

HORTICULTURE, B.S.

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/#requirementsforundergraduatestudytext>) section of the *Guide*.

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| 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. Courses may not double count within university requirements (General Education and Breadth) or within college requirements (First-Year Seminar, International Studies, Science, and Capstone), 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

| Code | Title | Credits |
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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.

Residency: Students must complete 30 degree credits in residence at UW–Madison after earning 86 credits toward their undergraduate degree.

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| First Year Seminar (http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#CALSThirdYearSeminarCourses) | 1 |
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| International Studies (http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#CALSIInternationalStudiesCourses) | 3 |
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| Physical Science Fundamentals | 4-5 |
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| CHEM 103 | General Chemistry I |
| or CHEM 108 | Chemistry in Our World |
| or CHEM 109 | Advanced General Chemistry |

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| Biological Science | 5 |
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| Additional Science (Biological, Physical, or Natural) | 3 |
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| Science Breadth (Biological, Physical, Natural, or Social) | 3 |
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CALS Capstone Learning Experience: included in the requirements for each CALS major (see "Major Requirements") (<http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#CALSCapstoneRequirement>)

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.

| Code | Title | Credits |
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Mathematics and Statistics

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| Select one of the following (or may be satisfied by placement exam): | 5-6 |
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| MATH 112 | Algebra |
| & MATH 113 | and Trigonometry |
| MATH 114 | Algebra and Trigonometry |
| MATH 171 | Calculus with Algebra and Trigonometry I ¹ |

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| Select one of the following: | 3-5 |
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| MATH 211 | Calculus |
| MATH 217 | Calculus with Algebra and Trigonometry II ¹ |
| MATH 221 | Calculus and Analytic Geometry 1 |
| MATH 222 | Calculus and Analytic Geometry 2 |
| STAT 301 | Introduction to Statistical Methods |
| STAT 371 | Introductory Applied Statistics for the Life Sciences |
| COMP SCI 300 | Programming II |

Chemistry

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

Biology

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| Select one of the following options: | 10-12 |
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Option 1:

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| BOTANY/ BIOLOGY 130 | General Botany |
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| 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 | Principles of Physiology 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 | 4 |
| SOIL SCI 301 & SOIL SCI 302 | General Soil Science and Meet Your Soil: Soil Analysis and Interpretation Laboratory | 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: 3-4 | | |
| HORT 334 & HORT 333 | Greenhouse Cultivation and Survey of Controlled Environment Food Production | |
| HORT 334 & HORT 335 | Greenhouse Cultivation and Greenhouse Cultivation Lab | |
| Select three of the following: 8-11 | | |
| HORT 234 | Ornamental Plants | |
| HORT/ PL PATH 261 & HORT/ PL PATH 262 | Sustainable Turfgrass Use and Management and Turfgrass Management Laboratory | |
| HORT/ LAND ARC 263 | Landscape Plants I | |
| HORT 345 | Fruit Crop Production (alternate years) ² | |

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| HORT 370 | World Vegetable Crops | |
| AGRONOMY 375 | Special Topics (Crop, Seed, and Weed ID) | |
| or HORT/ AGRONOMY 376 | Plant Breeding and Biotechnology | |

Electives

Select 5 elective credits (see list below) 5

Capstone

Students can complete a pre-approved course or an independent study or internship. Independent study and internship require individual pre-approval from the program, and students should talk to the Horticulture advisor to learn more about the process and forms.

Pre-approved course options:

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| HORT/ AGRONOMY 376 & HORT 378 | Tropical Horticultural Systems and Tropical Horticultural Systems International Field Study | |
| PL PATH 315 | Plant Microbiomes | |

Independent Study or Internship options (require individual pre-approval):

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| HORT 399 | Coordinative Internship/ Cooperative Education | |
| HORT 699 | Special Problems | |
| PL PATH 499 | Independent Study in Organic Agriculture | |

Total Credits **69-84**

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If MATH 171 is taken, MATH 217 must also be taken.

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Alternate years.

ELECTIVE COURSES

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

| Code | Title | Credits |
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| Business and Economics | | |
| A A E 215 | Introduction to Agricultural and Applied Economics | 4 |
| A A E/ENVIR ST 244 | The Environment and the Global Economy | 4 |
| A A E 246 | Climate Change Economics and Policy | 3 |
| A A E 319 | The International Agricultural Economy | 3 |
| A A E 320 | Agricultural Systems Management | 3 |
| A A E 323 | Cooperatives and Alternative Forms of Enterprise Ownership | 3 |
| A A E/ECON/ ENVIR ST 343 | Environmental Economics | 3-4 |
| GEN BUS 310 | Fundamentals of Accounting and Finance for Non-Business Majors | 3 |
| GEN BUS 311 | Fundamentals of Management and Marketing for Non-Business Majors | 3 |

