATM OCN 101</td>
<td>Weather and Climate</td>
<td>4</td>
</tr>
<tr>
<td>ATM OCN/ENVIR ST/ GEOSCI 102</td>
<td>Climate and Climate Change</td>
<td>3</td>
</tr>
<tr>
<td>ATM OCN/ ENVIR ST 171</td>
<td>Global Change: Atmospheric Issues and Problems</td>
<td>2-3</td>
</tr>
<tr>
<td>ATM OCN/ENVIR ST/ GEOG 332</td>
<td>Global Warming: Science and Impacts</td>
<td>3</td>
</tr>
</tbody>
</table>
HONORS IN THE MAJOR

To earn Honors in the Major, students are required to take at least 20 honors credits. In addition, students must take HORT 289 Honors Independent Study, HORT 681 Senior Honors Thesis and HORT 682 Senior Honors Thesis when completing their thesis project; please see the Honors in Major Checklist for Horticulture (http://www.cals.wisc.edu/academics/undergraduate-programs/get-involved/honors-program/honors-in-the-major) for more information. The Department of Horticulture also works collaboratively to strongly support students through the Honors in Research program.

UNIVERSITY DEGREE REQUIREMENTS

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Detail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Degree</td>
<td>To receive a bachelor’s degree from UW–Madison, students must earn a minimum of 120 degree credits. The requirements for some programs may exceed 120 degree credits. Students should consult with their college or department advisor for information on specific credit requirements.</td>
</tr>
<tr>
<td>Residency</td>
<td>Degree candidates are required to earn a minimum of 30 credits in residence at UW–Madison. &quot;In residence&quot; means on the UW–Madison campus with an undergraduate degree classification. &quot;In residence&quot; credit also includes UW–Madison courses offered in distance or online formats and credits earned in UW–Madison Study Abroad/Study Away programs.</td>
</tr>
<tr>
<td>Quality of Work</td>
<td>Undergraduate students must maintain the minimum grade point average specified by the school, college, or academic program to remain in good academic standing. Students whose academic performance drops below these minimum thresholds will be placed on academic probation.</td>
</tr>
</tbody>
</table>

LEARNING OUTCOMES

1. Acquire, integrate and apply knowledge of plant science to horticultural systems.
2. Demonstrate interdisciplinary knowledge and competency in managing horticultural systems.
3. Synthesize knowledge and use insight and creativity to better understand and improve horticultural systems.
4. Appreciate and communicate the diverse impacts of horticulture on people.
5. Demonstrate professionalism and proficiency in skills that relate to horticulture.

FOUR-YEAR PLAN

SAMPLE HORTICULTURE FOUR-YEAR PLAN (WITH BOTANY 130 IN THE FIRST SEMESTER)

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HORT 120</td>
<td>3</td>
<td>MATH 113</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>HORT 121</td>
<td>1</td>
<td>Ethnic Studies Course</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BOTANY/BIOLOGY 130</td>
<td>5</td>
<td>ZOOLOGY/BIOLOGY 101</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&amp; ZOOLOGY/BIOLOGY 102</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 112</td>
<td>3</td>
<td>International Studies / Electives Courses</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>COMM A Course</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Year Seminar</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>32</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HORT 320</td>
<td>3</td>
<td>CHEM 104</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>CHEM 103</td>
<td>4</td>
<td>HORT 334</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&amp; HORT 335 (Organic Vegetable Production)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMM B Course</td>
<td>3 HORT 227</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>4-5</td>
<td>Electives</td>
<td>4-5</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>29-32</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOIL SCI 301</td>
<td>4</td>
<td>SOIL SCI/AGRONOMY/HORT 326</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PL PATH 300 or 309</td>
<td>4</td>
<td>ENTOM/ZOOLOGY 302 or 351</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>Horticulture Breadth Course</td>
<td>3 Math / Statistics / Computer Science Course</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>4-5</td>
<td>Botany Course</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Electives</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>30-33</strong></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior</th>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horticulture Capstone Course</td>
<td>3</td>
<td>Horticulture Capstone Course (if not taken in fall)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Horticulture Breadth Course</td>
<td>3</td>
<td>Horticulture Breadth or Elective Courses</td>
<td>12</td>
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</tr>
<tr>
<td>GENETICS 466</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>30-33</strong></td>
<td></td>
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</tbody>
</table>
## Horticulture, B.S.

### Horticulture Breadth or Elective Courses

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HORT 120</td>
<td>3 Ethnic Studies Course</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>HORT 121</td>
<td>1 CHEM 104</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>CHEM 103</td>
<td>4 BOTANY/BIOLOGY 130</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>MATH 112</td>
<td>3 COMM A Course</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>First Year Seminar</td>
<td>1</td>
<td></td>
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</table>

**Total Credits 28**

### Sophomore

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HORT 320</td>
<td>3 International Studies / Electives</td>
<td>5-6</td>
<td></td>
</tr>
<tr>
<td>Hort Breadth</td>
<td>3 HORT 227</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>COMM B</td>
<td>3 HORT 334 &amp; HORT 335 (Organic Vegetable Production)</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>ZOOLOGY/BIOLOGY 101 &amp; ZOOLOGY/BIOLOGY 102</td>
<td>5 ENTOM/ZOOLOGY 302 or 351</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits 29-31**

