From:	Smith, Randy
To:	Lindsey, Alexander J.; Osborne, Jeanne
Cc:	Leite, Fabio; Reed, Katie; Smith, Randy; Orr, James; Duffy, Lisa; Christy, Ann
Subject:	Proposal to revise the Sustainable Plant Systems Major
Date:	Thursday, September 7, 2023 12:25:15 PM
Attachments:	image001.png

Alex and Jeanne:

The proposal from the Department of Horticulture and Crop Science to revise the Sustainable Plant Systems major leading to the Bachelor of Science in Agriculture degree was approved by the Council on Academic Affairs at its meeting on September 6, 2023. Thank you for attending the meeting to respond to questions/comments.

No additional level of internal approval is necessary. This action will be included in the Council's next Annual Activities Report to the University Senate (July 2024).

The Office of the University Registrar will work you with any implementation issues.

Please keep a copy of this message for your file on the proposal and I will do the same for the file in the Office of Academic Affairs.

If you have any questions please contact the Chair of the Council, Professor Fábio Leite (.11), or me.

Randy

THE OHIO STATE UNIVERSITY

W. Randy Smith, Ph.D.
Vice Provost for Academic Programs
Office of Academic Affairs
University Square South, 15 E. 15th Avenue, Columbus, OH 43201
614-292-5881 Office
smith.70@osu.edu
Assisted by:
Katie Reed
Executive Assistant
(614) 292-5672
reed.901@osu.edu

From:	Osborne, Jeanne
To:	Smith, Randy
Cc:	Reed, Katie; Violet, Cynthia A.; Meadows, Kendyl; Barker, David; Lindsey, Alexander J.
Subject:	Requesting CAA Approval for revision to the Sustainable Plant Systems - BS AGR major
Date:	Friday, May 26, 2023 11:26:33 AM
Attachments:	SPS Update and CEA Specialization proposal, Combined Files.pdf image001.png

Dear Dr. Smith,

The College of Food, Agricultural, and Environmental Sciences is requesting Council on Academic Affairs approval for a revision to the Sustainable Plants Systems Major in the Department of Horticulture and Crop Science, as summarized below and outlined in the attached proposal.

The primary component of the proposal is the addition of a sixth specialization to the Sustainable Plant Systems major – Controlled Environment Agriculture (CEA). As noted in the rationale for the recently approved new minor in Controlled Environment Agriculture and in the cover letter to this proposal provided by Dr. Barker, controlled environment agriculture is emerging as a method of addressing global food demands, and the development of this major specialization (along with the minor) takes advantage of the new state-of-the-art facility built at the Waterman location on the Columbus Campus of The Ohio State University (see: https://waterman.osu.edu/places-and-spaces/controlled-environment-agriculture-research-complex). In addition, the demand for people trained to manage and operate CEA facilities, as well as develop new knowledge through research in this area is increasing.

In addition to the proposal of this new specialization in the SPS major, there are minor clean-up items presented for the five specializations, including:

- Removal of the specification of ENGLISH 1110 as a required component for all specializations in the major; this allows students flexibility in choosing courses to fulfill the GEN Writing and Information Literacy category. This is being adjusted in all majors in CFAES and is/will be presented as an information item to the CAA
- Removal of HCS 2201 as an option with HCS 2204/2205 in the major core for all specializations in the SPS major. The HCS 2201 course was included in the AU22 curriculum revision to the GEN since HCS 2204/2205 were not yet approved. Moving forward, HCS 2204/2205 provide students the same content, and the HCS 2204 serves as a GEN Theme course in the Sustainability category serving the university population. There is no overall change of credits or impact on current students as any GEL student who has not yet completed HCS 2201 will substitute HCS 2204/2205 in their curriculum.
- Update to SPS-Agronomy specialization: two courses included in the list of options to fulfill the minor equivalent (p.2 of the curriculum sheet) have been updated to new course numbers, reflecting an adjustment of content and credit hours by the offering Department – specifically AEDECON 3113 is now 3114 and AEDECON 3123 is now 3124. There is no impact on overall credit hours as these courses are options within the category in which students select courses to fulfill 10-13 credit hours.

This proposal has been approved by the Academic Affairs Committee of the Department of Horticulture and Crop Science, and by the CFAES Committee on Academic Affairs. Please let me

know if any additional information is needed in support of this request.

Sincerely,

Jeanne

THE OHIO STATE UNIVERSITY

Jeanne M. Osborne | *Pronouns: She, Her, Hers*
Assistant Dean for Academic Affairs
College of Food, Agricultural, and Environmental Sciences
100E Agricultural Administration, 2120 Fyffe Rd.
Columbus, OH 43210
Tel: 614-292-1734
Fax: 614-292-1218
e-mail: Osborne.2@osu.edu

'Unexpected kindness is the most powerful, least costly, and most underrated agent of human change' (Bob Kerrey)

THE OHIO STATE UNIVERSITY

Department of Horticulture and Crop Science

202 Kottman Hall
2021 Coffey Rd
Columbus, OH 43210

614-247-6258 Phone
614-292-7162 Fax

barker.169@osu.edu

May 23, 2023

Jeanne Osborne
Assistant Dean, Academic Affairs
100 Agricultural Administration
College of Food Agriculture and Environmental Science
The Ohio State University

Dear Ms Osborne

1) Please consider our request to add a specialization in Controlled Environment Agriculture (CEA) to our Sustainable Plant Systems major.

   This specialization takes advantage of the current interest from students for this educational opportunity. Controlled environment agriculture (greenhouse) is emerging as an aggregation of technologies that can address intensified food production necessary to meet global food demands as our world population increases beyond 8 billion people. Within Ohio, significant career opportunities exist within the greenhouse industry that has greatly expanded with construction of many hundreds of acres of greenhouses in recent years. This specialization will keep Ohio State University current with parallel programs being offered in our peer institutions. This specialization will also benefit from the construction of the new greenhouse (CEARC) at Waterman, and a new faculty hire (Dr Owen) in greenhouse production within HCS. Dr Owen will serve as the Coordinating Adviser for this specialization.

   The CEA specialization was developed in consultation with Dr Kubota (HCS), with colleagues in the Department of Food, Agricultural and Biological Engineering (FABE) (who provide concurrence), and in consideration of students who might transition from ATI campus to Columbus (2+2 plan). The CEA specialization was approved at the HCS Faculty meeting on October 11, 2022, and minor revisions approved by the HCS Academic Affairs Committee 20 April 2023.

2) In this request, please also consider minor updates to five (5) existing specializations in the Sustainable Plant Systems major:
   i) WIL requirement changed from ENGLISH 1110 to ‘Student Choice’ (information item to be shared with CAA at a future meeting)
   ii) HCS 2201 removed as an option to HCS 2204 and 2205 – HCS 2201 will no longer be offered after AU23; no change in required credit hours
   iii) SPS - Agronomy: two course updates in the minor equivalent options to accommodate a 1 credit hour increase and course number change (no overall impact on credit hours required)
      a. AEDECON 3113 (2) → AEDECON 3114 (3)
      b. AEDECON 3123 (2) → AEDECON 3124 (3)

There will be no impact on continuing students as there is no overall change in credit hours required and the updated courses meet requirements in prior curricula.

Sincerely,

Dr David Barker

THE OHIO STATE UNIVERSITY

Professor and Associate Chair

Attachments:
CEA specialization
CEA 4-year plan
Revisions to the 5 current specializations

CC
Dr Karcher, HCS Chair
Dr Lindsey, HCS AAC Chair

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Effective Term: Autumn 2023

Bachelor of Science in Agriculture
Major: Sustainable Plant Systems
Specialization: Controlled Environment Agriculture

Controlled Environment Agriculture is an interdisciplinary crop production science integrating horticultural science, plant health management, applied environmental science, and applied biological engineering to achieve sustainable crop production in various climate regions. Students will take classes in plant science, greenhouse management, hydroponics, fruit and vegetable production, plant health management, agricultural meteorology, and introductory engineering principles. Students in this major will complete a minimum of 121 hours outlined as follows.

General Education Requirements

Requirement	Course Options	Hours
GE Launch Seminar	**GENED 1201**	1
Writing and Information Literacy	***Student Choice***	3
Mathematical & Quantitative Reasoning/Data Analysis	Major requirement: **MATH 1130, 1148, 1150, 1151, or 1156** * *(or Student Choice – see below)*	4-5
Literary, Visual and Performing Arts	***Student Choice***	3
Historical & Cultural Studies	***Student Choice***	3
Natural Science	Major requirement: **BIOLOGY 1113** * *(or Student Choice – see below)*	4
Social & Behavioral Sciences	Major requirement: **AEDECON 2001** or **ECON 2001.01** * *(or Student Choice – see below)*	3
Race, Ethnic and Gender Diversity	***Student Choice***	3
Theme**: Citizenship for a Diverse & Just World** [a]	***Student Choice***	4-6
Theme: **Student Choice** [a]	***Student Choice***	4-6
GE Reflection	**GENED 4001**	1
	Credit Hours:	**33-38**

***** Indicates a pre/corequisite course for this major that also satisfies this GE category. If a student makes an alternative selection in this GE category, **they must also complete this course.**

B.S. in Agriculture Degree Requirements

Requirement	Course Options	Hours
College & Department Survey	**FAES 1100 (0.5) & HCS 1100 (0.5)**	1
Oral Expression	**AGRCOMM 3130 or COMM 2110**	3
Additional Science	**CHEM 1110, 1210, or 1220**	5
Internship	**FAES 3191 & HCS 4191.01**	2
Minor Equiv. [b]	*See pg. 2*	15-18
	Credit Hours:	**26-29**

General Education:	**33-38**
Degree Requirements:	**26-29**
Major:	**52**
Open Electives:	**2-10**
Minimum Total Credit Hours:	**121**

Major Coursework

Course	Title	Hours
HCS 2202	Form and Function in Cultivated Plants	4
HCS 2204	Ecology of Managed Plant Systems ❖	3
HCS 2205	Ecology of Managed Plant Systems Lab	1
HCS 2260	Data Analysis and Interpretation for Decision Making	3
HCS 3200	Intro to Horticulture	3
HCS 3310	Crop Responses to the Environment	3
HCS 3320	Plant Propagation	3
HCS 3521	Greenhouse Systems and Management	2
HCS 4300	Hydroponic Crop Production	2
HCS 4301	Hydroponic Crop Production Lab	1
HCS 5200 *-or-* HCS 5602	Advanced Horticultural Systems ***-or-*** Ecology of Agriculture (Capstone)	3
ENTMLGY 5610	Greenhouse Plant Health and Pest Management	3
GEOG 5900	Weather, Climate, and Global Warming	3
PLNTPTH 3001	General Plant Pathology	3
Major Electives: Select 15 credit hours from:		
HCS 2305	Organic Gardening	1
HCS 2306	Sustainable Vegetable Production Practicum	3
HCS 2307	Sustainable Agriculture Practical Experience	2
HCS 2340.01	Woody Ornamental Plants	3
HCS 2340.02	Herbaceous Ornamental Plants	3
HCS 3380	Latino Workforce in Land Based Industries	2
HCS 3420	Seed Science	3
HCS 3488.01	Professional Development in Hort. And Crop Science	1-3
HCS /AGSYSMT 3585	Digital Agriculture ❖	3
HCS 4520	Medicinal Plants	3
HCS 4998 [c]	Undergraduate Research	1-6
HCS 4999 [c]	Research with Distinction	1-6
HCS 4999H [c]	Honors Research with Distinction	1-6
HCS 5097.03-04 & 5797.03-04	Study Abroad Predeparture & Study Abroad	4
HCS 5325	Plant Genetics	3
HCS 5450	Vegetable Crop Production and Physiology	3
HCS 5460	Fruit Crop Physiology and Production	3
HCS 5621	Physiology of Cultivated Plants	3
HCS 5887	Introduction to Experimental Design	3
HORTTEC 3560	Integrated Greenhouse Climate Control	4
	Credit Hours:	52

[a] Students complete either a 4-credit course or two 3-credit courses in each of two General Education Theme areas: Citizenship for a Diverse & Just World (required), and the student's choice of available GE Themes. If any major-required courses are identified as a GE Theme course, one course in each GE Theme area may double count in the GE and major hours. Theme courses are identified with a ❖ symbol.
[b] Students in this program complete a group of courses called a minor equivalent. Declaring an additional minor is not required.
[c] Only up to 6 credits of any combination of 4193, 4998, 4999, or 4999H can count towards major electives.
[d] Review prerequisites.

Minor Equivalent (15-18 hours)		
Select 15-18 credits from one of the groups below (courses selected as major elective options cannot also count in the minor equivalent):		
Group A: Production and Management		
Course	**Title**	**Hours**
AEDECON 3101	Principles of Agribusiness Management	3
AEDECON 3102	Principles of Agribusiness Marketing	3
AEDECON 3103	Principles of Agribusiness Finance	3
AEDECON 2400	Diversity in the Workplace: Challenges and Opportunities	3
AEDECON 2500	Introduction to Sustainability	3
AEDECON 3160	Human Resource Management in Small Business	3
AGSYSMT 2193 [e]	Individual Studies	1-2
AGSYSMT 2240	Basic Metal Fabrication for Agriculture	3
AGSYSMT 2310	Electrical Power for Agricultural and Residential Applications	3
AGSYSMT 3232	Engines and Power Transmission	3
AGSYSMT 3320	Facilities for Agricultural and Greenhouse Production	3
AGSYSMT 3580	UAS and Remote Sensing in Agriculture	3
HCS/AGSYSMT 3585	Digital Agriculture (if not taken already) ❖	3
BUSMHR 2210	Personal Leadership & Team Effectiveness	3
BUSML 3150	Foundations of Marketing	3
CONSCI 2910	Consumer Problems and Perspectives	3
CONSCI 3910	Customer Service and Satisfaction	3
CONSYSM 2205	Introduction to Construction Systems Management	3
CONSYSM 2241	Construction Materials and Methods II	3
CONSYSM 2440	Construction Surveying and Site Development	4
ENR 3000	Soil Science	3
ENR 3001	Soil Science Laboratory	1
ENR 5279	Urban Soils and Ecosystem Services	3
ENTMLGY 4600	Introduction to Insect Sciences	1
ENTMLGY 4601	General Insect Pest Management	2
ENTMLGY 5500	Biological Control	3
ENTMLGY 5600	Integrated Pest Management	3
ENTMLGY 5800	Pesticide Science	3
FABENG 2100	Energy in Biological Systems	1
FABENG 3120	Thermodynamics in Food, Agricultural and Biological Engineering	4
FABENG 3120	Heat and Mass Transfer in Food, Agricultural and Biological Engineering	4
PLNTPTH	General Plant Pathology Lab	2
PLNTPTH 5110	Ecology and Management of Pathogens and Insects Affecting Trees in Forest and Urban Environments	3
PLNTPTH 5120	Diseases of Ornamental Plants	3
PLNTPTH 5150	Fruit and Vegetable Diseases	2
PLNTPTH 5603	Plant Disease Management	3

Group B: Research		
CHEM 2310 [d]	Introductory Organic Chemistry	4
BIOCHEM 4511	Introduction to Biological Chemistry	4
EEOB 3310.01 or 3310. 02	Evolution	4
EEOB 3410	Ecology	4
ENR 5268	Soils and Climate Change	2
ENR 5274	Ecosystem Simulation	3

Policies and General Requirements for Degree

- A minimum of **121** total credit hours. Remedial coursework (English 1109; EDUTL 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1010; Mathematics 1040, 1050, 1073, 1074, 1075) do not count toward the 121-hour minimum requirement for the BS degree.
- A minimum of 30 semester hours of credit earned through regular course enrollment at this University, and regular course enrollment in the last semester in the College of Food, Agricultural, and Environmental Sciences.
- A cumulative point-hour ratio of at least 2.00 on all coursework completed at The Ohio State University as well as at least a 2.00 in the major.
- If a major-required course or major elective is a GE Theme course, two 3-4 cr courses (no more than one per theme area) is permitted to double count in the GE and major hours. GE Theme courses are indicated with a ❖ symbol.
- Students are encouraged to participate in education abroad opportunities. Consult with your advisor for how education abroad credit applies to your degree or consider the CFAES Global Option.
- Students must complete a minimum of 40 hours in major/major supporting coursework with at least 12 hours taken from the academic unit(s) offering the major at OSU in the baccalaureate program.
- Courses required in the major (including major supporting courses and major electives) may **not** be taken pass/non-pass.
- Coursework taken as open electives may include a maximum of 4 credit hours of physical activity courses (all 1139-1197 courses), and a maximum of 4 credit hours of campus music organizations.
- A college maximum of six hours of individual studies courses (x193) can be applied toward graduation; some majors may have a lower maximum.
- Students of CFAES must complete an internship of 1-2 hours as a requirement for degree. Any additional internship credit hours may count towards major hours (consult with your advisor). A college maximum of six hours of internship credit can be applied toward graduation; some majors may have a lower maximum.
- A maximum of three credits of 3488 can be applied toward graduation although some majors may have a lower maximum. A cumulative point-hour ratio of 2.0 is required to register for 3488 credit.
- Credit hours for 4999 ("with Research Distinction") and 4999H ("with Honors Research Distinction") are repeatable to maximum of six hours.
- **An application for degree must be submitted online at least two semesters prior to the intended graduation term. Application found at: https://students.cfaes.ohio-state.edu/academics/undergraduate/graduation**

Policies and General Requirements for Minors/Minor Equivalent

- The minor/minor equivalent must contain a minimum of 12 credit hours distinct from the major and/or additional minors (i.e., if a minor requires more than 12 credit hours, a student is permitted to overlap those hours beyond 12 with the major or with another minor).
- A 2.00 cumulative point-hour ratio is required in the minor/minor equivalent with a minimum C- grade for any course to be listed in the minor or minor equivalent (includes transfer credit).
- For programs requiring a minor: minors should be declared by the time students complete 60 hours.
- A student is permitted to count up to 6 credit-hours of transfer and/or EM credit in the minor or minor equivalent.

Coursework graded Pass/Non-Pass cannot count in the minor. No more than 3 credit-hours of course work graded S/U may count toward the minor. Maximum of 3 credit-hours of xx93 are allowed to count in the minor.

[e] Minimum cumulative GPA of 2.5 required for enrollment.

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Effective Term: Autumn 2022

Bachelor of Science in Agriculture
Major: Sustainable Plant Systems
Specialization: Agroecology

This specialization focuses on understanding and applying ecological principles in crop production to integrate natural biological cycles and controls, make efficient use of resources, enhance environmental quality, and increase biodiversity. Students in this major will complete a minimum of 121 hours outlined as follows.

General Education Requirements		
Requirement	**Course Options**	**Hours**
GE Launch Seminar	**GENED 1201**	1
Writing and Information Literacy	Major requirement: **ENGLISH 1110 *** *(or Student Choice – see below)*	3
Mathematical & Quantitative Reasoning/Data Analysis	Major requirement: **MATH 1130, 1148, 1150, 1151, or 1156 *** *(or Student Choice – see below)*	4-5
Literary, Visual and Performing Arts	***Student Choice***	3
Historical & Cultural Studies	***Student Choice***	3
Natural Science	Major requirement: **BIOLOGY 1113 *** *(or Student Choice – see below)*	4
Social & Behavioral Sciences	Major requirement: **AEDECON 2001** or **ECON 2001.01 *** *(or Student Choice – see below)*	3
Race, Ethnic and Gender Diversity	***Student Choice***	3
Theme**: Citizenship for a Diverse & Just World** [a]	***Student Choice***	4-6
Theme: **Student Choice** [a]	***Student Choice***	4-6
GE Reflection	**GENED 4001**	1
	Credit Hours:	**33-38**

***** Indicates a pre/corequisite course for this major that also satisfies this GE category. If a student makes an alternative selection in this GE category, **they must also complete this course.**

B.S. in Agriculture Degree Requirements		
Requirement	**Course Options**	**Hours**
College & Department Survey	**FAES 1100 (0.5) & HCS 1100 (0.5)**	1
Oral Expression	**AGRCOMM 3130 or COMM 2110**	3
Additional Science	**CHEM 1110, 1210, or 1220**	5
Internship	**FAES 3191 & HCS 4191.01**	2
Minor Equiv. [b]	See pg. 2	15-18
	Credit Hours:	**26-29**

General Education	**33-38**
Degree Requirements	**26-29**
Major Supporting Courses (pg. 2)	**12**
Major	**41-42**
Open Electives	**0-9**
Minimum Total Credit Hours	**121**

[a] Students complete either a 4-credit course or two 3-credit courses in each of two General Education Theme areas: Citizenship for a Diverse & Just World (required), and the student's choice of available GE Themes. If any major-required courses are identified as a GE Theme course, one course in each GE Theme area may double count in the GE and major hours. Theme courses are identified with a ❖ symbol.
[b] Students in this program complete a group of courses called a minor equivalent. Declaring an additional minor is not required.
[c] Only up to 6 credits of any combination of 4193, 4998, 4999, or 4999H can count towards major electives.
[d] Review prerequisites.