Ecology, Conservation, and the Environment

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| BOTANY/ F&W ECOL/ ZOOLOGY 460 | General Ecology | 4 | HORT/A A E/ AGRONOMY/ PL PATH 367 | Introduction to Organic Agriculture: Production, Markets, and Policy | 3 |
| F&W ECOL/ C&E SOC/SOC 248 | Environment, Natural Resources, and Society | 3 | HORT 370 | World Vegetable Crops | 3 |
| F&W ECOL/ ENVIR ST/ ZOOLOGY 360 | Extinction of Species | 3 | HORT 380 | Indigenous Foodways: Food and Seed Sovereignty | 2 |
| F&W ECOL/ BOTANY 455 | The Vegetation of Wisconsin | 4 | NUTR SCI 132 | Nutrition Today | 3 |
| F&W ECOL 550 | Forest Ecology | 3 | PL PATH 311 | Global Food Security (Food Systems, Sustainability, and Climate Change) | 3 |
| F&W ECOL/ LAND ARC/ ZOOLOGY 565 | Principles of Landscape Ecology | 2 | PL PATH 375 | Special Topics | 1-4 |
| F&W ECOL/ BOTANY/ENVIR ST/ ZOOLOGY 651 | Conservation Biology | 3 | Landscape Horticulture | | |
| GEOG/ ENVIR ST 120 | Introduction to the Earth System | 3 | BSE 243 | Operating and Management Principles of Off-Road Vehicles | 3 |
| GEOG/ENVIR ST 127 | Physical Systems of the Environment | 5 | BSE 301 | Land Information Management | 3 |
| GEOG/ ENVIR ST 139 | Global Environmental Issues | 3 | F&W ECOL 375 | Special Topics (Tree Risk Assessment and Decay Detection) | 1-4 |
| GEOG/BOTANY 338 | Environmental Biogeography | 3 | HORT 234 | Ornamental Plants | 3 |
| GEOG/ ENVIR ST 339 | Environmental Conservation | 4 | HORT/PL PATH 261 | Sustainable Turfgrass Use and Management | 2 |
| GEOSCI/ ENVIR ST 106 | Environmental Geology | 3 | HORT/PL PATH 262 | Turfgrass Management Laboratory | 1 |
| HISTORY/ENVIR ST/ GEOG 460 | American Environmental History | 4 | HORT/ LAND ARC 263 | Landscape Plants I | 3 |
| LAND ARC/ ENVIR ST 361 | Wetlands Ecology | 3 | HORT/SOIL SCI 332 | Turfgrass Nutrient and Water Management | 3 |
| ZOOLOGY/ ENVIR ST 315 | Limnology-Conservation of Aquatic Resources | 2 | HORT 334 | Greenhouse Cultivation | 2 |
| ZOOLOGY 316 | Laboratory for Limnology- Conservation of Aquatic Resources | 2-3 | HORT 335 | Greenhouse Cultivation Lab | 1 |
| Food, Health and Human Well-being: | | | LAND ARC 250 | Survey of Landscape Architecture Design | 3 |
| A A E/C&E SOC/ SOC 340 | Issues in Food Systems | 3-4 | LAND ARC 260 | History of Landscape Architecture | 3 |
| AGRONOMY/ ENTOM/ NUTR SCI 203 | Introduction to Global Health | 3 | LAND ARC 211 | Shaping the Built Environment | 3 |
| AGRONOMY 300 | Cropping Systems | 3 | Pest Management | | |
| AGRONOMY/A A E/ NUTR SCI 350 | World Hunger and Malnutrition | 3 | ENTOM/BOTANY/ ZOOLOGY 473 | Plant-Insect Interactions | 3 |
| AGRONOMY 377 | Global Food Production and Health | 3 | ENTOM/ F&W ECOL 500 | Insects in Forest Ecosystem Function and Management | 2 |
| C&E SOC/SOC 222 | Food, Culture, and Society | 3 | PL PATH/ BOTANY 332 | Fungi | 4 |
| C&E SOC/SOC 650 | Sociology of Agriculture | 3 | Plant Biology | | |
| FOOD SCI/ AN SCI 321 | Food Laws and Regulations | 1 | BOTANY 300 | Plant Anatomy | 4 |
| GEOG/ ENVIR ST 309 | People, Land and Food: Comparative Study of Agriculture Systems | 3 | BOTANY 305 | Plant Morphology and Evolution | 4 |
| HORT 345 | Fruit Crop Production | 3 | BOTANY 400 | Plant Systematics | 4 |
| HORT 350 | Plants and Human Wellbeing | 2 | BOTANY 401 | Vascular Flora of Wisconsin | 4 |
| | | | BOTANY/ANTHRO/ ZOOLOGY 410 | Evolutionary Biology | 3 |
| | | | BOTANY 422 | Plant Geography | 3 |
| | | | BOTANY/AMER IND/ ANTHRO 474 | Ethnobotany | 3-4 |
| | | | BOTANY 500 | Plant Physiology | 3-4 |
| | | | F&W ECOL 415 | Tree Physiology | 3 |
| | | | HORT 240 | The Science of Cannabis | 1 |
| | | | Plant Breeding, Genetics, and Biotechnology | | |

