HORTICULTURE, BS

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*.

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 BS DEGREE PROGRAMS

Code	Title	Credits
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.		
First year seminar (http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#CALSFirstYearSeminarCourses)		1
International studies (http://guide.wisc.edu/undergraduate/agricultural-life-sciences/#CALSInternationalStudiesCourses)		3
Physical science fundamentals		4-5
CHEM 103	General Chemistry I	
or CHEM 108	Chemistry in Our World	
or CHEM 109	Advanced General Chemistry	
Biological science		5
Additional science (biological, physical, or natural)		3
Science breadth (biological, physical, natural, or social)		3
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
Mathematics and Statistics		
Select one of the following (or may be satisfied by placement exam):		5-6
MATH 112 & MATH 113	Algebra and Trigonometry	
MATH 114	Algebra and Trigonometry	
MATH 171	Calculus with Algebra and Trigonometry I [1]	
Select one of the following:		3-5
MATH 211	Survey of 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		
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	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]	
HORT 370	World Vegetable Crops	
AGRONOMY 375	Special Topics (Crop, Seed, and Weed ID)	
or HORT/ AGRONOMY 33	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:		
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):		
HORT 399	Coordinative Internship/ Cooperative Education	
HORT 699	Special Problems	
PL PATH 499	Independent Study in Organic Agriculture	
Total Credits		**69-84**

[1] If MATH 171 is taken, MATH 217 must also be taken.
[2] Alternate years.

ELECTIVE COURSES

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

Code	Title	Credits
Business and Economics		
A A E 101	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		

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	4
GEOG/ ENVIR ST 139	Global Environmental Issues	3
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/ NUTR SCI 350	World Hunger and Malnutrition	3
AGRONOMY 377	Global Food Production and Health	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/A A E/ AGRONOMY/ PL PATH 367	Introduction to Organic Agriculture: Production, Markets, and Policy	3
HORT 370	World Vegetable Crops	3
HORT 380	Indigenous Foodways: Food and Seed Sovereignty	2
NUTR SCI 132	Nutrition Today	3
PL PATH 311	Global Food Security (Food Systems, Sustainability, and Climate Change)	3
PL PATH 375	Special Topics	1-4
Landscape Horticulture		
BSE 243	Operating and Management Principles of Off-Road Vehicles	3
BSE 301	Land Information Management	3
F&W ECOL 375	Special Topics (Tree Risk Assessment and Decay Detection)	1-4
HORT 234	Ornamental Plants	3
HORT/PL PATH 261	Sustainable Turfgrass Use and Management	2
HORT/PL PATH 262	Turfgrass Management Laboratory	1
HORT/ LAND ARC 263	Landscape Plants I	3
HORT/SOIL SCI 332	Turfgrass Nutrient and Water Management	3
HORT 334	Greenhouse Cultivation	2
HORT 335	Greenhouse Cultivation Lab	1
LAND ARC 250	Survey of Landscape Architecture Design	3
LAND ARC 260	History of Landscape Architecture	3
LAND ARC 211	Shaping the Built Environment	3
Pest Management		
ENTOM/BOTANY/ ZOOLOGY 473	Plant-Insect Interactions	3
ENTOM/ F&W ECOL 500	Insects in Forest Ecosystem Function and Management	2
PL PATH/ BOTANY 332	Fungi	4
Plant Biology		
BOTANY 300	Plant Anatomy	4
BOTANY 305	Plant Morphology and Evolution	4
BOTANY 400	Plant Systematics	4
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		

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	(Horti)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 321	Soils and Environmental Chemistry	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
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 h (https://cals.wisc.edu/academics/undergraduate/current-students/honors-program/)onors program page (https://cals.wisc.edu/academics/undergraduate/current-students/honors-program/) for more information. The Department of Plant and Agroecosystems Sciences also works collaboratively to strongly support students through the honors in research program.

UNIVERSITY DEGREE REQUIREMENTS

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.