Major Coursework		
Course	**Title**	**Hours**
HCS 2202	Form and Function in Cultivated Plants	4
HCS 2201 ***-or-***	Ecology of Managed Plant Systems (prior to AU22)	4
HCS 2204 &	Ecology of Managed Plant Systems ❖ (3)	
HCS 2205	Ecology of Managed Plant Systems Lab (1)	
HCS 2260	Data Analysis and Interpretation for Decision Making	3
HCS 3100 ***-or-***	Intro to Agronomy	3
HCS 3200	Intro to Horticulture	
HCS 3220	Crop Origins and Diversity	2
HCS 3310	Crop Responses to the Environment	3
HCS 3320 ***-or-***	Plant Propagation	3
HCS 3420	Seed Science	
HCS 5422	Biology & Mgmt of Weeds and Invasive Plants	3
ENR 3000	Soil Science	3
ENR 3001	Soil Science Laboratory	1
Select one production course:		3
HCS 5411	Grain, Oilseed, and Fiber Crops	
HCS 5412	Agroecology of Grasslands and Prairies	
HCS 5450	Veg Crop Production & Physiology	
HCS 5460	Fruit Crop Physiology & Production	
Select one capstone course:		3
HCS 5100	Advanced Cropping Systems	
HCS 5200	Advanced Horticultural Principles and Practices	
HCS 5602	The Ecology of Agriculture	
Major Electives: Select 6-7 credit hours from:		
HCS 2307	Sustainable Agriculture Practical Experience	2
HCS 3380	Latino Workforce in Land Based Industry	2
HCS 3488.01	Professional Development in HCS	1-3
HCS 3521	Greenhouse Systems and Management	2
HCS 3522	Sustainable Irrigation	3
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
HCS 4193	Individual Studies	1-3
HCS 4300	Hydroponic Crop Production	2
HCS 4301	Hydroponic Crop Production Lab	1
HCS 4520	Medicinal Plants	2
HCS 4998	Undergraduate Research	1-6
HCS 4999	Research with Distinction	1-6
HCS 4999H	Honors Research with Distinction	1-6
HCS 5097.01-.04 & 5797.01-.04	Study Abroad Pre-Departure & Study Abroad	4
HCS 5306	Sustainable Vegetable Production Practicum	3
HCS 5325	Plant Genetics	3
HCS 5420	Environmental Impacts of Crop-Livestock Systems	3
HCS 5621	Physiology of Cultivated Plants	3
HCS 5622 [d]	Biochemical Processes in Cultivated Plants	3
HCS 5625 [d]	Applied Plant Biotechnology	2
HCS 5825 [d]	Plant Breeding	2
HCS 5887	Introduction to Experimental Design	3
	Credit Hours:	**41-42**

Major Supporting Coursework		
Course	**Title**	**Hours**
BIOLOGY 1114	Biological Sciences: Form, Function, Diversity, and Ecology	4
EEOB 3310.01 or .02	Evolution	4
EEOB 3410	Ecology	4
	Credit Hours:	**12**

Minor Equivalent (15-18 hours): *Select a minimum of 5-9 credit hours from both Group A and Group B; remainder of credits from Group C1 and/or C2*		
Group A: Soil Ecology and Management		
ENR 3700	Introduction to Spatial Information for ENR	3
ENR 4260	Soil Resource Management	3
ENR 4285	Watershed Hydrology	3
ENR 5260	Soil Landscapes: Morphology, Genesis & Classification	3
ENR 5263	Biology of Soil Ecosystems	3
ENR 5268	Soils and Climate Change	3
ENR 5270	Soil Fertility	3
ENR 5279	Urban Soils and Ecosystem Services	3
Group B: Biotic Interactions in Agroecosystems		
ANIMSCI 3400	Management Intensive Grazing	2
ENTMLGY 2200	Beekeeping	3
ENTMLGY 4600	Introduction to Insect Science	1
ENTMLGY 4601	General Insect Pest Management	2
ENTMLGY 5420	Insect Behavior	3
ENTMLGY 5500	Biological Control	3
ENTMLGY 5600	Integrated Pest Management	3
PLNTPTH 3001	General Plant Pathology	3
PLNTPTH 3002	General Plant Pathology Lab	2
PLNTPTH 5110	Ecology and Management of Pathogens and Insects Affecting Trees in Forest & Urban Env.	3
PLNTPTH 5140	Diseases of Field Crops	2
PLNTPTH 5150	Fruit and Vegetable Diseases	3
PLNTPTH 5603	Plant Disease Management	3
Group C1: Population and Community Ecology		
AGSYSMT 3580	UAS and Remote Sensing in Agriculture	3
EEOB 4410	Conservation Biology	3
EEOB 4430	Ecological Methods I	2
EEOB 5450	Population Ecology	3
EEOB 5470	Community and Ecosystems Ecology	3
ENR 4320 [d]	Sustainable Forest Products	3
ENR 5274	Ecosystem Simulation	3
Group C2: Human Ecology and Global Perspectives		
AEDECON 4532	Food Security and Globalization	3
ANIMSCI 3600	Global Food and Agriculture	3
EEOB 4240 *-or-* ANTHRO 5614	Ecology & Evolution of Plants and People ***-or-*** Ethnobotany	3
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
ENR 5600 [d]	Sustainable Agriculture and Food Systems	3
GEOG 3900	Global Climate Change	3
GEOG 5900	Weather, Climate, & Global Warming	3

Policies and General Requirements for Degree

- A minimum of **121** total credit hours. Remedial coursework (English 1109; EDUTL 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1010; Mathematics 1040, 1050, 1073, 1074, 1075) do not count toward the 121-hour minimum requirement for the BS degree.
- A minimum of 30 semester hours of credit earned through regular course enrollment at this University, and regular course enrollment in the last semester in the College of Food, Agricultural, and Environmental Sciences.
- A cumulative point-hour ratio of at least 2.00 on all coursework completed at The Ohio State University as well as at least a 2.00 in the major.
- If a major-required course or major elective is a GE Theme course, two 3-4 cr courses (no more than one per theme area) is permitted to double count in the GE and major hours. GE Theme courses are indicated with a ❖ symbol.
- Students are encouraged to participate in education abroad opportunities. Consult with your advisor for how education abroad credit applies to your degree or consider the CFAES Global Option.
- Students must complete a minimum of 40 hours in major/major supporting coursework with at least 12 hours taken from the academic unit(s) offering the major at OSU in the baccalaureate program.
- Courses required in the major (including major supporting courses and major electives) may **not** be taken pass/non-pass.
- Coursework taken as open electives may include a maximum of 4 credit hours of physical activity courses (all 1139-1197 courses), and a maximum of 4 credit hours of campus music organizations.
- A college maximum of six hours of individual studies courses (x193) can be applied toward graduation; some majors may have a lower maximum.
- Students of CFAES must complete an internship of 1-2 hours as a requirement for degree. Any additional internship credit hours may count towards major hours (consult with your advisor). A college maximum of six hours of internship credit can be applied toward graduation; some majors may have a lower maximum.
- A maximum of three credits of 3488 can be applied toward graduation although some majors may have a lower maximum. A cumulative point-hour ratio of 2.0 is required to register for 3488 credit.
- Credit hours for 4999 ("with Research Distinction") and 4999H ("with Honors Research Distinction") are repeatable to maximum of six hours.
- **An application for degree must be submitted online at least two semesters prior to the intended graduation term. Application found at: https://students.cfaes.ohio-state.edu/academics/undergraduate/graduation**

Policies and General Requirements for Minors/Minor Equivalent

- The minor/minor equivalent must contain a minimum of 12 credit hours distinct from the major and/or additional minors (i.e., if a minor requires more than 12 credit hours, a student is permitted to overlap those hours beyond 12 with the major or with another minor).
- A 2.00 cumulative point-hour ratio is required in the minor/minor equivalent with a minimum C- grade for any course to be listed in the minor or minor equivalent (includes transfer credit).
- For programs requiring a minor: minors should be declared by the time students complete 60 hours.
- A student is permitted to count up to 6 credit-hours of transfer and/or EM credit in the minor or minor equivalent.

Coursework graded Pass/Non-Pass cannot count in the minor. No more than 3 credit-hours of course work graded S/U may count toward the minor. Maximum of 3 credit-hours of xx93 are allowed to count in the minor.

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Effective Term: Autumn 2022

Bachelor of Science in Agriculture
Major: Sustainable Plant Systems
Specialization: Agroecology

This specialization focuses on understanding and applying ecological principles in crop production to integrate natural biological cycles and controls, make efficient use of resources, enhance environmental quality, and increase biodiversity. Students in this major will complete a minimum of 121 hours outlined as follows.

General Education Requirements		
Requirement	**Course Options**	**Hours**
GE Launch Seminar	**GENED 1201**	1
Writing and Information Literacy	~~Major requirement: **ENGLISH 1110 *** *(or Student Choice – see below)*~~	3
Mathematical & Quantitative Reasoning/Data Analysis	Major requirement: **MATH 1130, 1148, 1150, 1151, or 1156 *** *(or Student Choice – see below)*	4-5
Literary, Visual and Performing Arts	***Student Choice***	3
Historical & Cultural Studies	***Student Choice***	3
Natural Science	Major requirement: **BIOLOGY 1113 *** *(or Student Choice – see below)*	4
Social & Behavioral Sciences	Major requirement: **AEDECON 2001** or **ECON 2001.01 *** *(or Student Choice – see below)*	3
Race, Ethnic and Gender Diversity	***Student Choice***	3
Theme: **Citizenship for a Diverse & Just World** [a]	***Student Choice***	4-6
Theme: **Student Choice** [a]	***Student Choice***	4-6
GE Reflection	**GENED 4001**	1
	Credit Hours:	**33-38**

***** Indicates a pre/corequisite course for this major that also satisfies this GE category. If a student makes an alternative selection in this GE category, **they must also complete this course.**

B.S. in Agriculture Degree Requirements		
Requirement	**Course Options**	**Hours**
College & Department Survey	**FAES 1100 (0.5) & HCS 1100 (0.5)**	1
Oral Expression	**AGRCOMM 3130 or COMM 2110**	3
Additional Science	**CHEM 1110, 1210, or 1220**	5
Internship	**FAES 3191 & HCS 4191.01**	2
Minor Equiv. [b]	See pg. 2	15-18
	Credit Hours:	**26-29**

General Education	**33-38**
Degree Requirements	**26-29**
Major Supporting Courses (pg. 2)	**12**
Major	**41-42**
Open Electives	**0-9**
Minimum Total Credit Hours	**121**

[a] Students complete either a 4-credit course or two 3-credit courses in each of two General Education Theme areas: Citizenship for a Diverse & Just World (required), and the student's choice of available GE Themes. If any major-required courses are identified as a GE Theme course, one course in each GE Theme area may double count in the GE and major hours. Theme courses are identified with a ❖ symbol.
[b] Students in this program complete a group of courses called a minor equivalent. Declaring an additional minor is not required.
[c] Only up to 6 credits of any combination of 4193, 4998, 4999, or 4999H can count towards major electives.
[d] Review prerequisites.

Major Coursework		
Course	**Title**	**Hours**
HCS 2202	Form and Function in Cultivated Plants	4
~~**HCS 2201 -or-**~~	~~Ecology of Managed Plant Systems (prior to AU22)~~	4
HCS 2204 &	Ecology of Managed Plant Systems ❖ (3)	
HCS 2205	Ecology of Managed Plant Systems Lab (1)	
HCS 2260	Data Analysis and Interpretation for Decision Making	3
HCS 3100 -or-	Intro to Agronomy	3
HCS 3200	Intro to Horticulture	
HCS 3220	Crop Origins and Diversity	2
HCS 3310	Crop Responses to the Environment	3
HCS 3320 -or-	Plant Propagation	3
HCS 3420	Seed Science	
HCS 5422	Biology & Mgmt of Weeds and Invasive Plants	3
ENR 3000	Soil Science	3
ENR 3001	Soil Science Laboratory	1
Select one production course:		3
HCS 5411	Grain, Oilseed, and Fiber Crops	
HCS 5412	Agroecology of Grasslands and Prairies	
HCS 5450	Veg Crop Production & Physiology	
HCS 5460	Fruit Crop Physiology & Production	
Select one capstone course:		3
HCS 5100	Advanced Cropping Systems	
HCS 5200	Advanced Horticultural Principles and Practices	
HCS 5602	The Ecology of Agriculture	
Major Electives: Select 6-7 credit hours from:		
HCS 2307	Sustainable Agriculture Practical Experience	2
HCS 3380	Latino Workforce in Land Based Industry	2
HCS 3488.01	Professional Development in HCS	1-3
HCS 3521	Greenhouse Systems and Management	2
HCS 3522	Sustainable Irrigation	3
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
HCS 4193	Individual Studies	1-3
HCS 4300	Hydroponic Crop Production	2
HCS 4301	Hydroponic Crop Production Lab	1
HCS 4520	Medicinal Plants	2
HCS 4998	Undergraduate Research	1-6
HCS 4999	Research with Distinction	1-6
HCS 4999H	Honors Research with Distinction	1-6
HCS 5097.01-.04 & 5797.01-.04	Study Abroad Pre-Departure & Study Abroad	4
HCS 5306	Sustainable Vegetable Production Practicum	3
HCS 5325	Plant Genetics	3
HCS 5420	Environmental Impacts of Crop-Livestock Systems	3
HCS 5621	Physiology of Cultivated Plants	3
HCS 5622 [d]	Biochemical Processes in Cultivated Plants	3
HCS 5625 [d]	Applied Plant Biotechnology	2
HCS 5825 [d]	Plant Breeding	2
HCS 5887	Introduction to Experimental Design	3
	Credit Hours:	**41-42**

Major Supporting Coursework		
Course	**Title**	**Hours**
BIOLOGY 1114	Biological Sciences: Form, Function, Diversity, and Ecology	4
EEOB 3310.01 or .02	Evolution	4
EEOB 3410	Ecology	4
	Credit Hours:	**12**

Minor Equivalent (15-18 hours): *Select a minimum of 5-9 credit hours from both Group A and Group B; remainder of credits from Group C1 and/or C2*		
Group A: Soil Ecology and Management		
ENR 3700	Introduction to Spatial Information for ENR	3
ENR 4260	Soil Resource Management	3
ENR 4285	Watershed Hydrology	3
ENR 5260	Soil Landscapes: Morphology, Genesis & Classification	3
ENR 5263	Biology of Soil Ecosystems	3
ENR 5268	Soils and Climate Change	3
ENR 5270	Soil Fertility	3
ENR 5279	Urban Soils and Ecosystem Services	3
Group B: Biotic Interactions in Agroecosystems		
ANIMSCI 3400	Management Intensive Grazing	2
ENTMLGY 2200	Beekeeping	3
ENTMLGY 4600	Introduction to Insect Science	1
ENTMLGY 4601	General Insect Pest Management	2
ENTMLGY 5420	Insect Behavior	3
ENTMLGY 5500	Biological Control	3
ENTMLGY 5600	Integrated Pest Management	3
PLNTPTH 3001	General Plant Pathology	3
PLNTPTH 3002	General Plant Pathology Lab	2
PLNTPTH 5110	Ecology and Management of Pathogens and Insects Affecting Trees in Forest & Urban Env.	3
PLNTPTH 5140	Diseases of Field Crops	2
PLNTPTH 5150	Fruit and Vegetable Diseases	3
PLNTPTH 5603	Plant Disease Management	3
Group C1: Population and Community Ecology		
AGSYSMT 3580	UAS and Remote Sensing in Agriculture	3
EEOB 4410	Conservation Biology	3
EEOB 4430	Ecological Methods I	2
EEOB 5450	Population Ecology	3
EEOB 5470	Community and Ecosystems Ecology	3
ENR 4320 [d]	Sustainable Forest Products	3
ENR 5274	Ecosystem Simulation	3
Group C2: Human Ecology and Global Perspectives		
AEDECON 4532	Food Security and Globalization	3
ANIMSCI 3600	Global Food and Agriculture	3
EEOB 4240 *-or-* ANTHRO 5614	Ecology & Evolution of Plants and People ***-or-*** Ethnobotany	3
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
ENR 5600 [d]	Sustainable Agriculture and Food Systems	3
GEOG 3900	Global Climate Change	3
GEOG 5900	Weather, Climate, & Global Warming	3

Policies and General Requirements for Degree

- A minimum of **121** total credit hours. Remedial coursework (English 1109; EDUTL 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1010; Mathematics 1040, 1050, 1073, 1074, 1075) do not count toward the 121-hour minimum requirement for the BS degree.
- A minimum of 30 semester hours of credit earned through regular course enrollment at this University, and regular course enrollment in the last semester in the College of Food, Agricultural, and Environmental Sciences.
- A cumulative point-hour ratio of at least 2.00 on all coursework completed at The Ohio State University as well as at least a 2.00 in the major.
- If a major-required course or major elective is a GE Theme course, two 3-4 cr courses (no more than one per theme area) is permitted to double count in the GE and major hours. GE Theme courses are indicated with a ❖ symbol.
- Students are encouraged to participate in education abroad opportunities. Consult with your advisor for how education abroad credit applies to your degree or consider the CFAES Global Option.
- Students must complete a minimum of 40 hours in major/major supporting coursework with at least 12 hours taken from the academic unit(s) offering the major at OSU in the baccalaureate program.
- Courses required in the major (including major supporting courses and major electives) may **not** be taken pass/non-pass.
- Coursework taken as open electives may include a maximum of 4 credit hours of physical activity courses (all 1139-1197 courses), and a maximum of 4 credit hours of campus music organizations.
- A college maximum of six hours of individual studies courses (x193) can be applied toward graduation; some majors may have a lower maximum.
- Students of CFAES must complete an internship of 1-2 hours as a requirement for degree. Any additional internship credit hours may count towards major hours (consult with your advisor). A college maximum of six hours of internship credit can be applied toward graduation; some majors may have a lower maximum.
- A maximum of three credits of 3488 can be applied toward graduation although some majors may have a lower maximum. A cumulative point-hour ratio of 2.0 is required to register for 3488 credit.
- Credit hours for 4999 ("with Research Distinction") and 4999H ("with Honors Research Distinction") are repeatable to maximum of six hours.
- **An application for degree must be submitted online at least two semesters prior to the intended graduation term. Application found at: https://students.cfaes.ohio-state.edu/academics/undergraduate/graduation**

Policies and General Requirements for Minors/Minor Equivalent

- The minor/minor equivalent must contain a minimum of 12 credit hours distinct from the major and/or additional minors (i.e., if a minor requires more than 12 credit hours, a student is permitted to overlap those hours beyond 12 with the major or with another minor).
- A 2.00 cumulative point-hour ratio is required in the minor/minor equivalent with a minimum C- grade for any course to be listed in the minor or minor equivalent (includes transfer credit).
- For programs requiring a minor: minors should be declared by the time students complete 60 hours.
- A student is permitted to count up to 6 credit-hours of transfer and/or EM credit in the minor or minor equivalent.

Coursework graded Pass/Non-Pass cannot count in the minor. No more than 3 credit-hours of course work graded S/U may count toward the minor. Maximum of 3 credit-hours of xx93 are allowed to count in the minor.

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Effective Term: Autumn 2023

Bachelor of Science in Agriculture
Major: Sustainable Plant Systems
Specialization: Agroecology

This specialization focuses on understanding and applying ecological principles in crop production to integrate natural biological cycles and controls, make efficient use of resources, enhance environmental quality, and increase biodiversity. Students in this major will complete a minimum of 121 hours outlined as follows.