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| AGRONOMY/ C&E SOC/ MED HIST/ PHILOS 565 | The Ethics of Modern Biotechnology | 3 |
| BIOCHEM 501 | Introduction to Biochemistry | 3 |
| CHEM 341 | Elementary Organic Chemistry | 3 |
| CHEM 342 | Elementary Organic Chemistry Laboratory | 1 |
| CHEM 343 | Organic Chemistry I | 3 |
| HORT/ AGRONOMY 338 | Plant Breeding and Biotechnology | 3 |
| HORT/AGRONOMY/ BOTANY 339 | Plant Biotechnology: Principles and Techniques I | 4 |
| HORT/AGRONOMY/ BOTANY 340 | Plant Cell Culture and Genetic Engineering | 3 |
| HORT/ AGRONOMY 360 | Genetically Modified Crops: Science, Regulation & Controversy | 2 |
| HORT/ AGRONOMY 501 | Principles of Plant Breeding | 3 |
| HORT/ AGRONOMY 502 | Techniques of Plant Breeding | 1 |
| HORT/ GENETICS 550 | Molecular Approaches for Potential Crop Improvement | 3 |
| HIST SCI 202 | The Making of Modern Science | 3 |
| Public Policy and Environmental Ethics | | |
| C&E SOC/SOC 541 | Environmental Stewardship and Social Justice | 3 |
| ENVIR ST/ GEOG 439 | US Environmental Policy and Regulation | 3-4 |
| ENVIR ST/ SOIL SCI 575 | Assessment of Environmental Impact | 3 |
| HORT/HIST SCI 301 | (Hort)Cultural Roots: Human Histories of Plants and Science | 4 |
| POLI SCI 272 | Introduction to Public Policy | 3-4 |
| POLI SCI/ECON/ ENVIR ST/ URB R PL 449 | Government and Natural Resources | 3-4 |
| Soil Science | | |
| SOIL SCI 305 | | 1 |
| SOIL SCI 321 | Soils and Environmental Chemistry | 3 |
| SOIL SCI 322 | Physical Principles of Soil and Water Management | 3 |
| SOIL SCI/ PL PATH 323 | Soil Biology | 3 |
| SOIL SCI/ ENVIR ST 324 | Soils and Environmental Quality | 3 |
| SOIL SCI 327 | Environmental Monitoring and Soil Characterization for Earth's Critical Zone | 4 |
| SOIL SCI/ ENVIR ST 575 | Assessment of Environmental Impact | 3 |
| Weather and Climate Change | | |
| ATM OCN 101 | Weather and Climate | 4 |
| ATM OCN/ ENVIR ST/ GEOSCI 102 | Climate and Climate Change | 3 |

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| ATM OCN/ ENVIR ST 171 | Global Change: Atmospheric Issues and Problems | 2-3 |
| ATM OCN/ ENVIR ST/ GEOG 332 | Global Warming: Science and Impacts | 3 |
| ATM OCN/ ENVIR ST 520 | Bioclimatology | 3 |

HONORS IN THE MAJOR

Students admitted to the university and to the College of Agricultural and Life Sciences are invited to apply to be considered for admission to the CALS Honors Program.

Admission Criteria for New First-Year Students:

- Complete program application including essay questions

Admission Criteria for Transfer and Continuing UW-Madison Students:

- UW-Madison cumulative GPA of at least 3.25
- Complete program application including essay questions

HOW TO APPLY

The application is available on the CALS Honors Program website (<https://cals.wisc.edu/academics/undergraduate/current-students/honors-program/>). Applications are accepted at any time.

New first-year students with accepted applications will automatically be enrolled in Honors in Research. It is possible to switch to Honors in the Major in the student's first semester on campus after receiving approval from the advisor for that major. Transfer and continuing students may apply directly to Honors in Research or Honors in the Major (after approval from the major advisor).

REQUIREMENTS

All CALS Honors programs have the following requirements:

- Earn at least a cumulative 3.25 GPA at UW-Madison (some programs have higher requirements)
- Complete the program-specific requirements listed below
- Submit completed thesis documentation to CALS Academic Affairs

REQUIREMENTS

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 Program page (<https://cals.wisc.edu/academics/undergraduate/current-students/honors-program/>) for more information. The Department of Horticulture also works collaboratively to strongly support students through the Honors in Research program.

UNIVERSITY DEGREE REQUIREMENTS

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| Total Degree | 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. |
| Residency | Degree candidates are required to earn a minimum of 30 credits in residence at UW–Madison. "In residence" means on the UW–Madison campus with an undergraduate degree classification. "In residence" credit also includes UW–Madison courses offered in distance or online formats and credits earned in UW–Madison Study Abroad/Study Away programs. |
| Quality of Work | 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. |