### Junior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOIL SCI 301</td>
<td>4 SOIL SCI/AGRONOMY/HORT 326</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PL PATH 300 or 309</td>
<td>4 Horticulture Breadth or Elective Courses</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Horticulture Breadth Course</td>
<td>3 Botany Course</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>International Studies / Elective Courses</td>
<td>4-5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits 31-33**

### Senior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HORT 121</td>
<td>1 HORT 127</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>HORT 123</td>
<td>3 HORT 334</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BOTANY/BIOLOGY 130</td>
<td>4 BOTANY/BIOLOGY 101</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>MATH 112</td>
<td>3 COMM A Course</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits 30-31**

1. BOTANY/BIOLOGY 130 and ZOOLOGY/BIOLOGY 101/ZOOLOGY/BIOLOGY 102 are the preferred biology track
2. Offered alternate years
3. Note that at least 120 credits must be completed to be eligible for graduation. Aim to complete an average of 15 credits per semester.

**Note:** HORT 121 Horticulture Colloquium can be taken in any year

### ADVISING AND CAREERS

#### ADVISING

Undergraduate students in the Department of Horticulture are assigned to a minimum of two advisors: our staff advisor and a faculty mentor. Prospective students should meet with the staff advisor first; the advisor will help match students to a faculty mentor in the area of interest. Current students can meet with either the staff advisor or their assigned faculty mentor. Students are required to meet with their advisor at least once each semester.

**STAFF ADVISOR**

Our staff advisor is available to help prospective and current students with major exploration, general degree requirements and policies, academic planning, campus resources, and so on.

Contact: Kathryn Jones, kjones26@wisc.edu; schedule an advising appointment here (http://go.wisc.edu/h642e9).

**FACULTY MENTORS**

Our faculty mentors are available to help current students with internships and careers, graduate school preparation, research opportunities, etc. Contact information for faculty mentors is available on the faculty profile page (https://horticulture.wisc.edu/faculty-and-staff-2/faculty-and-staff).

### CAREERS

A degree in horticulture serves as excellent preparation for careers in: applied plant science, food crop production, plant breeding & plant genetics, urban agriculture, gardening, landscaping, community supported agriculture (CSA), extension and community based educational work, horticulture education, research, greenhouse production, horticultural therapy, etc. For sample career profiles in horticulture, see Career Opportunities (https://horticulture.wisc.edu/academics/undergraduate-program/research-career-opportunities-3) on the department website.
PEOPLE

PROFESSORS
Bamberg, Colquhoun, Goldman (chair), Havey, Jiang, Krysan, Nienhuis, Palta, Patterson, Simon, Spooner, Yandell

ASSOCIATE PROFESSORS
Bethke, Jansky, Jull, Weng, Zalapa

ASSISTANT PROFESSORS
Atucha, Dawson, Endelman

INSTRUCTIONAL STAFF
Calderon, Nelson, Oosterwyk

WISCONSIN EXPERIENCE

Students in the horticulture program have some unique opportunities for learning outside the classroom. Our introductory horticulture course, Horticulture 120, is known campus wide for its extensive engagement with service learning. Service learning projects in a variety of settings, where students gain hands-on experiences in community projects, are a core part of student engagement in the horticulture program. Many of our students participate in internships during the summer and even during academic semesters at locations that vary from seed companies to wineries to public gardens. Multiple internship opportunities for horticulture students exist on or near campus at facilities such as the Allen Centennial Garden (https://allencentennialgarden.org), the UW Arboretum (https://arboretum.wisc.edu), and the Agriculture Research Stations (http://ars.wisc.edu).

Horticulture students have a unique opportunity to study tropical horticulture during each fall semester and then travel to Costa Rica and other countries in Central America for a two week intensive field experience during winter break. Spring break opportunities also exist for tropical horticultural experiential learning.

The Department of Horticulture has a very active undergraduate club known as the Horticulture Society (https://win.wisc.edu/organization/hortsociety). The mission of the Horticulture Society is to interest and acquaint students in the College with career opportunities and requirements in the field of Horticulture and related fields. They aim to provide opportunities to further this interest through combined effort and achievement; to create awareness and interest in students entering the College with the field of horticulture; to be available to industrious students interested in expanding their knowledge of horticulture; and promote an exchange of ideas and mutual understanding. The Society is made up of undergraduates, some of whom are majoring in Horticulture. A faculty advisor works with the group, and the group meets bi-monthly. The Society travels to horticultural events and meetings, visits botanical gardens and arboreta around the country, has travelled internationally, and runs programming for children at elementary schools and gardens around Wisconsin. The Society runs a large and successful plant sale each fall on campus.

Embedded in the department is the Wisconsin Institute for Sustainable Agriculture (http://wisa.cals.wisc.edu), or WISA. WISA’s long-term vision is to develop an Institute whose networking with client groups helps develop and share knowledge that promotes a diverse Wisconsin agricultural and food system that is environmentally sound, socially just, and economically viable. The Institute promotes research, education and outreach programs that are trans-disciplinary and implement a systems approach to the study of food and agricultural production throughout the supply chain. These include development and enhancement of undergraduate and graduate student learning experiences.