General Education Requirements		
Requirement	**Course Options**	**Hours**
GE Launch Seminar	**GENED 1201**	1
Writing and Information Literacy	***Student Choice***	3
Mathematical & Quantitative Reasoning/Data Analysis	Major requirement: **MATH 1130, 1148, 1150, 1151, or 1156 *** *(or Student Choice – see below)*	4-5
Literary, Visual and Performing Arts	***Student Choice***	3
Historical & Cultural Studies	***Student Choice***	3
Natural Science	Major requirement: **BIOLOGY 1113 *** *(or Student Choice – see below)*	4
Social & Behavioral Sciences	Major requirement: **AEDECON 2001** or **ECON 2001.01 *** *(or Student Choice – see below)*	3
Race, Ethnic and Gender Diversity	***Student Choice***	3
Theme**: Citizenship for a Diverse & Just World** [a]	***Student Choice***	4-6
Theme: **Student Choice** [a]	***Student Choice***	4-6
GE Reflection	**GENED 4001**	1
	Credit Hours:	**33-38**

***** Indicates a pre/corequisite course for this major that also satisfies this GE category. If a student makes an alternative selection in this GE category, **they must also complete this course.**

B.S. in Agriculture Degree Requirements		
Requirement	**Course Options**	**Hours**
College & Department Survey	**FAES 1100 (0.5) & HCS 1100 (0.5)**	1
Oral Expression	**AGRCOMM 3130 or COMM 2110**	3
Additional Science	**CHEM 1110, 1210, or 1220**	5
Internship	**FAES 3191 & HCS 4191.01**	2
Minor Equiv. [b]	See pg. 2	15-18
	Credit Hours:	**26-29**

General Education	**33-38**
Degree Requirements	**26-29**
Major Supporting Courses (pg. 2)	**12**
Major	**41-42**
Open Electives	**0-9**
Minimum Total Credit Hours	**121**

[a] Students complete either a 4-credit course or two 3-credit courses in each of two General Education Theme areas: Citizenship for a Diverse & Just World (required), and the student's choice of available GE Themes. If any major-required courses are identified as a GE Theme course, one course in each GE Theme area may double count in the GE and major hours. Theme courses are identified with a ❖ symbol.
[b] Students in this program complete a group of courses called a minor equivalent. Declaring an additional minor is not required.
[c] Only up to 6 credits of any combination of 4193, 4998, 4999, or 4999H can count towards major electives.
[d] Review prerequisites.

Major Coursework		
Course	**Title**	**Hours**
HCS 2202	Form and Function in Cultivated Plants	4
HCS 2204	Ecology of Managed Plant Systems ❖	3
HCS 2205	Ecology of Managed Plant Systems Lab	1
HCS 2260	Data Analysis and Interpretation for Decision Making	3
HCS 3100 *-or-*	Intro to Agronomy	3
HCS 3200	Intro to Horticulture	3
HCS 3220	Crop Origins and Diversity	2
HCS 3310	Crop Responses to the Environment	3
HCS 3320 *-or-*	Plant Propagation	3
HCS 3420	Seed Science	3
HCS 5422	Biology & Mgmt. of Weeds and Invasive Plants	3
ENR 3000	Soil Science	3
ENR 3001	Soil Science Laboratory	1
Select one production course:		3
HCS 5411	Grain, Oilseed, and Fiber Crops	
HCS 5412	Agroecology of Grasslands and Prairies	
HCS 5450	Veg Crop Production & Physiology	
HCS 5460	Fruit Crop Physiology & Production	
Select one capstone course:		3
HCS 5100	Advanced Cropping Systems	
HCS 5200	Advanced Horticultural Principles and Practices	
HCS 5602	The Ecology of Agriculture	
Major Electives: Select 6-7 credit hours from:		
HCS 2307	Sustainable Agriculture Practical Experience	2
HCS 3380	Latino Workforce in Land Based Industry	2
HCS 3488.01	Professional Development in HCS	1-3
HCS 3521	Greenhouse Systems and Management	2
HCS 3522	Sustainable Irrigation	3
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
HCS 4193	Individual Studies	1-3
HCS 4300	Hydroponic Crop Production	2
HCS 4301	Hydroponic Crop Production Lab	1
HCS 4520	Medicinal Plants	2
HCS 4998	Undergraduate Research	1-6
HCS 4999	Research with Distinction	1-6
HCS 4999H	Honors Research with Distinction	1-6
HCS 5097.01-.04 & 5797.01-.04	Study Abroad Pre-Departure & Study Abroad	4
HCS 5306	Sustainable Vegetable Production Practicum	3
HCS 5325	Plant Genetics	3
HCS 5420	Environmental Impacts of Crop-Livestock Systems	3
HCS 5621	Physiology of Cultivated Plants	3
HCS 5622 [d]	Biochemical Processes in Cultivated Plants	3
HCS 5625 [d]	Applied Plant Biotechnology	2
HCS 5825 [d]	Plant Breeding	2
HCS 5887	Introduction to Experimental Design	3
	Credit Hours:	**41-42**

Major Supporting Coursework		
Course	**Title**	**Hours**
BIOLOGY 1114	Biological Sciences: Form, Function, Diversity, and Ecology	4
EEOB 3310.01 or .02	Evolution	4
EEOB 3410	Ecology	4
	Credit Hours:	**12**

Minor Equivalent (15-18 hours): *Select a minimum of 5-9 credit hours from both Group A and Group B; remainder of credits from Group C1 and/or C2*		
Group A: Soil Ecology and Management		
ENR 3700	Introduction to Spatial Information for ENR	3
ENR 4260	Soil Resource Management	3
ENR 4285	Watershed Hydrology	3
ENR 5260	Soil Landscapes: Morphology, Genesis & Classification	3
ENR 5263	Biology of Soil Ecosystems	3
ENR 5268	Soils and Climate Change	3
ENR 5270	Soil Fertility	3
ENR 5279	Urban Soils and Ecosystem Services	3
Group B: Biotic Interactions in Agroecosystems		
ANIMSCI 3400	Management Intensive Grazing	2
ENTMLGY 2200	Beekeeping	3
ENTMLGY 4600	Introduction to Insect Science	1
ENTMLGY 4601	General Insect Pest Management	2
ENTMLGY 5420	Insect Behavior	3
ENTMLGY 5500	Biological Control	3
ENTMLGY 5600	Integrated Pest Management	3
PLNTPTH 3001	General Plant Pathology	3
PLNTPTH 3002	General Plant Pathology Lab	2
PLNTPTH 5110	Ecology and Management of Pathogens and Insects Affecting Trees in Forest & Urban Env.	3
PLNTPTH 5140	Diseases of Field Crops	2
PLNTPTH 5150	Fruit and Vegetable Diseases	3
PLNTPTH 5603	Plant Disease Management	3
Group C1: Population and Community Ecology		
AGSYSMT 3580	UAS and Remote Sensing in Agriculture	3
EEOB 4410	Conservation Biology	3
EEOB 4430	Ecological Methods I	2
EEOB 5450	Population Ecology	3
EEOB 5470	Community and Ecosystems Ecology	3
ENR 4320 [d]	Sustainable Forest Products	3
ENR 5274	Ecosystem Simulation	3
Group C2: Human Ecology and Global Perspectives		
AEDECON 4532	Food Security and Globalization	3
ANIMSCI 3600	Global Food and Agriculture	3
EEOB 4240 *-or-* ANTHRO 5614	Ecology & Evolution of Plants and People ***-or-*** Ethnobotany	3
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
ENR 5600 [d]	Sustainable Agriculture and Food Systems	3
GEOG 3900	Global Climate Change	3
GEOG 5900	Weather, Climate, & Global Warming	3

Policies and General Requirements for Degree

- A minimum of **121** total credit hours. Remedial coursework (English 1109; EDUTL 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1010; Mathematics 1040, 1050, 1073, 1074, 1075) do not count toward the 121-hour minimum requirement for the BS degree.
- A minimum of 30 semester hours of credit earned through regular course enrollment at this University, and regular course enrollment in the last semester in the College of Food, Agricultural, and Environmental Sciences.
- A cumulative point-hour ratio of at least 2.00 on all coursework completed at The Ohio State University as well as at least a 2.00 in the major.
- If a major-required course or major elective is a GE Theme course, two 3-4 cr courses (no more than one per theme area) is permitted to double count in the GE and major hours. GE Theme courses are indicated with a ❖ symbol.
- Students are encouraged to participate in education abroad opportunities. Consult with your advisor for how education abroad credit applies to your degree or consider the CFAES Global Option.
- Students must complete a minimum of 40 hours in major/major supporting coursework with at least 12 hours taken from the academic unit(s) offering the major at OSU in the baccalaureate program.
- Courses required in the major (including major supporting courses and major electives) may **not** be taken pass/non-pass.
- Coursework taken as open electives may include a maximum of 4 credit hours of physical activity courses (all 1139-1197 courses), and a maximum of 4 credit hours of campus music organizations.
- A college maximum of six hours of individual studies courses (x193) can be applied toward graduation; some majors may have a lower maximum.
- Students of CFAES must complete an internship of 1-2 hours as a requirement for degree. Any additional internship credit hours may count towards major hours (consult with your advisor). A college maximum of six hours of internship credit can be applied toward graduation; some majors may have a lower maximum.
- A maximum of three credits of 3488 can be applied toward graduation although some majors may have a lower maximum. A cumulative point-hour ratio of 2.0 is required to register for 3488 credit.
- Credit hours for 4999 ("with Research Distinction") and 4999H ("with Honors Research Distinction") are repeatable to maximum of six hours.
- **An application for degree must be submitted online at least two semesters prior to the intended graduation term. Application found at: https://students.cfaes.ohio-state.edu/academics/undergraduate/graduation**

Policies and General Requirements for Minors/Minor Equivalent

- The minor/minor equivalent must contain a minimum of 12 credit hours distinct from the major and/or additional minors (i.e., if a minor requires more than 12 credit hours, a student is permitted to overlap those hours beyond 12 with the major or with another minor).
- A 2.00 cumulative point-hour ratio is required in the minor/minor equivalent with a minimum C- grade for any course to be listed in the minor or minor equivalent (includes transfer credit).
- For programs requiring a minor: minors should be declared by the time students complete 60 hours.
- A student is permitted to count up to 6 credit-hours of transfer and/or EM credit in the minor or minor equivalent.
- Coursework graded Pass/Non-Pass cannot count in the minor. No more than 3 credit-hours of course work graded S/U may count toward the minor. Maximum of 3 credit-hours of xx93 are allowed to count in the minor.

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Effective Term: Autumn 2022

Bachelor of Science in Agriculture
Major: Sustainable Plant Systems
Specialization: Agronomy

Students learn to effectively regulate crop productivity through management decisions as they study the interrelationships among physical and biological factors through coursework in plant biology, crop production, grain crops and forages, soil science, plant pathology, and entomology. Students in this major will complete a minimum of 121 hours outlined as follows.

General Education Requirements		
Requirement	**Course Options**	**Hours**
GE Launch Seminar	**GENED 1201**	1
Writing and Information Literacy	Major requirement: **ENGLISH 1110 *** *(or Student Choice – see below)*	3
Mathematical & Quantitative Reasoning/Data Analysis	Major requirement: **MATH 1130, 1148, 1150, 1151, or 1156 *** *(or Student Choice – see below)*	4-5
Literary, Visual and Performing Arts	***Student Choice***	3
Historical & Cultural Studies	***Student Choice***	3
Natural Science	Major requirement: **BIOLOGY 1113 *** *(or Student Choice – see below)*	4
Social & Behavioral Sciences	Major requirement: **AEDECON 2001** or **ECON 2001.01 *** *(or Student Choice – see below)*	3
Race, Ethnic and Gender Diversity	***Student Choice***	3
Theme**: Citizenship for a Diverse & Just World** [a]	***Student Choice***	4-6
Theme: **Student Choice** [a]	***Student Choice***	4-6
GE Reflection	**GENED 4001**	1
	Credit Hours:	**33-38**

***** Indicates a pre/corequisite course for this major that also satisfies this GE category. If a student makes an alternative selection in this GE category, **they must also complete this course.**

B.S. in Agriculture Degree Requirements		
Requirement	**Course Options**	**Hours**
College & Department Survey	**FAES 1100 (0.5) & HCS 1100 (0.5)**	1
Oral Expression	**AGRCOMM 3130 or COMM 2110**	3
Additional Science	**CHEM 1110, 1210, or 1220**	5
Internship	**FAES 3191 & HCS 4191.01**	2
Minor Equiv. [b]	See pg. 2	15-18
	Credit Hours:	**26-29**

[a] Students complete either a 4-credit course or two 3-credit courses in each of two General Education Theme areas: Citizenship for a Diverse & Just World (required), and the student's choice of available GE Themes. If any major-required courses are identified as a GE Theme course, one course in each GE Theme area may double count in the GE and major hours. Theme courses are identified with a ❖ symbol.
[b] Students in this program complete a group of courses called a minor equivalent. Declaring an additional minor is not required.
[c] Only up to 6 credits of any combination of 4193, 4998, 4999, or 4999H can count towards major electives.
[d] Review prerequisites.

General Education	**33-38**
Degree Requirements	**26-29**
Major	**53-54**
Open Electives	**0-9**
Minimum Total Credit Hours	**121**

Major Coursework		
Course	**Title**	**Hours**
HCS 2202	Form and Function in Cultivated Plants	4
HCS 2201 -*OR*-	Ecology of Managed Plant Systems (prior to AU22)	4
HCS 2204 &	Ecology of Managed Plant Systems ❖ (3)	
HCS 2205	Ecology of Managed Plant Systems Lab (1)	
HCS 2260	Data Analysis and Interpretation for Decision Making	3
HCS 3100	Intro to Agronomy	3
HCS 3310	Crop Responses to the Environment	3
HCS 3420	Seed Science	3
HCS 5100	Advanced Cropping Systems (Capstone)	3
HCS 5325	Plant Genetics	3
HCS 5411	Domestic & Utility Agronomic Crops	3
HCS 5412	Agroecology of Grasslands and Prairies	3
HCS 5422	Biology & Management of Weeds and Invasive Plants	3
ENR 3000	Soil Science	3
ENR 3001	Soil Science Laboratory	1
ENTMLGY 4600	Intro to Insect Science	1
ENTMLGY 4601	General Insect Pest Management	2
PLNTPTH 3001	General Plant Pathology	3
PLNTPTH 3002	General Plant Pathology Lab	2
Major Electives: Select 6-7 credit hours from:		
HCS 3220	Crop Origins and Diversity	2
HCS 3488.01	Professional Development in Hort. and Crop Science	1-3
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
HCS 4193	Individual Studies [c]	1-3
HCS 4520	Medicinal Plants	2
HCS 4998	Undergraduate Research [c]	1-6
HCS 4999	Research with Distinction [c]	1-6
HCS 4999H	Honors Research with Distinction [c]	1-6
HCS 5097.01-.04 & 5797.01-.04	Study Abroad Pre-Departure & Study Abroad	4
HCS 5420	Environmental Impacts of Crop-Livestock Systems	3
HCS 5602	Ecology of Agriculture	3
HCS 5621	Physiology of Cultivated Plants	3
HCS 5622	Biochemical Processes in Cultivated Plants	3
HCS 5625	Applied Plant Biotechnology	2
HCS 5825	Plant Breeding	2
HCS 5887	Introduction to Experimental Design	3
	Credit Hours:	**53-54**

Minor Equivalent (15-18 hours)		
AGSYSMT 4580 *-or-* ENR 3700	Precision Agriculture (2) ***-or-*** Intro to Spatial Info for ENR (3)	2-3
ENR 5270	Soil Fertility	3
Select an additional 10-13 hours from one of the following groups (courses selected as major elective options cannot also count in the minor equivalent):		
Group A: Farm Production and Management		
AEDECON 2105	Managerial Records and Analysis	3
AEDECON 3101	Principles of Agribusiness Management	3
AEDECON 3104	Farm Business Management	3
AEDECON 3113	Commodity Futures and Option Markets	2
AEDECON 3123	Grain Merchandising	2
AEDECON 3170	Agribusiness Law	3
AGSYSMT 2370	Environmental Hydrology	2
AGSYSMT 3232 *-or-* AGSYSMT 3360	Engines and Power Transmission ***-or-*** Agricultural Machinery Management	3
AGSYSMT 3330	Grain Handling, Drying, Milling	3
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
ANIMSCI 2200.01	Introductory Animal Sciences	3
ANIMSCI 2200.02	Introductory Animal Sciences Lab	1
ENR 3280	Water Quality Management	2
ENR 4260	Soil Resource Management	3
ENTMLGY 5600	Integrated Pest Management	3
ENTMLGY 5800	Pesticide Science	3
PLNTPTH 5140	Diseases of Field Crops	2
PLNTPTH 5603	Plant Disease Management	3
Group B: Consulting and Industry		
AEDECON 3101	Principles of Agribusiness Management	3
AECDEON 3102 *-or-* BUSML 3150	Principles of Agribusiness Marketing ***-or-*** Foundations of Marketing	3
AEDECON 3160 *-or-* BUSMHR 3100	Human Resources Management in Small Businesses ***-or-*** Foundations of Management and Human Resources	3
AGSYSMT 2371	Land Surveying for Agricultural and Environmental Systems	1
AGSYSMT 2580	Introduction to Digital Agriculture	2
AGSYSMT 3330	Grain Handling, Drying, Milling	3
AGSYSMT 3580	UAS and Remote Sensing in Agriculture	3
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
AGSYSMT 4300	Engineering Applications in Agriculture	4
AEDECON 3121	Salesmanship in Agribusiness	2
BUSMHR 2000	Introduction to International Business	1.5
ENR 4260	Soil Resource Management	3
ENTMLGY 5600	Integrated Pest Management	3
ENTMLGY 5800	Pesticide Science	3
PLNTPTH 5140	Diseases of Field Crops	2
PLNTPTH 5603	Plant Disease Management	3
Group C: Research		
CHEM 2310 [d]	Introductory Organic Chemistry	4
BIOCHEM 4511 [d]	Introduction to Biological Chemistry	4
EEOB 3310.01 *-or-* 3310.02	Evolution	4
EEOB 3410	Ecology	4
ENR 5261	Environmental Soil Physics	3

Policies and General Requirements for Degree

- A minimum of **121** total credit hours. Remedial coursework (English 1109; EDUTL 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1010; Mathematics 1040, 1050, 1073, 1074, 1075) do not count toward the 121-hour minimum requirement for the BS degree.
- A minimum of 30 semester hours of credit earned through regular course enrollment at this University, and regular course enrollment in the last semester in the College of Food, Agricultural, and Environmental Sciences.
- A cumulative point-hour ratio of at least 2.00 on all coursework completed at The Ohio State University as well as at least a 2.00 in the major.
- If a major-required course or major elective is a GE Theme course, two 3-4 cr courses (no more than one per theme area) is permitted to double count in the GE and major hours. GE Theme courses are indicated with a ❖ symbol.
- Students are encouraged to participate in education abroad opportunities. Consult with your advisor for how education abroad credit applies to your degree or consider the CFAES Global Option.
- Students must complete a minimum of 40 hours in major/major supporting coursework with at least 12 hours taken from the academic unit(s) offering the major at OSU in the baccalaureate program.
- Courses required in the major (including major supporting courses and major electives) may **not** be taken pass/non-pass.
- Coursework taken as open electives may include a maximum of 4 credit hours of physical activity courses (all 1139-1197 courses), and a maximum of 4 credit hours of campus music organizations.
- A college maximum of six hours of individual studies courses (x193) can be applied toward graduation; some majors may have a lower maximum.
- Students of CFAES must complete an internship of 1-2 hours as a requirement for degree. Any additional internship credit hours may count towards major hours (consult with your advisor). A college maximum of six hours of internship credit can be applied toward graduation; some majors may have a lower maximum.
- A maximum of three credits of 3488 can be applied toward graduation although some majors may have a lower maximum. A cumulative point-hour ratio of 2.0 is required to register for 3488 credit.
- Credit hours for 4999 ("with Research Distinction") and 4999H ("with Honors Research Distinction") are repeatable to maximum of six hours.
- **An application for degree must be submitted online at least two semesters prior to the intended graduation term. Application found at: https://students.cfaes.ohio-state.edu/academics/undergraduate/graduation**

Policies and General Requirements for Minors/Minor Equivalent

- The minor/minor equivalent must contain a minimum of 12 credit hours distinct from the major and/or additional minors (i.e., if a minor requires more than 12 credit hours, a student is permitted to overlap those hours beyond 12 with the major or with another minor).
- A 2.00 cumulative point-hour ratio is required in the minor/minor equivalent with a minimum C- grade for any course to be listed in the minor or minor equivalent (includes transfer credit).
- For programs requiring a minor: minors should be declared by the time students complete 60 hours.
- A student is permitted to count up to 6 credit-hours of transfer and/or EM credit in the minor or minor equivalent.

Coursework graded Pass/Non-Pass cannot count in the minor. No more than 3 credit-hours of course work graded S/U may count toward the minor. Maximum of 3 credit-hours of xx93 are allowed to count in the minor.

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Effective Term: Autumn 2022

Bachelor of Science in Agriculture
Major: Sustainable Plant Systems
Specialization: Agronomy

Students learn to effectively regulate crop productivity through management decisions as they study the interrelationships among physical and biological factors through coursework in plant biology, crop production, grain crops and forages, soil science, plant pathology, and entomology. Students in this major will complete a minimum of 121 hours outlined as follows.

General Education Requirements		
Requirement	**Course Options**	**Hours**
GE Launch Seminar	**GENED 1201**	1
Writing and Information Literacy	~~Major requirement: **ENGLISH 1110** * *(or Student Choice – see below)*~~	3
Mathematical & Quantitative Reasoning/Data Analysis	Major requirement: **MATH 1130, 1148, 1150, 1151, or 1156** * *(or Student Choice – see below)*	4-5
Literary, Visual and Performing Arts	***Student Choice***	3
Historical & Cultural Studies	***Student Choice***	3
Natural Science	Major requirement: **BIOLOGY 1113** * *(or Student Choice – see below)*	4
Social & Behavioral Sciences	Major requirement: **AEDECON 2001** or **ECON 2001.01** * *(or Student Choice – see below)*	3
Race, Ethnic and Gender Diversity	***Student Choice***	3
Theme**: Citizenship for a Diverse & Just World** [a]	***Student Choice***	4-6
Theme: **Student Choice** [a]	***Student Choice***	4-6
GE Reflection	**GENED 4001**	1
	Credit Hours:	**33-38**

***** Indicates a pre/corequisite course for this major that also satisfies this GE category. If a student makes an alternative selection in this GE category, **they must also complete this course.**

B.S. in Agriculture Degree Requirements		
Requirement	**Course Options**	**Hours**
College & Department Survey	**FAES 1100 (0.5) & HCS 1100 (0.5)**	1
Oral Expression	**AGRCOMM 3130 or COMM 2110**	3
Additional Science	**CHEM 1110, 1210, or 1220**	5
Internship	**FAES 3191 & HCS 4191.01**	2
Minor Equiv. [b]	See pg. 2	15-18
	Credit Hours:	**26-29**

[a] Students complete either a 4-credit course or two 3-credit courses in each of two General Education Theme areas: Citizenship for a Diverse & Just World (required), and the student's choice of available GE Themes. If any major-required courses are identified as a GE Theme course, one course in each GE Theme area may double count in the GE and major hours. Theme courses are identified with a ❖ symbol.
[b] Students in this program complete a group of courses called a minor equivalent. Declaring an additional minor is not required.
[c] Only up to 6 credits of any combination of 4193, 4998, 4999, or 4999H can count towards major electives.
[d] Review prerequisites.

General Education	**33-38**
Degree Requirements	**26-29**
Major	**53-54**
Open Electives	**0-9**
Minimum Total Credit Hours	**121**

Major Coursework		
Course	**Title**	**Hours**
HCS 2202	Form and Function in Cultivated Plants	4
~~**HCS 2201** ***OR***~~	~~Ecology of Managed Plant Systems (prior to AU22)~~	4
HCS 2204 &	Ecology of Managed Plant Systems ❖ (3)	
HCS 2205	Ecology of Managed Plant Systems Lab (1)	
HCS 2260	Data Analysis and Interpretation for Decision Making	3
HCS 3100	Intro to Agronomy	3
HCS 3310	Crop Responses to the Environment	3
HCS 3420	Seed Science	3
HCS 5100	Advanced Cropping Systems (Capstone)	3
HCS 5325	Plant Genetics	3
HCS 5411	Domestic & Utility Agronomic Crops	3
HCS 5412	Agroecology of Grasslands and Prairies	3
HCS 5422	Biology & Management of Weeds and Invasive Plants	3
ENR 3000	Soil Science	3
ENR 3001	Soil Science Laboratory	1
ENTMLGY 4600	Intro to Insect Science	1
ENTMLGY 4601	General Insect Pest Management	2
PLNTPTH 3001	General Plant Pathology	3
PLNTPTH 3002	General Plant Pathology Lab	2
Major Electives: Select 6-7 credit hours from:		
HCS 3220	Crop Origins and Diversity	2
HCS 3488.01	Professional Development in Hort. and Crop Science	1-3
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
HCS 4193	Individual Studies [c]	1-3
HCS 4520	Medicinal Plants	2
HCS 4998	Undergraduate Research [c]	1-6
HCS 4999	Research with Distinction [c]	1-6
HCS 4999H	Honors Research with Distinction [c]	1-6
HCS 5097.01-.04 & 5797.01-.04	Study Abroad Pre-Departure & Study Abroad	4
HCS 5420	Environmental Impacts of Crop-Livestock Systems	3
HCS 5602	Ecology of Agriculture	3
HCS 5621	Physiology of Cultivated Plants	3
HCS 5622	Biochemical Processes in Cultivated Plants	3
HCS 5625	Applied Plant Biotechnology	2
HCS 5825	Plant Breeding	2
HCS 5887	Introduction to Experimental Design	3
	Credit Hours:	**53-54**

Minor Equivalent (15-18 hours)		
AGSYSMT 4580 *-or-* ENR 3700	Precision Agriculture (2) ***-or-*** Intro to Spatial Info for ENR (3)	2-3
ENR 5270	Soil Fertility	3
Select an additional 10-13 hours from one of the following groups (courses selected as major elective options cannot also count in the minor equivalent):		
Group A: Farm Production and Management		
AEDECON 2105	Managerial Records and Analysis	3
AEDECON 3101	Principles of Agribusiness Management	3
AEDECON 3104	Farm Business Management	3
AEDECON ~~3113~~ 3114	Commodity Futures and Option Markets	~~2~~ 3
AEDECON ~~3123~~ 3124	Grain Merchandising	~~2~~ 3
AEDECON 3170	Agribusiness Law	3
AGSYSMT 2370	Environmental Hydrology	2
AGSYSMT 3232 *-or-* AGSYSMT 3360	Engines and Power Transmission ***-or-*** Agricultural Machinery Management	3
AGSYSMT 3330	Grain Handling, Drying, Milling	3
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
ANIMSCI 2200.01	Introductory Animal Sciences	3
ANIMSCI 2200.02	Introductory Animal Sciences Lab	1
ENR 3280	Water Quality Management	2
ENR 4260	Soil Resource Management	3
ENTMLGY 5600	Integrated Pest Management	3
ENTMLGY 5800	Pesticide Science	3
PLNTPTH 5140	Diseases of Field Crops	2
PLNTPTH 5603	Plant Disease Management	3
Group B: Consulting and Industry		
AEDECON 3101	Principles of Agribusiness Management	3
AECDEON 3102 *-or-* BUSML 3150	Principles of Agribusiness Marketing ***-or-*** Foundations of Marketing	3
AEDECON 3160 *-or-* BUSMHR 3100	Human Resources Management in Small Businesses ***-or-*** Foundations of Management and Human Resources	3
AGSYSMT 2371	Land Surveying for Agricultural and Environmental Systems	1
AGSYSMT 2580	Introduction to Digital Agriculture	2
AGSYSMT 3330	Grain Handling, Drying, Milling	3
AGSYSMT 3580	UAS and Remote Sensing in Agriculture	3
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
AGSYSMT 4300	Engineering Applications in Agriculture	4
AEDECON 3121	Salesmanship in Agribusiness	2
BUSMHR 2000	Introduction to International Business	1.5
ENR 4260	Soil Resource Management	3
ENTMLGY 5600	Integrated Pest Management	3
ENTMLGY 5800	Pesticide Science	3
PLNTPTH 5140	Diseases of Field Crops	2
PLNTPTH 5603	Plant Disease Management	3
Group C: Research		
CHEM 2310 [d]	Introductory Organic Chemistry	4
BIOCHEM 4511 [d]	Introduction to Biological Chemistry	4
EEOB 3310.01 *-or-* 3310.02	Evolution	4
EEOB 3410	Ecology	4
ENR 5261	Environmental Soil Physics	3

Policies and General Requirements for Degree

- A minimum of **121** total credit hours. Remedial coursework (English 1109; EDUTL 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1010; Mathematics 1040, 1050, 1073, 1074, 1075) do not count toward the 121-hour minimum requirement for the BS degree.
- A minimum of 30 semester hours of credit earned through regular course enrollment at this University, and regular course enrollment in the last semester in the College of Food, Agricultural, and Environmental Sciences.
- A cumulative point-hour ratio of at least 2.00 on all coursework completed at The Ohio State University as well as at least a 2.00 in the major.
- If a major-required course or major elective is a GE Theme course, two 3-4 cr courses (no more than one per theme area) is permitted to double count in the GE and major hours. GE Theme courses are indicated with a ❖ symbol.
- Students are encouraged to participate in education abroad opportunities. Consult with your advisor for how education abroad credit applies to your degree or consider the CFAES Global Option.
- Students must complete a minimum of 40 hours in major/major supporting coursework with at least 12 hours taken from the academic unit(s) offering the major at OSU in the baccalaureate program.
- Courses required in the major (including major supporting courses and major electives) may **not** be taken pass/non-pass.
- Coursework taken as open electives may include a maximum of 4 credit hours of physical activity courses (all 1139-1197 courses), and a maximum of 4 credit hours of campus music organizations.
- A college maximum of six hours of individual studies courses (x193) can be applied toward graduation; some majors may have a lower maximum.
- Students of CFAES must complete an internship of 1-2 hours as a requirement for degree. Any additional internship credit hours may count towards major hours (consult with your advisor). A college maximum of six hours of internship credit can be applied toward graduation; some majors may have a lower maximum.
- A maximum of three credits of 3488 can be applied toward graduation although some majors may have a lower maximum. A cumulative point-hour ratio of 2.0 is required to register for 3488 credit.
- Credit hours for 4999 ("with Research Distinction") and 4999H ("with Honors Research Distinction") are repeatable to maximum of six hours.
- **An application for degree must be submitted online at least two semesters prior to the intended graduation term. Application found at: https://students.cfaes.ohio-state.edu/academics/undergraduate/graduation**

Policies and General Requirements for Minors/Minor Equivalent

- The minor/minor equivalent must contain a minimum of 12 credit hours distinct from the major and/or additional minors (i.e., if a minor requires more than 12 credit hours, a student is permitted to overlap those hours beyond 12 with the major or with another minor).
- A 2.00 cumulative point-hour ratio is required in the minor/minor equivalent with a minimum C- grade for any course to be listed in the minor or minor equivalent (includes transfer credit).
- For programs requiring a minor: minors should be declared by the time students complete 60 hours.
- A student is permitted to count up to 6 credit-hours of transfer and/or EM credit in the minor or minor equivalent.

Coursework graded Pass/Non-Pass cannot count in the minor. No more than 3 credit-hours of course work graded S/U may count toward the minor. Maximum of 3 credit-hours of xx93 are allowed to count in the minor.

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Effective Term: Autumn 2023

Bachelor of Science in Agriculture
Major: Sustainable Plant Systems
Specialization: Agronomy

Students learn to effectively regulate crop productivity through management decisions as they study the interrelationships among physical and biological factors through coursework in plant biology, crop production, grain crops and forages, soil science, plant pathology, and entomology. Students in this major will complete a minimum of 121 hours outlined as follows.

General Education Requirements		
Requirement	**Course Options**	**Hours**
GE Launch Seminar	**GENED 1201**	1
Writing and Information Literacy	***Student Choice***	3
Mathematical & Quantitative Reasoning/Data Analysis	Major requirement: **MATH 1130, 1148, 1150, 1151, or 1156** * *(or Student Choice – see below)*	4-5
Literary, Visual and Performing Arts	***Student Choice***	3
Historical & Cultural Studies	***Student Choice***	3
Natural Science	Major requirement: **BIOLOGY 1113** * *(or Student Choice – see below)*	4
Social & Behavioral Sciences	Major requirement: **AEDECON 2001** or **ECON 2001.01** * *(or Student Choice – see below)*	3
Race, Ethnic and Gender Diversity	***Student Choice***	3
Theme**: Citizenship for a Diverse & Just World** [a]	***Student Choice***	4-6
Theme: **Student Choice** [a]	***Student Choice***	4-6
GE Reflection	**GENED 4001**	1
	Credit Hours:	**33-38**

***** Indicates a pre/corequisite course for this major that also satisfies this GE category. If a student makes an alternative selection in this GE category, **they must also complete this course.**

B.S. in Agriculture Degree Requirements		
Requirement	**Course Options**	**Hours**
College & Department Survey	**FAES 1100 (0.5) & HCS 1100 (0.5)**	1
Oral Expression	**AGRCOMM 3130 or COMM 2110**	3
Additional Science	**CHEM 1110, 1210, or 1220**	5
Internship	**FAES 3191 & HCS 4191.01**	2
Minor Equiv. [b]	See pg. 2	15-18
	Credit Hours:	**26-29**

[a] Students complete either a 4-credit course or two 3-credit courses in each of two General Education Theme areas: Citizenship for a Diverse & Just World (required), and the student's choice of available GE Themes. If any major-required courses are identified as a GE Theme course, one course in each GE Theme area may double count in the GE and major hours. Theme courses are identified with a ❖ symbol.
[b] Students in this program complete a group of courses called a minor equivalent. Declaring an additional minor is not required.
[c] Only up to 6 credits of any combination of 4193, 4998, 4999, or 4999H can count towards major electives.
[d] Review prerequisites.

Major Coursework		
Course	**Title**	**Hours**
HCS 2202	Form and Function in Cultivated Plants	4
HCS 2204	Ecology of Managed Plant Systems ❖	3
HCS 2205	Ecology of Managed Plant Systems Lab	1
HCS 2260	Data Analysis and Interpretation for Decision Making	3
HCS 3100	Intro to Agronomy	3
HCS 3310	Crop Responses to the Environment	3
HCS 3420	Seed Science	3
HCS 5100	Advanced Cropping Systems (Capstone)	3
HCS 5325	Plant Genetics	3
HCS 5411	Domestic & Utility Agronomic Crops	3
HCS 5412	Agroecology of Grasslands and Prairies	3
HCS 5422	Biology & Management of Weeds and Invasive Plants	3
ENR 3000	Soil Science	3
ENR 3001	Soil Science Laboratory	1
ENTMLGY 4600	Intro to Insect Science	1
ENTMLGY 4601	General Insect Pest Management	2
PLNTPTH 3001	General Plant Pathology	3
PLNTPTH 3002	General Plant Pathology Lab	2
Major Electives: Select 6-7 credit hours from:		
HCS 3220	Crop Origins and Diversity	2
HCS 3488.01	Professional Development in Hort. and Crop Science	1-3
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
HCS 4193	Individual Studies [c]	1-3
HCS 4520	Medicinal Plants	2
HCS 4998	Undergraduate Research [c]	1-6
HCS 4999	Research with Distinction [c]	1-6
HCS 4999H	Honors Research with Distinction [c]	1-6
HCS 5097.01-.04 & 5797.01-.04	Study Abroad Pre-Departure & Study Abroad	4
HCS 5420	Environmental Impacts of Crop-Livestock Systems	3
HCS 5602	Ecology of Agriculture	3
HCS 5621	Physiology of Cultivated Plants	3
HCS 5622	Biochemical Processes in Cultivated Plants	3
HCS 5625	Applied Plant Biotechnology	2
HCS 5825	Plant Breeding	2
HCS 5887	Introduction to Experimental Design	3
	Credit Hours:	**53-54**

General Education	**33-38**
Degree Requirements	**26-29**
Major	**53-54**
Open Electives	**0-9**
Minimum Total Credit Hours	**121**

Degree requirements and course offerings are subject to change. Last updated on: **5/24/23**

Minor Equivalent (15-18 hours)		
AGSYSMT 4580 *-or-* ENR 3700	Precision Agriculture (2) ***-or-*** Intro to Spatial Info for ENR (3)	2-3
ENR 5270	Soil Fertility	3
Select an additional 10-13 hours from one of the following groups (courses selected as major elective options cannot also count in the minor equivalent):		
Group A: Farm Production and Management		
AEDECON 2105	Managerial Records and Analysis	3
AEDECON 3101	Principles of Agribusiness Management	3
AEDECON 3104	Farm Business Management	3
AEDECON 3114	Commodity Futures and Option Markets	3
AEDECON 3124	Grain Merchandising	3
AEDECON 3170	Agribusiness Law	3
AGSYSMT 2370	Environmental Hydrology	2
AGSYSMT 3232 *-or-* AGSYSMT 3360	Engines and Power Transmission ***-or-*** Agricultural Machinery Management	3
AGSYSMT 3330	Grain Handling, Drying, Milling	3
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
ANIMSCI 2200.01	Introductory Animal Sciences	3
ANIMSCI 2200.02	Introductory Animal Sciences Lab	1
ENR 3280	Water Quality Management	2
ENR 4260	Soil Resource Management	3
ENTMLGY 5600	Integrated Pest Management	3
ENTMLGY 5800	Pesticide Science	3
PLNTPTH 5140	Diseases of Field Crops	2
PLNTPTH 5603	Plant Disease Management	3
Group B: Consulting and Industry		
AEDECON 3101	Principles of Agribusiness Management	3
AECDEON 3102 *-or-* BUSML 3150	Principles of Agribusiness Marketing ***-or-*** Foundations of Marketing	3
AEDECON 3160 *-or-* BUSMHR 3100	Human Resources Management in Small Businesses ***-or-*** Foundations of Management and Human Resources	3
AGSYSMT 2371	Land Surveying for Agricultural and Environmental Systems	1
AGSYSMT 2580	Introduction to Digital Agriculture	2
AGSYSMT 3330	Grain Handling, Drying, Milling	3
AGSYSMT 3580	UAS and Remote Sensing in Agriculture	3
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
AGSYSMT 4300	Engineering Applications in Agriculture	4
AEDECON 3121	Salesmanship in Agribusiness	2
BUSMHR 2000	Introduction to International Business	1.5
ENR 4260	Soil Resource Management	3
ENTMLGY 5600	Integrated Pest Management	3
ENTMLGY 5800	Pesticide Science	3
PLNTPTH 5140	Diseases of Field Crops	2
PLNTPTH 5603	Plant Disease Management	3
Group C: Research		
CHEM 2310 [d]	Introductory Organic Chemistry	4
BIOCHEM 4511 [d]	Introduction to Biological Chemistry	4
EEOB 3310.01 *-or-* 3310.02	Evolution	4
EEOB 3410	Ecology	4
ENR 5261	Environmental Soil Physics	3

Policies and General Requirements for Degree

- A minimum of **121** total credit hours. Remedial coursework (English 1109; EDUTL 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1010; Mathematics 1040, 1050, 1073, 1074, 1075) do not count toward the 121-hour minimum requirement for the BS degree.
- A minimum of 30 semester hours of credit earned through regular course enrollment at this University, and regular course enrollment in the last semester in the College of Food, Agricultural, and Environmental Sciences.
- A cumulative point-hour ratio of at least 2.00 on all coursework completed at The Ohio State University as well as at least a 2.00 in the major.
- If a major-required course or major elective is a GE Theme course, two 3-4 cr courses (no more than one per theme area) is permitted to double count in the GE and major hours. GE Theme courses are indicated with a ❖ symbol.
- Students are encouraged to participate in education abroad opportunities. Consult with your advisor for how education abroad credit applies to your degree or consider the CFAES Global Option.
- Students must complete a minimum of 40 hours in major/major supporting coursework with at least 12 hours taken from the academic unit(s) offering the major at OSU in the baccalaureate program.
- Courses required in the major (including major supporting courses and major electives) may **not** be taken pass/non-pass.
- Coursework taken as open electives may include a maximum of 4 credit hours of physical activity courses (all 1139-1197 courses), and a maximum of 4 credit hours of campus music organizations.
- A college maximum of six hours of individual studies courses (x193) can be applied toward graduation; some majors may have a lower maximum.
- Students of CFAES must complete an internship of 1-2 hours as a requirement for degree. Any additional internship credit hours may count towards major hours (consult with your advisor). A college maximum of six hours of internship credit can be applied toward graduation; some majors may have a lower maximum.
- A maximum of three credits of 3488 can be applied toward graduation although some majors may have a lower maximum. A cumulative point-hour ratio of 2.0 is required to register for 3488 credit.
- Credit hours for 4999 ("with Research Distinction") and 4999H ("with Honors Research Distinction") are repeatable to maximum of six hours.
- **An application for degree must be submitted online at least two semesters prior to the intended graduation term. Application found at: https://students.cfaes.ohio-state.edu/academics/undergraduate/graduation**

Policies and General Requirements for Minors/Minor Equivalent

- The minor/minor equivalent must contain a minimum of 12 credit hours distinct from the major and/or additional minors (i.e., if a minor requires more than 12 credit hours, a student is permitted to overlap those hours beyond 12 with the major or with another minor).
- A 2.00 cumulative point-hour ratio is required in the minor/minor equivalent with a minimum C- grade for any course to be listed in the minor or minor equivalent (includes transfer credit).
- For programs requiring a minor: minors should be declared by the time students complete 60 hours.
- A student is permitted to count up to 6 credit-hours of transfer and/or EM credit in the minor or minor equivalent.
- Coursework graded Pass/Non-Pass cannot count in the minor. No more than 3 credit-hours of course work graded S/U may count toward the minor. Maximum of 3 credit-hours of xx93 are allowed to count in the minor.

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Effective Term: Autumn 2022

Bachelor of Science in Agriculture
Major: Sustainable Plant Systems
Specialization: Horticulture

Horticulture is the application of scientific principles to grow vegetables, fruits ornamental plants, and landscape design, as well as business principles to sell the commodities. Students will take classes in biology, greenhouse and nursery management, fruit and vegetable production, and pest management. Students in this major will complete a minimum of 121 hours outlined as follows.

General Education Requirements		
Requirement	**Course Options**	**Hours**
GE Launch Seminar	**GENED 1201**	1
Writing and Information Literacy	Major requirement: **ENGLISH 1110 *** *(or Student Choice – see below)*	3
Mathematical & Quantitative Reasoning/Data Analysis	Major requirement: **MATH 1130, 1148, 1150, 1151, or 1156 *** *(or Student Choice – see below)*	4-5
Literary, Visual and Performing Arts	***Student Choice***	3
Historical & Cultural Studies	***Student Choice***	3
Natural Science	Major requirement: **BIOLOGY 1113 *** *(or Student Choice – see below)*	4
Social & Behavioral Sciences	Major requirement: **AEDECON 2001** or **ECON 2001.01 *** *(or Student Choice – see below)*	3
Race, Ethnic and Gender Diversity	***Student Choice***	3
Theme**: Citizenship for a Diverse & Just World** [a]	***Student Choice***	4-6
Theme: **Student Choice** [a]	***Student Choice***	4-6
GE Reflection	**GENED 4001**	1
	Credit Hours:	**33-38**

***** Indicates a pre/corequisite course for this major that also satisfies this GE category. If a student makes an alternative selection in this GE category, **they must also complete this course.**

B.S. in Agriculture Degree Requirements		
Requirement	**Course Options**	**Hours**
College & Department Survey	**FAES 1100 (0.5) & HCS 1100 (0.5)**	1
Oral Expression	**AGRCOMM 3130 or COMM 2110**	3
Additional Science	**CHEM 1110, 1210, or 1220**	5
Internship	**FAES 3191 & HCS 4191.01**	2
Minor Equiv. [b]	*See pg. 2*	15-18
	Credit Hours:	**26-29**

General Education:	**33-38**
Degree Requirements:	**26-29**
Major:	**53-54**
Open Electives:	**0-9**
Minimum Total Credit Hours:	**121**

[a] Students complete either a 4-credit course or two 3-credit courses in each of two General Education Theme areas: Citizenship for a Diverse & Just World (required), and the student's choice of available GE Themes. If any major-required courses are identified as a GE Theme course, one course in each GE Theme area may double count in the GE and major hours. Theme courses are identified with a ❖ symbol.
[b] Students in this program complete a group of courses called a minor equivalent. Declaring an additional minor is not required.
[c] Only up to 6 credits of any combination of 4193, 4998, 4999, or 4999H can count towards major electives.
[d] Review prerequisites.

Major Coursework		
Course	**Title**	**Hours**
HCS 2202	Form and Function in Cultivated Plants	4
HCS 2201 ***-or-***	Ecology of Managed Plant Systems (prior to AU22)	4
HCS 2204 &	Ecology of Managed Plant Systems ❖ (3)	
HCS 2205	Ecology of Managed Plant Systems Lab (1)	
HCS 2260	Data Analysis and Interpretation for Decision Making	3
HCS 3200	Intro to Horticulture	3
HCS 3220	Crop Origins and Diversity	2
HCS 3310	Crop Responses to the Environment	3
HCS 3320	Plant Propagation	3
HCS 5200	Advanced Horticultural Systems (Capstone)	3
HCS 5422	Biology and Management of Weeds and Invasive Plants	3
ENR 3000	Soil Science	3
ENTMLGY 4600	Intro to Insect Sciences	1
ENTMLGY 4601	General Insect Pest Management (2)	2-3
-or- **ENTMLGY 4000**	General Entomology (3)	
-or- **ENTMLGY 5608**	Turfgrass Insect Pest Management (2)	
-or- **ENTMLGY 5609**	Landscape Ornamental Pest Management (3)	
-or- **ENTMLGY 5610**	Greenhouse Pest Management (3)	
PLNTPTH 3001	General Plant Pathology	3
PLNTPTH 3002	General Plant Pathology Lab	2
Major Electives: Select 14 credit hours from:		
HCS 2300	Introduction to Hydroponics	1
HCS 2305	Organic Gardening	1
HCS 2306	Sustainable Vegetable Production Practicum	3
HCS 2307	Sustainable Agriculture Practical Experience	2
HCS 2340.01	Woody Ornamental Plants	3
HCS 2340.02	Herbaceous Ornamental Plants	3
HCS 3380	Latino Workforce in Land Based Industries	2
HCS 3410	Sustainable Landscape Maintenance Practices	2
HCS 3420	Seed Science	3
HCS 3470	Introduction to Turfgrass Management	3
HCS 3488.01	Professional Development in Hort. And Crop Science	1-3
HCS 3521	Greenhouse Systems and Management	2
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
HCS 4193	Individual Studies	1-3
HCS 4300	Hydroponics Crop Production	2
HCS 4301 [d]	Hydroponics Crop Production Lab	1
HCS 4520	Medicinal Plants	2
HCS 4998 [c]	Undergraduate Research	1-6
HCS 4999 [c]	Research with Distinction	1-6
HCS 4999H [c]	Honors Research with Distinction	1-6
HCS 5097.03-04 & 5797.03-04	Study Abroad Predeparture & Study Abroad	4

Continued on pg. 2

HCS 5306	Sustainable Vegetable Production Practicum	3
HCS 5325	Plant Genetics	3
HCS 5450	Vegetable Crop Production and Physiology	3
HCS 5460	Fruit Crop Physiology and Production	3
HCS 5621	Physiology of Cultivated Plants	3
HCS 5622 [d]	Biochemical Processes in Cultivated Plants	3
HCS 5625[d]	Applied Plant Biotechnology	2
HCS 5825[d]	Plant Breeding	2
HCS 5887	Introduction to Experimental Design	3
	Credit Hours:	**53-54**

Minor Equivalent (15-18 hours)

Select 15-18 credits from <u>one</u> of the groups below (courses selected as major elective options cannot also count in the minor equivalent):

Group A: Production and Management

Course	Title	Hours
AEDECON 3101	Principles of Agribusiness Management	3
AEDECON 3102	Principles of Agribusiness Marketing	3
AEDECON 3160	Human Resource Management in Small Business	3
AGSYSMT 2240	Basic Metal Fabrication for Agriculture	3
AGSYSMT 3232	Engines and Power Transmission	3
AGSYSMT 3580	UAS and Remote Sensing in Agriculture	3
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
BUSMHR 2210	Personal Leadership & Team Effectiveness	3
BUSML 3150	Foundations of Marketing	3
CONSCI 2910	Consumer Problems and Perspectives	3
CONSCI 3910	Customer Service and Satisfaction	3
CONSYSM 2205	Introduction to Construction Systems Management	3
CONSYSM 2241	Construction Materials and Methods II	3
CONSYSM 2440	Construction Surveying and Site Development	4
ENR 3001	Soil Science Laboratory	1
ENR 3700	Intro to Spatial Information for ENR	3
ENR 5272	Turfgrass Soils	3
ENR 5279	Urban Soils and Ecosystem Services	3
ENTMLGY 5500	Biological Control	3
ENTMLGY 5600	Integrated Pest Management	3
ENTMLGY 5800	Pesticide Science	3
PLNTPTH 5110	Ecology and Management of Pathogens and Insects Affecting Trees in Forest and Urban Environments	3
PLNTPTH 5120	Diseases of Ornamental Plants	2
PLNTPTH 5150	Diseases of Fruit and Vegetable Crops	2
PLNTPTH 5603	Plant Disease Management	3
Group B: Research		
CHEM 2310 [d]	Introductory Organic Chemistry	4
BIOCHEM 4511	Introduction to Biological Chemistry	4
EEOB 3310.01 or 3310. 02	Evolution	4
EEOB 3410	Ecology	4
ENR 5268	Soils and Climate Change	3
GEOG 5900	Weather, Climate, & Global Warming	3

<u>Policies and General Requirements for Degree</u>

- A minimum of **121** total credit hours. Remedial coursework (English 1109; EDUTL 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1010; Mathematics 1040, 1050, 1073, 1074, 1075) do not count toward the 121-hour minimum requirement for the BS degree.
- A minimum of 30 semester hours of credit earned through regular course enrollment at this University, and regular course enrollment in the last semester in the College of Food, Agricultural, and Environmental Sciences.
- A cumulative point-hour ratio of at least <u>2.00</u> on <u>all</u> coursework completed at The Ohio State University as well as at least a 2.00 in the <u>major</u>.
- If a major-required course or major elective is a GE Theme course, two 3-4 cr courses (no more than one per theme area) is permitted to double count in the GE and major hours. GE Theme courses are indicated with a ❖ symbol.
- Students are encouraged to participate in education abroad opportunities. Consult with your advisor for how education abroad credit applies to your degree or consider the CFAES Global Option.
- Students must complete a minimum of 40 hours in major/major supporting coursework with at least 12 hours taken from the academic unit(s) offering the major at OSU in the baccalaureate program.
- Courses required in the major (including major supporting courses and major electives) may **<u>not</u>** be taken pass/non-pass.
- Coursework taken as open electives may include a maximum of 4 credit hours of physical activity courses (all 1139-1197 courses), and a maximum of 4 credit hours of campus music organizations.
- A college maximum of six hours of individual studies courses (x193) can be applied toward graduation; some majors may have a lower maximum.
- Students of CFAES must complete an internship of 1-2 hours as a requirement for degree. Any additional internship credit hours may count towards major hours (consult with your advisor). A college maximum of six hours of internship credit can be applied toward graduation; some majors may have a lower maximum.
- A maximum of three credits of 3488 can be applied toward graduation although some majors may have a lower maximum. A cumulative point-hour ratio of 2.0 is required to register for 3488 credit.
- Credit hours for 4999 ("with Research Distinction") and 4999H ("with Honors Research Distinction") are repeatable to maximum of six hours.
- **An application for degree must be submitted online at least two semesters prior to the intended graduation term. Application found at: <u>https://students.cfaes.ohio-state.edu/academics/undergraduate/graduation</u>**

<u>Policies and General Requirements for Minors/Minor Equivalent</u>

- The minor/minor equivalent must contain a minimum of 12 credit hours distinct from the major and/or additional minors (i.e., if a minor requires more than 12 credit hours, a student is permitted to overlap those hours beyond 12 with the major or with another minor).
- A 2.00 cumulative point-hour ratio is required in the minor/minor equivalent with a minimum C- grade for any course to be listed in the minor or minor equivalent (includes transfer credit).
- For programs requiring a minor: minors should be declared by the time students complete 60 hours.
- A student is permitted to count up to 6 credit-hours of transfer and/or EM credit in the minor or minor equivalent.

Coursework graded Pass/Non-Pass cannot count in the minor. No more than 3 credit-hours of course work graded S/U may count toward the minor. Maximum of 3 credit-hours of xx93 are allowed to count in the minor.

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Effective Term: Autumn 2022

Bachelor of Science in Agriculture
Major: Sustainable Plant Systems
Specialization: Horticulture

Horticulture is the application of scientific principles to grow vegetables, fruits ornamental plants, and landscape design, as well as business principles to sell the commodities. Students will take classes in biology, greenhouse and nursery management, fruit and vegetable production, and pest management. Students in this major will complete a minimum of 121 hours outlined as follows.

General Education Requirements		
Requirement	**Course Options**	**Hours**
GE Launch Seminar	**GENED 1201**	1
Writing and Information Literacy	~~Major requirement: **ENGLISH 1110 *** *(or Student Choice – see below)*~~	3
Mathematical & Quantitative Reasoning/Data Analysis	Major requirement: **MATH 1130, 1148, 1150, 1151, or 1156 *** *(or Student Choice – see below)*	4-5
Literary, Visual and Performing Arts	***Student Choice***	3
Historical & Cultural Studies	***Student Choice***	3
Natural Science	Major requirement: **BIOLOGY 1113 *** *(or Student Choice – see below)*	4
Social & Behavioral Sciences	Major requirement: **AEDECON 2001** or **ECON 2001.01 *** *(or Student Choice – see below)*	3
Race, Ethnic and Gender Diversity	***Student Choice***	3
Theme**: Citizenship for a Diverse & Just World** [a]	***Student Choice***	4-6
Theme: **Student Choice** [a]	***Student Choice***	4-6
GE Reflection	**GENED 4001**	1
	Credit Hours:	**33-38**

***** Indicates a pre/corequisite course for this major that also satisfies this GE category. If a student makes an alternative selection in this GE category, **they must also complete this course.**

B.S. in Agriculture Degree Requirements		
Requirement	**Course Options**	**Hours**
College & Department Survey	**FAES 1100 (0.5) & HCS 1100 (0.5)**	1
Oral Expression	**AGRCOMM 3130 or COMM 2110**	3
Additional Science	**CHEM 1110, 1210, or 1220**	5
Internship	**FAES 3191 & HCS 4191.01**	2
Minor Equiv. [b]	*See pg. 2*	15-18
	Credit Hours:	**26-29**

General Education:	**33-38**
Degree Requirements:	**26-29**
Major:	**53-54**
Open Electives:	**0-9**
Minimum Total Credit Hours:	**121**

[a] Students complete either a 4-credit course or two 3-credit courses in each of two General Education Theme areas: Citizenship for a Diverse & Just World (required), and the student's choice of available GE Themes. If any major-required courses are identified as a GE Theme course, one course in each GE Theme area may double count in the GE and major hours. Theme courses are identified with a ❖ symbol.
[b] Students in this program complete a group of courses called a minor equivalent. Declaring an additional minor is not required.
[c] Only up to 6 credits of any combination of 4193, 4998, 4999, or 4999H can count towards major electives.
[d] Review prerequisites.

Major Coursework		
Course	**Title**	**Hours**
HCS 2202	Form and Function in Cultivated Plants	4
~~**HCS 2201 -or-**~~	~~Ecology of Managed Plant Systems (prior to AU22)~~	4
HCS 2204 &	Ecology of Managed Plant Systems ❖ (3)	
HCS 2205	Ecology of Managed Plant Systems Lab (1)	
HCS 2260	Data Analysis and Interpretation for Decision Making	3
HCS 3200	Intro to Horticulture	3
HCS 3220	Crop Origins and Diversity	2
HCS 3310	Crop Responses to the Environment	3
HCS 3320	Plant Propagation	3
HCS 5200	Advanced Horticultural Systems (Capstone)	3
HCS 5422	Biology and Management of Weeds and Invasive Plants	3
ENR 3000	Soil Science	3
ENTMLGY 4600	Intro to Insect Sciences	1
ENTMLGY 4601	General Insect Pest Management (2)	2-3
***-or-* ENTMLGY 4000**	General Entomology (3)	
***-or-* ENTMLGY 5608**	Turfgrass Insect Pest Management (2)	
***-or-* ENTMLGY 5609**	Landscape Ornamental Pest Management (3)	
***-or-* ENTMLGY 5610**	Greenhouse Pest Management (3)	
PLNTPTH 3001	General Plant Pathology	3
PLNTPTH 3002	General Plant Pathology Lab	2
Major Electives: Select 14 credit hours from:		
HCS 2300	Introduction to Hydroponics	1
HCS 2305	Organic Gardening	1
HCS 2306	Sustainable Vegetable Production Practicum	3
HCS 2307	Sustainable Agriculture Practical Experience	2
HCS 2340.01	Woody Ornamental Plants	3
HCS 2340.02	Herbaceous Ornamental Plants	3
HCS 3380	Latino Workforce in Land Based Industries	2
HCS 3410	Sustainable Landscape Maintenance Practices	2
HCS 3420	Seed Science	3
HCS 3470	Introduction to Turfgrass Management	3
HCS 3488.01	Professional Development in Hort. And Crop Science	1-3
HCS 3521	Greenhouse Systems and Management	2
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
HCS 4193	Individual Studies	1-3
HCS 4300	Hydroponics Crop Production	2
HCS 4301 [d]	Hydroponics Crop Production Lab	1
HCS 4520	Medicinal Plants	2
HCS 4998 [c]	Undergraduate Research	1-6
HCS 4999 [c]	Research with Distinction	1-6
HCS 4999H [c]	Honors Research with Distinction	1-6
HCS 5097.03-04 & 5797.03-04	Study Abroad Predeparture & Study Abroad	4

Continued on pg. 2

HCS 5306	Sustainable Vegetable Production Practicum	3
HCS 5325	Plant Genetics	3
HCS 5450	Vegetable Crop Production and Physiology	3
HCS 5460	Fruit Crop Physiology and Production	3
HCS 5621	Physiology of Cultivated Plants	3
HCS 5622 [d]	Biochemical Processes in Cultivated Plants	3
HCS 5625[d]	Applied Plant Biotechnology	2
HCS 5825[d]	Plant Breeding	2
HCS 5887	Introduction to Experimental Design	3
	Credit Hours:	**53-54**

Minor Equivalent (15-18 hours)

Select 15-18 credits from <u>one</u> of the groups below (courses selected as major elective options cannot also count in the minor equivalent):

Group A: Production and Management

Course	Title	Hours
AEDECON 3101	Principles of Agribusiness Management	3
AEDECON 3102	Principles of Agribusiness Marketing	3
AEDECON 3160	Human Resource Management in Small Business	3
AGSYSMT 2240	Basic Metal Fabrication for Agriculture	3
AGSYSMT 3232	Engines and Power Transmission	3
AGSYSMT 3580	UAS and Remote Sensing in Agriculture	3
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
BUSMHR 2210	Personal Leadership & Team Effectiveness	3
BUSML 3150	Foundations of Marketing	3
CONSCI 2910	Consumer Problems and Perspectives	3
CONSCI 3910	Customer Service and Satisfaction	3
CONSYSM 2205	Introduction to Construction Systems Management	3
CONSYSM 2241	Construction Materials and Methods II	3
CONSYSM 2440	Construction Surveying and Site Development	4
ENR 3001	Soil Science Laboratory	1
ENR 3700	Intro to Spatial Information for ENR	3
ENR 5272	Turfgrass Soils	3
ENR 5279	Urban Soils and Ecosystem Services	3
ENTMLGY 5500	Biological Control	3
ENTMLGY 5600	Integrated Pest Management	3
ENTMLGY 5800	Pesticide Science	3
PLNTPTH 5110	Ecology and Management of Pathogens and Insects Affecting Trees in Forest and Urban Environments	3
PLNTPTH 5120	Diseases of Ornamental Plants	2
PLNTPTH 5150	Diseases of Fruit and Vegetable Crops	2
PLNTPTH 5603	Plant Disease Management	3
Group B: Research		
CHEM 2310 [d]	Introductory Organic Chemistry	4
BIOCHEM 4511	Introduction to Biological Chemistry	4
EEOB 3310.01 or 3310. 02	Evolution	4
EEOB 3410	Ecology	4
ENR 5268	Soils and Climate Change	3
GEOG 5900	Weather, Climate, & Global Warming	3

<u>Policies and General Requirements for Degree</u>

- A minimum of **121** total credit hours. Remedial coursework (English 1109; EDUTL 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1010; Mathematics 1040, 1050, 1073, 1074, 1075) do not count toward the 121-hour minimum requirement for the BS degree.
- A minimum of 30 semester hours of credit earned through regular course enrollment at this University, and regular course enrollment in the last semester in the College of Food, Agricultural, and Environmental Sciences.
- A cumulative point-hour ratio of at least <u>2.00</u> on <u>all</u> coursework completed at The Ohio State University as well as at least a 2.00 in the <u>major</u>.
- If a major-required course or major elective is a GE Theme course, two 3-4 cr courses (no more than one per theme area) is permitted to double count in the GE and major hours. GE Theme courses are indicated with a ❖ symbol.
- Students are encouraged to participate in education abroad opportunities. Consult with your advisor for how education abroad credit applies to your degree or consider the CFAES Global Option.
- Students must complete a minimum of 40 hours in major/major supporting coursework with at least 12 hours taken from the academic unit(s) offering the major at OSU in the baccalaureate program.
- Courses required in the major (including major supporting courses and major electives) may **<u>not</u>** be taken pass/non-pass.
- Coursework taken as open electives may include a maximum of 4 credit hours of physical activity courses (all 1139-1197 courses), and a maximum of 4 credit hours of campus music organizations.
- A college maximum of six hours of individual studies courses (x193) can be applied toward graduation; some majors may have a lower maximum.
- Students of CFAES must complete an internship of 1-2 hours as a requirement for degree. Any additional internship credit hours may count towards major hours (consult with your advisor). A college maximum of six hours of internship credit can be applied toward graduation; some majors may have a lower maximum.
- A maximum of three credits of 3488 can be applied toward graduation although some majors may have a lower maximum. A cumulative point-hour ratio of 2.0 is required to register for 3488 credit.
- Credit hours for 4999 ("with Research Distinction") and 4999H ("with Honors Research Distinction") are repeatable to maximum of six hours.
- **An application for degree must be submitted online at least two semesters prior to the intended graduation term. Application found at: <u>https://students.cfaes.ohio-state.edu/academics/undergraduate/graduation</u>**

<u>Policies and General Requirements for Minors/Minor Equivalent</u>

- The minor/minor equivalent must contain a minimum of 12 credit hours distinct from the major and/or additional minors (i.e., if a minor requires more than 12 credit hours, a student is permitted to overlap those hours beyond 12 with the major or with another minor).
- A 2.00 cumulative point-hour ratio is required in the minor/minor equivalent with a minimum C- grade for any course to be listed in the minor or minor equivalent (includes transfer credit).
- For programs requiring a minor: minors should be declared by the time students complete 60 hours.
- A student is permitted to count up to 6 credit-hours of transfer and/or EM credit in the minor or minor equivalent.

Coursework graded Pass/Non-Pass cannot count in the minor. No more than 3 credit-hours of course work graded S/U may count toward the minor. Maximum of 3 credit-hours of xx93 are allowed to count in the minor.

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Effective Term: Autumn 2023

Bachelor of Science in Agriculture
Major: Sustainable Plant Systems
Specialization: Horticulture

Horticulture is the application of scientific principles to grow vegetables, fruits ornamental plants, and landscape design, as well as business principles to sell the commodities. Students will take classes in biology, greenhouse and nursery management, fruit and vegetable production, and pest management. Students in this major will complete a minimum of 121 hours outlined as follows.

General Education Requirements		
Requirement	**Course Options**	**Hours**
GE Launch Seminar	**GENED 1201**	1
Writing and Information Literacy	***Student Choice***	3
Mathematical & Quantitative Reasoning/Data Analysis	Major requirement: **MATH 1130, 1148, 1150, 1151, or 1156 *** *(or Student Choice – see below)*	4-5
Literary, Visual and Performing Arts	***Student Choice***	3
Historical & Cultural Studies	***Student Choice***	3
Natural Science	Major requirement: **BIOLOGY 1113 *** *(or Student Choice – see below)*	4
Social & Behavioral Sciences	Major requirement: **AEDECON 2001** or **ECON 2001.01 *** *(or Student Choice – see below)*	3
Race, Ethnic and Gender Diversity	***Student Choice***	3
Theme**: Citizenship for a Diverse & Just World** [a]	***Student Choice***	4-6
Theme: **Student Choice** [a]	***Student Choice***	4-6
GE Reflection	**GENED 4001**	1
	Credit Hours:	**33-38**

***** Indicates a pre/corequisite course for this major that also satisfies this GE category. If a student makes an alternative selection in this GE category, **they must also complete this course.**

B.S. in Agriculture Degree Requirements		
Requirement	**Course Options**	**Hours**
College & Department Survey	**FAES 1100 (0.5) & HCS 1100 (0.5)**	1
Oral Expression	**AGRCOMM 3130 or COMM 2110**	3
Additional Science	**CHEM 1110, 1210, or 1220**	5
Internship	**FAES 3191 & HCS 4191.01**	2
Minor Equiv. [b]	*See pg. 2*	15-18
	Credit Hours:	**26-29**

General Education:	**33-38**
Degree Requirements:	**26-29**
Major:	**53-54**
Open Electives:	**0-9**
Minimum Total Credit Hours:	**121**

[a] Students complete either a 4-credit course or two 3-credit courses in each of two General Education Theme areas: Citizenship for a Diverse & Just World (required), and the student's choice of available GE Themes. If any major-required courses are identified as a GE Theme course, one course in each GE Theme area may double count in the GE and major hours. Theme courses are identified with a ❖ symbol.
[b] Students in this program complete a group of courses called a minor equivalent. Declaring an additional minor is not required.
[c] Only up to 6 credits of any combination of 4193, 4998, 4999, or 4999H can count towards major electives.
[d] Review prerequisites.

Major Coursework		
Course	**Title**	**Hours**
HCS 2202	Form and Function in Cultivated Plants	4
HCS 2204	Ecology of Managed Plant Systems ❖	3
HCS 2205	Ecology of Managed Plant Systems Lab	1
HCS 2260	Data Analysis and Interpretation for Decision Making	3
HCS 3200	Intro to Horticulture	3
HCS 3220	Crop Origins and Diversity	2
HCS 3310	Crop Responses to the Environment	3
HCS 3320	Plant Propagation	3
HCS 5200	Advanced Horticultural Systems (Capstone)	3
HCS 5422	Biology and Management of Weeds and Invasive Plants	3
ENR 3000	Soil Science	3
ENTMLGY 4600	Intro to Insect Sciences	1
ENTMLGY 4601	General Insect Pest Management (2)	2-3
***-or-* ENTMLGY 4000**	General Entomology (3)	
***-or-* ENTMLGY 5608**	Turfgrass Insect Pest Management (2)	
***-or-* ENTMLGY 5609**	Landscape Ornamental Pest Management (3)	
***-or-* ENTMLGY 5610**	Greenhouse Pest Management (3)	
PLNTPTH 3001	General Plant Pathology	3
PLNTPTH 3002	General Plant Pathology Lab	2
Major Electives: Select 14 credit hours from:		
HCS 2300	Introduction to Hydroponics	1
HCS 2305	Organic Gardening	1
HCS 2306	Sustainable Vegetable Production Practicum	3
HCS 2307	Sustainable Agriculture Practical Experience	2
HCS 2340.01	Woody Ornamental Plants	3
HCS 2340.02	Herbaceous Ornamental Plants	3
HCS 3380	Latino Workforce in Land Based Industries	2
HCS 3410	Sustainable Landscape Maintenance Practices	2
HCS 3420	Seed Science	3
HCS 3470	Introduction to Turfgrass Management	3
HCS 3488.01	Professional Development in Hort. And Crop Science	1-3
HCS 3521	Greenhouse Systems and Management	2
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
HCS 4193	Individual Studies	1-3
HCS 4300	Hydroponics Crop Production	2
HCS 4301 [d]	Hydroponics Crop Production Lab	1
HCS 4520	Medicinal Plants	2
HCS 4998 [c]	Undergraduate Research	1-6
HCS 4999 [c]	Research with Distinction	1-6
HCS 4999H [c]	Honors Research with Distinction	1-6
HCS 5097.03-04 & 5797.03-04	Study Abroad Predeparture & Study Abroad	4
Continued on pg. 2		
HCS 5306	Sustainable Vegetable Production Practicum	3

HCS 5325	Plant Genetics	3
HCS 5450	Vegetable Crop Production and Physiology	3
HCS 5460	Fruit Crop Physiology and Production	3
HCS 5621	Physiology of Cultivated Plants	3
HCS 5622 [d]	Biochemical Processes in Cultivated Plants	3
HCS 5625[d]	Applied Plant Biotechnology	2
HCS 5825[d]	Plant Breeding	2
HCS 5887	Introduction to Experimental Design	3
	Credit Hours:	**53-54**

Minor Equivalent (15-18 hours)		
Select 15-18 credits from <u>one</u> of the groups below (courses selected as major elective options cannot also count in the minor equivalent):		
Group A: Production and Management		
Course	**Title**	**Hours**
AEDECON 3101	Principles of Agribusiness Management	3
AEDECON 3102	Principles of Agribusiness Marketing	3
AEDECON 3160	Human Resource Management in Small Business	3
AGSYSMT 2240	Basic Metal Fabrication for Agriculture	3
AGSYSMT 3232	Engines and Power Transmission	3
AGSYSMT 3580	UAS and Remote Sensing in Agriculture	3
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
BUSMHR 2210	Personal Leadership & Team Effectiveness	3
BUSML 3150	Foundations of Marketing	3
CONSCI 2910	Consumer Problems and Perspectives	3
CONSCI 3910	Customer Service and Satisfaction	3
CONSYSM 2205	Introduction to Construction Systems Management	3
CONSYSM 2241	Construction Materials and Methods II	3
CONSYSM 2440	Construction Surveying and Site Development	4
ENR 3001	Soil Science Laboratory	1
ENR 3700	Intro to Spatial Information for ENR	3
ENR 5272	Turfgrass Soils	3
ENR 5279	Urban Soils and Ecosystem Services	3
ENTMLGY 5500	Biological Control	3
ENTMLGY 5600	Integrated Pest Management	3
ENTMLGY 5800	Pesticide Science	3
PLNTPTH 5110	Ecology and Management of Pathogens and Insects Affecting Trees in Forest and Urban Environments	3
PLNTPTH 5120	Diseases of Ornamental Plants	2
PLNTPTH 5150	Diseases of Fruit and Vegetable Crops	2
PLNTPTH 5603	Plant Disease Management	3
Group B: Research		
CHEM 2310 [d]	Introductory Organic Chemistry	4
BIOCHEM 4511	Introduction to Biological Chemistry	4
EEOB 3310.01 or 3310. 02	Evolution	4
EEOB 3410	Ecology	4
ENR 5268	Soils and Climate Change	3
GEOG 5900	Weather, Climate, & Global Warming	3

<u>Policies and General Requirements for Degree</u>

- A minimum of **121** total credit hours. Remedial coursework (English 1109; EDUTL 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1010; Mathematics 1040, 1050, 1073, 1074, 1075) do not count toward the 121-hour minimum requirement for the BS degree.
- A minimum of 30 semester hours of credit earned through regular course enrollment at this University, and regular course enrollment in the last semester in the College of Food, Agricultural, and Environmental Sciences.
- A cumulative point-hour ratio of at least <u>2.00</u> on <u>all</u> coursework completed at The Ohio State University as well as at least a 2.00 in the <u>major</u>.
- If a major-required course or major elective is a GE Theme course, two 3-4 cr courses (no more than one per theme area) is permitted to double count in the GE and major hours. GE Theme courses are indicated with a ❖ symbol.
- Students are encouraged to participate in education abroad opportunities. Consult with your advisor for how education abroad credit applies to your degree or consider the CFAES Global Option.
- Students must complete a minimum of 40 hours in major/major supporting coursework with at least 12 hours taken from the academic unit(s) offering the major at OSU in the baccalaureate program.
- Courses required in the major (including major supporting courses and major electives) may **<u>not</u>** be taken pass/non-pass.
- Coursework taken as open electives may include a maximum of 4 credit hours of physical activity courses (all 1139-1197 courses), and a maximum of 4 credit hours of campus music organizations.
- A college maximum of six hours of individual studies courses (x193) can be applied toward graduation; some majors may have a lower maximum.
- Students of CFAES must complete an internship of 1-2 hours as a requirement for degree. Any additional internship credit hours may count towards major hours (consult with your advisor). A college maximum of six hours of internship credit can be applied toward graduation; some majors may have a lower maximum.
- A maximum of three credits of 3488 can be applied toward graduation although some majors may have a lower maximum. A cumulative point-hour ratio of 2.0 is required to register for 3488 credit.
- Credit hours for 4999 ("with Research Distinction") and 4999H ("with Honors Research Distinction") are repeatable to maximum of six hours.
- **An application for degree must be submitted online at least two semesters prior to the intended graduation term. Application found at: https://students.cfaes.ohio-state.edu/academics/undergraduate/graduation**

<u>Policies and General Requirements for Minors/Minor Equivalent</u>

- The minor/minor equivalent must contain a minimum of 12 credit hours distinct from the major and/or additional minors (i.e., if a minor requires more than 12 credit hours, a student is permitted to overlap those hours beyond 12 with the major or with another minor).
- A 2.00 cumulative point-hour ratio is required in the minor/minor equivalent with a minimum C- grade for any course to be listed in the minor or minor equivalent (includes transfer credit).
- For programs requiring a minor: minors should be declared by the time students complete 60 hours.
- A student is permitted to count up to 6 credit-hours of transfer and/or EM credit in the minor or minor equivalent.
- Coursework graded Pass/Non-Pass cannot count in the minor. No more than 3 credit-hours of course work graded S/U may count toward the minor. Maximum of 3 credit-hours of xx93 are allowed to count in the minor.

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Effective Term: Autumn 2022

Bachelor of Science in Agriculture
Major: Sustainable Plant Systems
Specialization: Plant Biosciences

Plant Biosciences is a broad study of plant biology including plant form and function, diversity, reproduction, evolution, and uses of plants. This specialization is ideal for students wishing to pursue a diverse array of career pathways or pursue graduate study in the field of plant biology and related plant disciplines. Students in this major will complete a minimum of 121 hours outlined as follows.

General Education Requirements

Requirement	Course Options	Hours
GE Launch Seminar	**GENED 1201**	1
Writing and Information Literacy	Major requirement: **ENGLISH 1110 *** *(or Student Choice – see below)*	3
Mathematical & Quantitative Reasoning/Data Analysis	Major requirement: **MATH 1130, 1148, 1150, 1151, or 1156 *** *(or Student Choice – see below)*	4-5
Literary, Visual and Performing Arts	***Student Choice***	3
Historical & Cultural Studies	***Student Choice***	3
Natural Science	Major requirement: **BIOLOGY 1113 *** *(or Student Choice – see below)*	4
Social & Behavioral Sciences	Major requirement: **AEDECON 2001** or **ECON 2001.01 *** *(or Student Choice – see below)*	3
Race, Ethnic and Gender Diversity	***Student Choice***	3
Theme**: Citizenship for a Diverse & Just World** [a]	***Student Choice***	4-6
Theme: **Student Choice** [a]	***Student Choice***	4-6
GE Reflection	**GENED 4001**	1
	Credit Hours:	**33-38**

***** Indicates a pre/corequisite course for this major that also satisfies this GE category. If a student makes an alternative selection in this GE category, **they must also complete this course.**

B.S. in Agriculture Degree Requirements

Requirement	Course Options	Hours
College & Department Survey	**FAES 1100 (0.5) & HCS 1100 (0.5)**	1
Oral Expression	**AGRCOMM 3130 or COMM 2110**	3
Additional Science	**CHEM 1110, 1210, or 1220**	5
Internship	**FAES 3191 & HCS 4191.01**	2
Minor Equiv. [b]	See pg. 2	15-18
	Credit Hours:	**26-29**

General Education	**33-38**
Degree Requirements	**26-29**
Major Supporting Courses (see pg. 2)	**8**
Major	**45-46**
Open Electives	**0-9**
Minimum Total Credit Hours	**121**

[a] Students complete either a 4-credit course or two 3-credit courses in each of two General Education Theme areas: Citizenship for a Diverse & Just World (required), and the student's choice of available GE Themes. If any major-required courses are identified as a GE Theme course, one course in each GE Theme area may double count in the GE and major hours. Theme courses are identified with a ❖ symbol.
[b] Students in this program complete a group of courses called a minor equivalent. Declaring an additional minor is not required.
[c] Only up to 6 credits of any combination of 4193, 4998, 4999, or 4999H can count towards major electives.
[d] If not selected as major capstone.

Major Coursework

Course	Title	Hours
HCS 2202	Form and Function in Cultivated Plants	4
HCS 2201 *-or-*	Ecology of Managed Plant Systems (prior to AU22)	4
HCS 2204 &	Ecology of Managed Plant Systems ❖ (3)	
HCS 2205	Ecology of Managed Plant Systems Lab (1)	
HCS 2260	Data Analysis and Interpretation for Decision Making	3
HCS 3100 *-or-* 3200 *-or-* 3470	Intro to Agronomy ***-or-*** Intro to Horticulture ***-or-*** Intro to Turfgrass Mgmt.	3
HCS 3220	Crop Origins and Diversity	2
HCS 3310	Crop Responses to the Environment	3
HCS 5325 *-or-* MOLGEN 4500	Plant Genetics ***-or-*** General Genetics	3
HCS 5621	Physiology of Cultivated Plants	3
HCS 5622 *-or-* BIOCHEM 4511	Biochemical Processes in Cultivated Plants ***-or-*** Introduction to Biological Chemistry	3-4
ENR 3000	Soil Science	3
ENR 3001	Soil Science Laboratory	1
Select one capstone course:		3
HCS 5100	Advanced Cropping Systems	
HCS 5200	Advanced Horticultural Principles and Practices	
HCS 5602	The Ecology of Agriculture	
Major Electives: Select 10 credit hours from:		
HCS 2307	Sustainable Agr Practical Exp	2
HCS 3320	Plant Propagation	3
HCS 3420	Seed Science	3
HCS 3521	Greenhouse Systems and Management	2
HCS 4193	Individual Studies	1-3
HCS 4300	Hydroponic Crop Production	2
HCS 4301	Hydroponic Crop Production Lab	1
HCS 4520	Medicinal Plants	2
HCS 4570	Turfgrass Management and Science	3
HCS 4998, 4999, or 4999H [c]	Undergraduate Research, Research with Distinction, or Honors Research with Distinction	1-6
HCS 5097.01-.04 & 5797.01-.04	Study Abroad Pre-Departure & Study Abroad	4
HCS 5100 [d]	Advanced Cropping Systems	3
HCS 5200 [d]	Advanced Horticultural Systems	3
HCS 5411	Domestication and Utilization of Agronomic Crops	3
HCS 5412	Agroecology of Grasslands and Prairies	3
HCS 5422	Biol & Mgmt. of Weeds and Invasive Plants	3
HCS 5450	Vegetable Crop Production and Physiology	3
HCS 5460	Fruit Crop Physiology and Production	3
HCS 5602 [d]	Ecology of Agriculture	3
HCS 5625	Applied Plant Biotechnology	2
HCS 5825	Plant Breeding	2
HCS 5887	Introduction to Experimental Design	3
	Credit Hours:	**45-46**

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Effective Term: Autumn 2022

Major Supporting Coursework		
Course	**Title**	**Hours**
BIOLOGY 1114	Biological Sciences: Form, Function, Diversity, and Ecology	4
CHEM 2310 or 2510 [e]	Introductory Organic Chem or Organic Chem I	4
	Credit Hours:	**8**

Minor Equivalent (15-18 hours)*		
EEOB 3310.01 or .02	Evolution	4
EEOB 3410	Ecology	4
Select an additional 7-10 hours from supporting electives below:		
Course	**Title**	**Hours**
AGSYSMT 3580	UAS and Remote Sensing in Agriculture	3
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
CHEM 2520	Organic Chemistry II	4
CHEM 2540	Organic Chemistry Laboratory I	2
CHEM 2550	Organic Chemistry Laboratory II	2
EEOB 3320	Organismal Diversity	3
EEOB 4240	Ecology & Evolution of Plants and People	3
EEOB 5450	Population Ecology	3
ENR 3321	Biology and Identity of Woody Forest Plants	3
ENR 3700	Introduction to Spatial Information for ENR	3
ENR 5261	Environmental Soil Physics	3
ENR 5263	Biology of Soil Ecosystems	3
ENR 5273	Environmental Fate & Impact of Contamination in Soil & Water	3
ENR 5274	Ecosystem Simulation	3
ENTMLGY 4000	General Entomology	3
ENTMLGY 5420	Insect Behavior	3
ENTMLGY 6410	Insect Ecology & Evolution	3
GEOG 5900	Weather, Climate, & Global Warming	3
MOLGEN 4501	General Genetics Laboratory	1
MOLGEN 4502	Expanded General Genetics Laboratory	2
MOLGEN 5623	Genetics and Genomics	2
MOLGEN 5630	Plant Physiology	3
MOLGEN 5643	Plant Anatomy	3
MOLGEN 5701	DNA Transactions and Gene Regulation	3
MOLGEN 5735	Plant Biochemistry	3
PLNTPTH 3001	General Plant Pathology	3
PLNTPTH 3002	General Plant Pathology Lab	2
PLNTPTH 5010	Phytobacteriology	2
PLNTPTH 5020	Introductory Plant Virology	2
PLNTPTH 5030	Plant Nematology	2
PLNTPTH 5040	Science of Fungi: Mycology Lecture	3

[e] Students interested in a chemistry-enriched minor curriculum should plan to take CHEM 1220 and CHEM 2510.
– CHEM 2310 prerequisites: CHEM 1110, 1220 (122), 1250 (125), 1620, or 1920H.
– CHEM 2510 prerequisites: CHEM 1220 (123), 1620 or 1920H (203H).

* Students interested in a Molecular Genetics enriched minor curriculum should plan to take MOLGEN 4500.

* Students interested in an advanced plant pathology (5000-level) minor curriculum should plan to take PLNTPTH 3001 and 3002.

Policies and General Requirements for Degree

- A minimum of **121** total credit hours. Remedial coursework (English 1109; EDUTL 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1010; Mathematics 1040, 1050, 1073, 1074, 1075) do not count toward the 121-hour minimum requirement for the BS degree.
- A minimum of 30 semester hours of credit earned through regular course enrollment at this University, and regular course enrollment in the last semester in the College of Food, Agricultural, and Environmental Sciences.
- A cumulative point-hour ratio of at least 2.00 on all coursework completed at The Ohio State University as well as at least a 2.00 in the major.
- If a major-required course or major elective is a GE Theme course, two 3-4 cr courses (no more than one per theme area) is permitted to double count in the GE and major hours. GE Theme courses are indicated with a ❖ symbol.
- Students are encouraged to participate in education abroad opportunities. Consult with your advisor for how education abroad credit applies to your degree or consider the CFAES Global Option.
- Students must complete a minimum of 40 hours in major/major supporting coursework with at least 12 hours taken from the academic unit(s) offering the major at OSU in the baccalaureate program.
- Courses required in the major (including major supporting courses and major electives) may **not** be taken pass/non-pass.
- Coursework taken as open electives may include a maximum of 4 credit hours of physical activity courses (all 1139-1197 courses), and a maximum of 4 credit hours of campus music organizations.
- A college maximum of six hours of individual studies courses (x193) can be applied toward graduation; some majors may have a lower maximum.
- Students of CFAES must complete an internship of 1-2 hours as a requirement for degree. Any additional internship credit hours may count towards major hours (consult with your advisor). A college maximum of six hours of internship credit can be applied toward graduation; some majors may have a lower maximum.
- A maximum of three credits of 3488 can be applied toward graduation although some majors may have a lower maximum. A cumulative point-hour ratio of 2.0 is required to register for 3488 credit.
- Credit hours for 4999 ("with Research Distinction") and 4999H ("with Honors Research Distinction") are repeatable to maximum of six hours.
- **An application for degree must be submitted online at least two semesters prior to the intended graduation term. Application found at: https://students.cfaes.ohio-state.edu/academics/undergraduate/graduation**

Policies and General Requirements for Minors/Minor Equivalent

- The minor/minor equivalent must contain a minimum of 12 credit hours distinct from the major and/or additional minors (i.e., if a minor requires more than 12 credit hours, a student is permitted to overlap those hours beyond 12 with the major or with another minor).
- A 2.00 cumulative point-hour ratio is required in the minor/minor equivalent with a minimum C- grade for any course to be listed in the minor or minor equivalent (includes transfer credit).
- For programs requiring a minor: minors should be declared by the time students complete 60 hours.
- A student is permitted to count up to 6 credit-hours of transfer and/or EM credit in the minor or minor equivalent.

Coursework graded Pass/Non-Pass cannot count in the minor. No more than 3 credit-hours of course work graded S/U may count toward the minor. Maximum of 3 credit-hours of xx93 are allowed to count in the minor.

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Effective Term: Autumn 2022

Bachelor of Science in Agriculture
Major: Sustainable Plant Systems
Specialization: Plant Biosciences

Plant Biosciences is a broad study of plant biology including plant form and function, diversity, reproduction, evolution, and uses of plants. This specialization is ideal for students wishing to pursue a diverse array of career pathways or pursue graduate study in the field of plant biology and related plant disciplines. Students in this major will complete a minimum of 121 hours outlined as follows.

General Education Requirements

Requirement	Course Options	Hours
GE Launch Seminar	**GENED 1201**	1
Writing and Information Literacy	~~Major requirement: **ENGLISH 1110 *** *(or Student Choice – see below)*~~	3
Mathematical & Quantitative Reasoning/Data Analysis	Major requirement: **MATH 1130, 1148, 1150, 1151, or 1156 *** *(or Student Choice – see below)*	4-5
Literary, Visual and Performing Arts	***Student Choice***	3
Historical & Cultural Studies	***Student Choice***	3
Natural Science	Major requirement: **BIOLOGY 1113 *** *(or Student Choice – see below)*	4
Social & Behavioral Sciences	Major requirement: **AEDECON 2001** or **ECON 2001.01 *** *(or Student Choice – see below)*	3
Race, Ethnic and Gender Diversity	***Student Choice***	3
Theme**: Citizenship for a Diverse & Just World** [a]	***Student Choice***	4-6
Theme: **Student Choice** [a]	***Student Choice***	4-6
GE Reflection	**GENED 4001**	1
	Credit Hours:	**33-38**

***** Indicates a pre/corequisite course for this major that also satisfies this GE category. If a student makes an alternative selection in this GE category, **they must also complete this course.**

B.S. in Agriculture Degree Requirements

Requirement	Course Options	Hours
College & Department Survey	**FAES 1100 (0.5) & HCS 1100 (0.5)**	1
Oral Expression	**AGRCOMM 3130 or COMM 2110**	3
Additional Science	**CHEM 1110, 1210, or 1220**	5
Internship	**FAES 3191 & HCS 4191.01**	2
Minor Equiv. [b]	See pg. 2	15-18
	Credit Hours:	**26-29**

General Education	**33-38**
Degree Requirements	**26-29**
Major Supporting Courses (see pg. 2)	**8**
Major	**45-46**
Open Electives	**0-9**
Minimum Total Credit Hours	**121**

[a] Students complete either a 4-credit course or two 3-credit courses in each of two General Education Theme areas: Citizenship for a Diverse & Just World (required), and the student's choice of available GE Themes. If any major-required courses are identified as a GE Theme course, one course in each GE Theme area may double count in the GE and major hours. Theme courses are identified with a ❖ symbol.
[b] Students in this program complete a group of courses called a minor equivalent. Declaring an additional minor is not required.
[c] Only up to 6 credits of any combination of 4193, 4998, 4999, or 4999H can count towards major electives.
[d] If not selected as major capstone.

Major Coursework

Course	Title	Hours
HCS 2202	Form and Function in Cultivated Plants	4
~~**HCS 2201 -*or***~~	~~Ecology of Managed Plant Systems (prior to AU22)~~	4
HCS 2204 &	Ecology of Managed Plant Systems ❖ (3)	
HCS 2205	Ecology of Managed Plant Systems Lab (1)	
HCS 2260	Data Analysis and Interpretation for Decision Making	3
HCS 3100 -*or*- 3200 -*or*- 3470	Intro to Agronomy ***-or-*** Intro to Horticulture ***-or-*** Intro to Turfgrass Mgmt.	3
HCS 3220	Crop Origins and Diversity	2
HCS 3310	Crop Responses to the Environment	3
HCS 5325 -*or*- MOLGEN 4500	Plant Genetics ***-or-*** General Genetics	3
HCS 5621	Physiology of Cultivated Plants	3
HCS 5622 -*or*- BIOCHEM 4511	Biochemical Processes in Cultivated Plants ***-or-*** Introduction to Biological Chemistry	3-4
ENR 3000	Soil Science	3
ENR 3001	Soil Science Laboratory	1
Select one capstone course:		3
HCS 5100	Advanced Cropping Systems	
HCS 5200	Advanced Horticultural Principles and Practices	
HCS 5602	The Ecology of Agriculture	
Major Electives: Select 10 credit hours from:		
HCS 2307	Sustainable Agr Practical Exp	2
HCS 3320	Plant Propagation	3
HCS 3420	Seed Science	3
HCS 3521	Greenhouse Systems and Management	2
HCS 4193	Individual Studies	1-3
HCS 4300	Hydroponic Crop Production	2
HCS 4301	Hydroponic Crop Production Lab	1
HCS 4520	Medicinal Plants	2
HCS 4570	Turfgrass Management and Science	3
HCS 4998, 4999, or 4999H [c]	Undergraduate Research, Research with Distinction, or Honors Research with Distinction	1-6
HCS 5097.01-.04 & 5797.01-.04	Study Abroad Pre-Departure & Study Abroad	4
HCS 5100 [d]	Advanced Cropping Systems	3
HCS 5200 [d]	Advanced Horticultural Systems	3
HCS 5411	Domestication and Utilization of Agronomic Crops	3
HCS 5412	Agroecology of Grasslands and Prairies	3
HCS 5422	Biol & Mgmt. of Weeds and Invasive Plants	3
HCS 5450	Vegetable Crop Production and Physiology	3
HCS 5460	Fruit Crop Physiology and Production	3
HCS 5602 [d]	Ecology of Agriculture	3
HCS 5625	Applied Plant Biotechnology	2
HCS 5825	Plant Breeding	2
HCS 5887	Introduction to Experimental Design	3
	Credit Hours:	**45-46**

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Effective Term: Autumn 2022

Major Supporting Coursework		
Course	**Title**	**Hours**
BIOLOGY 1114	Biological Sciences: Form, Function, Diversity, and Ecology	4
CHEM 2310 or 2510 [e]	Introductory Organic Chem or Organic Chem I	4
	Credit Hours:	**8**

Minor Equivalent (15-18 hours)*		
EEOB 3310.01 or .02	Evolution	4
EEOB 3410	Ecology	4
Select an additional 7-10 hours from supporting electives below:		
Course	**Title**	**Hours**
AGSYSMT 3580	UAS and Remote Sensing in Agriculture	3
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
CHEM 2520	Organic Chemistry II	4
CHEM 2540	Organic Chemistry Laboratory I	2
CHEM 2550	Organic Chemistry Laboratory II	2
EEOB 3320	Organismal Diversity	3
EEOB 4240	Ecology & Evolution of Plants and People	3
EEOB 5450	Population Ecology	3
ENR 3321	Biology and Identity of Woody Forest Plants	3
ENR 3700	Introduction to Spatial Information for ENR	3
ENR 5261	Environmental Soil Physics	3
ENR 5263	Biology of Soil Ecosystems	3
ENR 5273	Environmental Fate & Impact of Contamination in Soil & Water	3
ENR 5274	Ecosystem Simulation	3
ENTMLGY 4000	General Entomology	3
ENTMLGY 5420	Insect Behavior	3
ENTMLGY 6410	Insect Ecology & Evolution	3
GEOG 5900	Weather, Climate, & Global Warming	3
MOLGEN 4501	General Genetics Laboratory	1
MOLGEN 4502	Expanded General Genetics Laboratory	2
MOLGEN 5623	Genetics and Genomics	2
MOLGEN 5630	Plant Physiology	3
MOLGEN 5643	Plant Anatomy	3
MOLGEN 5701	DNA Transactions and Gene Regulation	3
MOLGEN 5735	Plant Biochemistry	3
PLNTPTH 3001	General Plant Pathology	3
PLNTPTH 3002	General Plant Pathology Lab	2
PLNTPTH 5010	Phytobacteriology	2
PLNTPTH 5020	Introductory Plant Virology	2
PLNTPTH 5030	Plant Nematology	2
PLNTPTH 5040	Science of Fungi: Mycology Lecture	3

[e] Students interested in a chemistry-enriched minor curriculum should plan to take CHEM 1220 and CHEM 2510.
– CHEM 2310 prerequisites: CHEM 1110, 1220 (122), 1250 (125), 1620, or 1920H.
– CHEM 2510 prerequisites: CHEM 1220 (123), 1620 or 1920H (203H).

* Students interested in a Molecular Genetics enriched minor curriculum should plan to take MOLGEN 4500.

* Students interested in an advanced plant pathology (5000-level) minor curriculum should plan to take PLNTPTH 3001 and 3002.

Policies and General Requirements for Degree

- A minimum of **121** total credit hours. Remedial coursework (English 1109; EDUTL 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1010; Mathematics 1040, 1050, 1073, 1074, 1075) do not count toward the 121-hour minimum requirement for the BS degree.
- A minimum of 30 semester hours of credit earned through regular course enrollment at this University, and regular course enrollment in the last semester in the College of Food, Agricultural, and Environmental Sciences.
- A cumulative point-hour ratio of at least 2.00 on all coursework completed at The Ohio State University as well as at least a 2.00 in the major.
- If a major-required course or major elective is a GE Theme course, two 3-4 cr courses (no more than one per theme area) is permitted to double count in the GE and major hours. GE Theme courses are indicated with a ❖ symbol.
- Students are encouraged to participate in education abroad opportunities. Consult with your advisor for how education abroad credit applies to your degree or consider the CFAES Global Option.
- Students must complete a minimum of 40 hours in major/major supporting coursework with at least 12 hours taken from the academic unit(s) offering the major at OSU in the baccalaureate program.
- Courses required in the major (including major supporting courses and major electives) may **not** be taken pass/non-pass.
- Coursework taken as open electives may include a maximum of 4 credit hours of physical activity courses (all 1139-1197 courses), and a maximum of 4 credit hours of campus music organizations.
- A college maximum of six hours of individual studies courses (x193) can be applied toward graduation; some majors may have a lower maximum.
- Students of CFAES must complete an internship of 1-2 hours as a requirement for degree. Any additional internship credit hours may count towards major hours (consult with your advisor). A college maximum of six hours of internship credit can be applied toward graduation; some majors may have a lower maximum.
- A maximum of three credits of 3488 can be applied toward graduation although some majors may have a lower maximum. A cumulative point-hour ratio of 2.0 is required to register for 3488 credit.
- Credit hours for 4999 ("with Research Distinction") and 4999H ("with Honors Research Distinction") are repeatable to maximum of six hours.
- **An application for degree must be submitted online at least two semesters prior to the intended graduation term. Application found at: https://students.cfaes.ohio-state.edu/academics/undergraduate/graduation**

Policies and General Requirements for Minors/Minor Equivalent

- The minor/minor equivalent must contain a minimum of 12 credit hours distinct from the major and/or additional minors (i.e., if a minor requires more than 12 credit hours, a student is permitted to overlap those hours beyond 12 with the major or with another minor).
- A 2.00 cumulative point-hour ratio is required in the minor/minor equivalent with a minimum C- grade for any course to be listed in the minor or minor equivalent (includes transfer credit).
- For programs requiring a minor: minors should be declared by the time students complete 60 hours.
- A student is permitted to count up to 6 credit-hours of transfer and/or EM credit in the minor or minor equivalent.

Coursework graded Pass/Non-Pass cannot count in the minor. No more than 3 credit-hours of course work graded S/U may count toward the minor. Maximum of 3 credit-hours of xx93 are allowed to count in the minor.

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Effective Term: Autumn 2023

Bachelor of Science in Agriculture
Major: Sustainable Plant Systems
Specialization: Plant Biosciences

Plant Biosciences is a broad study of plant biology including plant form and function, diversity, reproduction, evolution, and uses of plants. This specialization is ideal for students wishing to pursue a diverse array of career pathways or pursue graduate study in the field of plant biology and related plant disciplines. Students in this major will complete a minimum of 121 hours outlined as follows.

General Education Requirements

Requirement	Course Options	Hours
GE Launch Seminar	**GENED 1201**	1
Writing and Information Literacy	***Student Choice***	3
Mathematical & Quantitative Reasoning/Data Analysis	Major requirement: **MATH 1130, 1148, 1150, 1151, or 1156 *** *(or Student Choice – see below)*	4-5
Literary, Visual and Performing Arts	***Student Choice***	3
Historical & Cultural Studies	***Student Choice***	3
Natural Science	Major requirement: **BIOLOGY 1113 *** *(or Student Choice – see below)*	4
Social & Behavioral Sciences	Major requirement: **AEDECON 2001** or **ECON 2001.01 *** *(or Student Choice – see below)*	3
Race, Ethnic and Gender Diversity	***Student Choice***	3
Theme**: Citizenship for a Diverse & Just World** [a]	***Student Choice***	4-6
Theme: **Student Choice** [a]	***Student Choice***	4-6
GE Reflection	**GENED 4001**	1
	Credit Hours:	**33-38**

***** Indicates a pre/corequisite course for this major that also satisfies this GE category. If a student makes an alternative selection in this GE category, **they must also complete this course.**

B.S. in Agriculture Degree Requirements

Requirement	Course Options	Hours
College & Department Survey	**FAES 1100 (0.5) & HCS 1100 (0.5)**	1
Oral Expression	**AGRCOMM 3130 or COMM 2110**	3
Additional Science	**CHEM 1110, 1210, or 1220**	5
Internship	**FAES 3191 & HCS 4191.01**	2
Minor Equiv. [b]	See pg. 2	15-18
	Credit Hours:	**26-29**

General Education	**33-38**
Degree Requirements	**26-29**
Major Supporting Courses (see pg. 2)	**8**
Major	**45-46**
Open Electives	**0-9**
Minimum Total Credit Hours	**121**

[a] Students complete either a 4-credit course or two 3-credit courses in each of two General Education Theme areas: Citizenship for a Diverse & Just World (required), and the student's choice of available GE Themes. If any major-required courses are identified as a GE Theme course, one course in each GE Theme area may double count in the GE and major hours. Theme courses are identified with a ❖ symbol.
[b] Students in this program complete a group of courses called a minor equivalent. Declaring an additional minor is not required.
[c] Only up to 6 credits of any combination of 4193, 4998, 4999, or 4999H can count towards major electives.
[d] If not selected as major capstone.

Major Coursework

Course	Title	Hours
HCS 2202	Form and Function in Cultivated Plants	4
HCS 2204	Ecology of Managed Plant Systems ❖	3
HCS 2205	Ecology of Managed Plant Systems Lab	1
HCS 2260	Data Analysis and Interpretation for Decision Making	3
HCS 3100 *-or-* 3200 *-or-* 3470	Intro to Agronomy ***-or-*** Intro to Horticulture ***-or-*** Intro to Turfgrass Mgmt.	3
HCS 3220	Crop Origins and Diversity	2
HCS 3310	Crop Responses to the Environment	3
HCS 5325 *-or-* MOLGEN 4500	Plant Genetics ***-or-*** General Genetics	3
HCS 5621	Physiology of Cultivated Plants	3
HCS 5622 *-or-* BIOCHEM 4511	Biochemical Processes in Cultivated Plants ***-or-*** Introduction to Biological Chemistry	3-4
ENR 3000	Soil Science	3
ENR 3001	Soil Science Laboratory	1
Select one capstone course:		3
HCS 5100	Advanced Cropping Systems	
HCS 5200	Advanced Horticultural Principles and Practices	
HCS 5602	The Ecology of Agriculture	
Major Electives: Select 10 credit hours from:		
HCS 2307	Sustainable Agr Practical Exp	2
HCS 3320	Plant Propagation	3
HCS 3420	Seed Science	3
HCS 3521	Greenhouse Systems and Management	2
HCS 4193	Individual Studies	1-3
HCS 4300	Hydroponic Crop Production	2
HCS 4301	Hydroponic Crop Production Lab	1
HCS 4520	Medicinal Plants	2
HCS 4570	Turfgrass Management and Science	3
HCS 4998, 4999, or 4999H [c]	Undergraduate Research, Research with Distinction, or Honors Research with Distinction	1-6
HCS 5097.01-.04 & 5797.01-.04	Study Abroad Pre-Departure & Study Abroad	4
HCS 5100 [d]	Advanced Cropping Systems	3
HCS 5200 [d]	Advanced Horticultural Systems	3
HCS 5411	Domestication and Utilization of Agronomic Crops	3
HCS 5412	Agroecology of Grasslands and Prairies	3
HCS 5422	Biol & Mgmt. of Weeds and Invasive Plants	3
HCS 5450	Vegetable Crop Production and Physiology	3
HCS 5460	Fruit Crop Physiology and Production	3
HCS 5602 [d]	Ecology of Agriculture	3
HCS 5625	Applied Plant Biotechnology	2
HCS 5825	Plant Breeding	2
HCS 5887	Introduction to Experimental Design	3
	Credit Hours:	**45-46**

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Effective Term: Autumn 2023

Major Supporting Coursework		
Course	**Title**	**Hours**
BIOLOGY 1114	Biological Sciences: Form, Function, Diversity, and Ecology	4
CHEM 2310 or 2510 [e]	Introductory Organic Chem or Organic Chem I	4
	Credit Hours:	**8**

Minor Equivalent (15-18 hours)*		
EEOB 3310.01 or .02	Evolution	4
EEOB 3410	Ecology	4
Select an additional 7-10 hours from supporting electives below:		
Course	**Title**	**Hours**
AGSYSMT 3580	UAS and Remote Sensing in Agriculture	3
HCS/AGSYSMT 3585	Digital Agriculture ❖	3
HCS/AGSYSMT 3586	Digital Agriculture Laboratory ❖	1
CHEM 2520	Organic Chemistry II	4
CHEM 2540	Organic Chemistry Laboratory I	2
CHEM 2550	Organic Chemistry Laboratory II	2
EEOB 3320	Organismal Diversity	3
EEOB 4240	Ecology & Evolution of Plants and People	3
EEOB 5450	Population Ecology	3
ENR 3321	Biology and Identity of Woody Forest Plants	3
ENR 3700	Introduction to Spatial Information for ENR	3
ENR 5261	Environmental Soil Physics	3
ENR 5263	Biology of Soil Ecosystems	3
ENR 5273	Environmental Fate & Impact of Contamination in Soil & Water	3
ENR 5274	Ecosystem Simulation	3
ENTMLGY 4000	General Entomology	3
ENTMLGY 5420	Insect Behavior	3
ENTMLGY 6410	Insect Ecology & Evolution	3
GEOG 5900	Weather, Climate, & Global Warming	3
MOLGEN 4501	General Genetics Laboratory	1
MOLGEN 4502	Expanded General Genetics Laboratory	2
MOLGEN 5623	Genetics and Genomics	2
MOLGEN 5630	Plant Physiology	3
MOLGEN 5643	Plant Anatomy	3
MOLGEN 5701	DNA Transactions and Gene Regulation	3
MOLGEN 5735	Plant Biochemistry	3
PLNTPTH 3001	General Plant Pathology	3
PLNTPTH 3002	General Plant Pathology Lab	2
PLNTPTH 5010	Phytobacteriology	2
PLNTPTH 5020	Introductory Plant Virology	2
PLNTPTH 5030	Plant Nematology	2
PLNTPTH 5040	Science of Fungi: Mycology Lecture	3

[e] Students interested in a chemistry-enriched minor curriculum should plan to take CHEM 1220 and CHEM 2510.
– CHEM 2310 prerequisites: CHEM 1110, 1220 (122), 1250 (125), 1620, or 1920H.
– CHEM 2510 prerequisites: CHEM 1220 (123), 1620 or 1920H (203H).
* Students interested in a Molecular Genetics enriched minor curriculum should plan to take MOLGEN 4500.
* Students interested in an advanced plant pathology (5000-level) minor curriculum should plan to take PLNTPTH 3001 and 3002.

Policies and General Requirements for Degree

- A minimum of **121** total credit hours. Remedial coursework (English 1109; EDUTL 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1010; Mathematics 1040, 1050, 1073, 1074, 1075) do not count toward the 121-hour minimum requirement for the BS degree.
- A minimum of 30 semester hours of credit earned through regular course enrollment at this University, and regular course enrollment in the last semester in the College of Food, Agricultural, and Environmental Sciences.
- A cumulative point-hour ratio of at least 2.00 on all coursework completed at The Ohio State University as well as at least a 2.00 in the major.
- If a major-required course or major elective is a GE Theme course, two 3-4 cr courses (no more than one per theme area) is permitted to double count in the GE and major hours. GE Theme courses are indicated with a ❖ symbol.
- Students are encouraged to participate in education abroad opportunities. Consult with your advisor for how education abroad credit applies to your degree or consider the CFAES Global Option.
- Students must complete a minimum of 40 hours in major/major supporting coursework with at least 12 hours taken from the academic unit(s) offering the major at OSU in the baccalaureate program.
- Courses required in the major (including major supporting courses and major electives) may **not** be taken pass/non-pass.
- Coursework taken as open electives may include a maximum of 4 credit hours of physical activity courses (all 1139-1197 courses), and a maximum of 4 credit hours of campus music organizations.
- A college maximum of six hours of individual studies courses (x193) can be applied toward graduation; some majors may have a lower maximum.
- Students of CFAES must complete an internship of 1-2 hours as a requirement for degree. Any additional internship credit hours may count towards major hours (consult with your advisor). A college maximum of six hours of internship credit can be applied toward graduation; some majors may have a lower maximum.
- A maximum of three credits of 3488 can be applied toward graduation although some majors may have a lower maximum. A cumulative point-hour ratio of 2.0 is required to register for 3488 credit.
- Credit hours for 4999 ("with Research Distinction") and 4999H ("with Honors Research Distinction") are repeatable to maximum of six hours.
- **An application for degree must be submitted online at least two semesters prior to the intended graduation term. Application found at: https://students.cfaes.ohio-state.edu/academics/undergraduate/graduation**

Policies and General Requirements for Minors/Minor Equivalent

- The minor/minor equivalent must contain a minimum of 12 credit hours distinct from the major and/or additional minors (i.e., if a minor requires more than 12 credit hours, a student is permitted to overlap those hours beyond 12 with the major or with another minor).
- A 2.00 cumulative point-hour ratio is required in the minor/minor equivalent with a minimum C- grade for any course to be listed in the minor or minor equivalent (includes transfer credit).
- For programs requiring a minor: minors should be declared by the time students complete 60 hours.
- A student is permitted to count up to 6 credit-hours of transfer and/or EM credit in the minor or minor equivalent.
- Coursework graded Pass/Non-Pass cannot count in the minor. No more than 3 credit-hours of course work graded S/U may count toward the minor. Maximum of 3 credit-hours of xx93 are allowed to count in the minor.

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Effective Term: Autumn 2022

Bachelor of Science in Agriculture
Major: Sustainable Plant Systems
Specialization: Turfgrass Science

Students learn to manage and maintain turf as they gain knowledge in plant biology, soil and turfgrass science. Students in this major will complete a minimum of 121 hours outlined as follows.

General Education Requirements		
Requirement	**Course Options**	**Hours**
GE Launch Seminar	**GENED 1201**	1
Writing and Information Literacy	Major requirement: **ENGLISH 1110 *** *(or Student Choice – see below)*	3
Mathematical & Quantitative Reasoning/Data Analysis	Major requirement: **MATH 1130, 1148, 1150, 1151, or 1156 *** *(or Student Choice – see below)*	4-5
Literary, Visual and Performing Arts	***Student Choice***	3
Historical & Cultural Studies	***Student Choice***	3
Natural Science	Major requirement: **BIOLOGY 1113 *** *(or Student Choice – see below)*	4
Social & Behavioral Sciences	Major requirement: **AEDECON 2001** or **ECON 2001.01 *** *(or Student Choice – see below)*	3
Race, Ethnic and Gender Diversity	***Student Choice***	3
Theme**: Citizenship for a Diverse & Just World** [a]	***Student Choice***	4-6
Theme: **Student Choice** [a]	***Student Choice***	4-6
GE Reflection	**GENED 4001**	1
	Credit Hours:	**33-38**

***** Indicates a pre/corequisite course for this major that also satisfies this GE category. If a student makes an alternative selection in this GE category, **they must also complete this course.**

B.S. in Agriculture Degree Requirements		
Requirement	**Course Options**	**Hours**
College & Department Survey	**FAES 1100 (0.5) & HCS 1100 (0.5)**	1
Oral Expression	**AGRCOMM 3130 or COMM 2110**	3
Additional Science	**CHEM 1110, 1210, or 1220**	5
Internship	**FAES 3191 & HCS 4191.01**	2
Minor Equiv. [b]	See pg. 2	15-18
	Credit Hours:	**26-29**

[a] Students complete either a 4-credit course or two 3-credit courses in each of two General Education Theme areas: Citizenship for a Diverse & Just World (required), and the student's choice of available GE Themes. If any major-required courses are identified as a GE Theme course, one course in each GE Theme area may double count in the GE and major hours. Theme courses are identified with a ❖ symbol.
[b] Students in this program complete a group of courses called a minor equivalent. Declaring an additional minor is not required.
[c] Only up to 6 credits of any combination of 4193, 4998, 4999, or 4999H can count towards major electives.
[d] Review prerequisites.

General Education	**33-38**
Degree Requirements	**26-29**
Major	**53-54**
Open Electives	**0-9**
Minimum Total Credit Hours	**121**

Major Coursework		
Course	**Title**	**Hours**
HCS 2202	Form and Function in Cultivated Plants	4
HCS 2201 -*OR*-	Ecology of Managed Plant Systems (prior to AU22)	4
HCS 2204 &	Ecology of Managed Plant Systems ❖ (3)	
HCS 2205	Ecology of Managed Plant Systems Lab (1)	
HCS 2260	Data Analysis and Interpretation for Decision Making	3
HCS 2270	Historical Perspectives on Golf Course Design and Management	2
HCS 3310	Crop Responses to the Environment	3
HCS 3370	Sports Turf Management	2
HCS 3420	Seed Science	3
HCS 3470	Introduction to Turfgrass Management	3
HCS 4504	Advanced Golf Operations (Capstone)	3
HCS 4570	Turfgrass Management and Science	3
HCS 5422	Biology & Management of Weeds and Invasive Plants	3
HCS 5670	Golf Courses and the Environment	2
ENR 3000	Soil Science	3
ENTMLGY 4600	Intro to Insect Science	1
ENTMLGY 5608	Turfgrass Insect Pest Management	2
PLNTPTH 3001	General Plant Pathology	3
PLNTPTH 3002	General Plant Pathology Lab	2
Major Electives: Select 7-8 credit hours from:		
HCS 2340.01	Woody Ornamental Plants	3
HCS 2340.02	Herbaceous Ornamental Plants	3
HCS 2501	Basic Club Design and Repair	1
HCS 3220	Crop Origins and Diversity	2
HCS 3320	Plant Propagation	3
HCS 3380	Latino Workforce in Land Based Industries	2
HCS 3488.01	Professional Development in Hort. And Crop Science	1-3
HCS 4193	Individual Studies [c]	1-3
HCS 4520	Medicinal Plants	2
HCS 4998	Undergraduate Research [c]	1-12
HCS 4999	Research with Distinction [c]	1-6
HCS 4999H	Honors Research with Distinction [c]	1-6
HCS 5097.01-04 & 5797.01-04	Study Abroad Predeparture & Study Abroad	4
HCS 5325	Plant Genetics	3
HCS 5602	Ecology of Agriculture	3
HCS 5621	Physiology of Cultivated Plants	3
HCS 5622	Biochemical Processes in Cultivated Plants	3
HCS 5625[d]	Applied Plant Biotechnology	2
HCS 5825[d]	Plant Breeding	2
	Credit Hours:	**53-54**

Minor Equivalent (15-18 hours)		
Select 15-18 credits from one of the groups below:		
Group A: Management		
AEDECON 3101	Principles of Agribusiness Management	3
AEDECON 3102	Principles of Agribusiness Marketing	3
AEDECON 3160	Human Resource Management in Small Business	3
AGSYSMT 2240	Basic Metal Fabrication for Agriculture	3
AGSYSMT 3232	Engines and Power Transmission	3
AGSYSMT 3580	UAS and Remote Sensing in Agriculture	3
AGSYSMT 4580	Precision Agriculture	3
BUSMHR 2210	Personal Leadership & Team Effectiveness	3
BUSML 3150	Foundations of Marketing	3
CONSCI 2910	Consumer Problems and Perspectives	3
CONSCI 3910	Customer Service and Satisfaction	3
ENR 3001	Soil Science Laboratory	1
ENR 5272	Turfgrass Soils	2
ENR 5279	Urban Soils and Ecosystems Services	3
ENTMLGY 5500	Biological Control	3
ENTMLGY 5600	Integrated Pest Management	3
ENTMLGY 5800	Pesticide Science	3
PLNTPTH 5130	Turfgrass Diseases and Integrated Turf Health Management	4
PLNTPTH 5603	Plant Disease Management	3
Group B: Research		
CHEM 2310	Introductory Organic Chemistry	4
BIOCHEM 4511	Introduction to Biological Chemistry	4
EEOB 3310.01 *-or-* 3310. 02	Evolution	4
EEOB 3410	Ecology	4
ENR 5268	Soils and Climate Change	3
GEOG 5900	Weather, Climate, & Global Warming	3

Policies and General Requirements for Degree

- A minimum of **121** total credit hours. Remedial coursework (English 1109; EDUTL 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1010; Mathematics 1040, 1050, 1073, 1074, 1075) do not count toward the 121-hour minimum requirement for the BS degree.
- A minimum of 30 semester hours of credit earned through regular course enrollment at this University, and regular course enrollment in the last semester in the College of Food, Agricultural, and Environmental Sciences.
- A cumulative point-hour ratio of at least 2.00 on all coursework completed at The Ohio State University as well as at least a 2.00 in the major.
- If a major-required course or major elective is a GE Theme course, two 3-4 cr courses (no more than one per theme area) is permitted to double count in the GE and major hours. GE Theme courses are indicated with a ❖ symbol.
- Students are encouraged to participate in education abroad opportunities. Consult with your advisor for how education abroad credit applies to your degree or consider the CFAES Global Option.
- Students must complete a minimum of 40 hours in major/major supporting coursework with at least 12 hours taken from the academic unit(s) offering the major at OSU in the baccalaureate program.
- Courses required in the major (including major supporting courses and major electives) may **not** be taken pass/non-pass.
- Coursework taken as open electives may include a maximum of 4 credit hours of physical activity courses (all 1139-1197 courses), and a maximum of 4 credit hours of campus music organizations.
- A college maximum of six hours of individual studies courses (x193) can be applied toward graduation; some majors may have a lower maximum.
- Students of CFAES must complete an internship of 1-2 hours as a requirement for degree. Any additional internship credit hours may count towards major hours (consult with your advisor). A college maximum of six hours of internship credit can be applied toward graduation; some majors may have a lower maximum.
- A maximum of three credits of 3488 can be applied toward graduation although some majors may have a lower maximum. A cumulative point-hour ratio of 2.0 is required to register for 3488 credit.
- Credit hours for 4999 ("with Research Distinction") and 4999H ("with Honors Research Distinction") are repeatable to maximum of six hours.
- **An application for degree must be submitted online at least two semesters prior to the intended graduation term. Application found at: https://students.cfaes.ohio-state.edu/academics/undergraduate/graduation**

Policies and General Requirements for Minors/Minor Equivalent

- The minor/minor equivalent must contain a minimum of 12 credit hours distinct from the major and/or additional minors (i.e., if a minor requires more than 12 credit hours, a student is permitted to overlap those hours beyond 12 with the major or with another minor).
- A 2.00 cumulative point-hour ratio is required in the minor/minor equivalent with a minimum C- grade for any course to be listed in the minor or minor equivalent (includes transfer credit).
- For programs requiring a minor: minors should be declared by the time students complete 60 hours.
- A student is permitted to count up to 6 credit-hours of transfer and/or EM credit in the minor or minor equivalent.
- Coursework graded Pass/Non-Pass cannot count in the minor. No more than 3 credit-hours of course work graded S/U may count toward the minor. Maximum of 3 credit-hours of xx93 are allowed to count in the minor.

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Effective Term: Autumn 2022

Bachelor of Science in Agriculture
Major: Sustainable Plant Systems
Specialization: Turfgrass Science

Students learn to manage and maintain turf as they gain knowledge in plant biology, soil and turfgrass science.
Students in this major will complete a minimum of 121 hours outlined as follows.

General Education Requirements		
Requirement	**Course Options**	**Hours**
GE Launch Seminar	**GENED 1201**	1
Writing and Information Literacy	~~Major requirement: **ENGLISH 1110** * *(or Student Choice – see below)*~~	3
Mathematical & Quantitative Reasoning/Data Analysis	Major requirement: **MATH 1130, 1148, 1150, 1151, or 1156** * *(or Student Choice – see below)*	4-5
Literary, Visual and Performing Arts	***Student Choice***	3
Historical & Cultural Studies	***Student Choice***	3
Natural Science	Major requirement: **BIOLOGY 1113** * *(or Student Choice – see below)*	4
Social & Behavioral Sciences	Major requirement: **AEDECON 2001** or **ECON 2001.01** * *(or Student Choice – see below)*	3
Race, Ethnic and Gender Diversity	***Student Choice***	3
Theme: **Citizenship for a Diverse & Just World** [a]	***Student Choice***	4-6
Theme: **Student Choice** [a]	***Student Choice***	4-6
GE Reflection	**GENED 4001**	1
	Credit Hours:	**33-38**

***** Indicates a pre/corequisite course for this major that also satisfies this GE category. If a student makes an alternative selection in this GE category, **they must also complete this course.**

B.S. in Agriculture Degree Requirements		
Requirement	**Course Options**	**Hours**
College & Department Survey	**FAES 1100 (0.5) & HCS 1100 (0.5)**	1
Oral Expression	**AGRCOMM 3130 or COMM 2110**	3
Additional Science	**CHEM 1110, 1210, or 1220**	5
Internship	**FAES 3191 & HCS 4191.01**	2
Minor Equiv. [b]	See pg. 2	15-18
	Credit Hours:	**26-29**

[a] Students complete either a 4-credit course or two 3-credit courses in each of two General Education Theme areas: Citizenship for a Diverse & Just World (required), and the student's choice of available GE Themes. If any major-required courses are identified as a GE Theme course, one course in each GE Theme area may double count in the GE and major hours. Theme courses are identified with a ❖ symbol.
[b] Students in this program complete a group of courses called a minor equivalent. Declaring an additional minor is not required.
[c] Only up to 6 credits of any combination of 4193, 4998, 4999, or 4999H can count towards major electives.
[d] Review prerequisites.

General Education	**33-38**
Degree Requirements	**26-29**
Major	**53-54**
Open Electives	**0-9**
Minimum Total Credit Hours	**121**

Major Coursework		
Course	**Title**	**Hours**
HCS 2202	Form and Function in Cultivated Plants	4
~~**HCS 2201** ***-OR-***~~	~~Ecology of Managed Plant Systems (prior to AU22)~~	4
HCS 2204 &	Ecology of Managed Plant Systems ❖ (3)	
HCS 2205	Ecology of Managed Plant Systems Lab (1)	
HCS 2260	Data Analysis and Interpretation for Decision Making	3
HCS 2270	Historical Perspectives on Golf Course Design and Management	2
HCS 3310	Crop Responses to the Environment	3
HCS 3370	Sports Turf Management	2
HCS 3420	Seed Science	3
HCS 3470	Introduction to Turfgrass Management	3
HCS 4504	Advanced Golf Operations (Capstone)	3
HCS 4570	Turfgrass Management and Science	3
HCS 5422	Biology & Management of Weeds and Invasive Plants	3
HCS 5670	Golf Courses and the Environment	2
ENR 3000	Soil Science	3
ENTMLGY 4600	Intro to Insect Science	1
ENTMLGY 5608	Turfgrass Insect Pest Management	2
PLNTPTH 3001	General Plant Pathology	3
PLNTPTH 3002	General Plant Pathology Lab	2
Major Electives: Select 7-8 credit hours from:		
HCS 2340.01	Woody Ornamental Plants	3
HCS 2340.02	Herbaceous Ornamental Plants	3
HCS 2501	Basic Club Design and Repair	1
HCS 3220	Crop Origins and Diversity	2
HCS 3320	Plant Propagation	3
HCS 3380	Latino Workforce in Land Based Industries	2
HCS 3488.01	Professional Development in Hort. And Crop Science	1-3
HCS 4193	Individual Studies [c]	1-3
HCS 4520	Medicinal Plants	2
HCS 4998	Undergraduate Research [c]	1-12
HCS 4999	Research with Distinction [c]	1-6
HCS 4999H	Honors Research with Distinction [c]	1-6
HCS 5097.01-04 & 5797.01-04	Study Abroad Predeparture & Study Abroad	4
HCS 5325	Plant Genetics	3
HCS 5602	Ecology of Agriculture	3
HCS 5621	Physiology of Cultivated Plants	3
HCS 5622	Biochemical Processes in Cultivated Plants	3
HCS 5625 [d]	Applied Plant Biotechnology	2
HCS 5825 [d]	Plant Breeding	2
	Credit Hours:	**53-54**

Minor Equivalent (15-18 hours)		
Select 15-18 credits from one of the groups below:		
Group A: Management		
AEDECON 3101	Principles of Agribusiness Management	3
AEDECON 3102	Principles of Agribusiness Marketing	3
AEDECON 3160	Human Resource Management in Small Business	3
AGSYSMT 2240	Basic Metal Fabrication for Agriculture	3
AGSYSMT 3232	Engines and Power Transmission	3
AGSYSMT 3580	UAS and Remote Sensing in Agriculture	3
AGSYSMT 4580	Precision Agriculture	3
BUSMHR 2210	Personal Leadership & Team Effectiveness	3
BUSML 3150	Foundations of Marketing	3
CONSCI 2910	Consumer Problems and Perspectives	3
CONSCI 3910	Customer Service and Satisfaction	3
ENR 3001	Soil Science Laboratory	1
ENR 5272	Turfgrass Soils	2
ENR 5279	Urban Soils and Ecosystems Services	3
ENTMLGY 5500	Biological Control	3
ENTMLGY 5600	Integrated Pest Management	3
ENTMLGY 5800	Pesticide Science	3
PLNTPTH 5130	Turfgrass Diseases and Integrated Turf Health Management	4
PLNTPTH 5603	Plant Disease Management	3
Group B: Research		
CHEM 2310	Introductory Organic Chemistry	4
BIOCHEM 4511	Introduction to Biological Chemistry	4
EEOB 3310.01 *-or-* 3310. 02	Evolution	4
EEOB 3410	Ecology	4
ENR 5268	Soils and Climate Change	3
GEOG 5900	Weather, Climate, & Global Warming	3

Policies and General Requirements for Degree

- A minimum of **121** total credit hours. Remedial coursework (English 1109; EDUTL 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1010; Mathematics 1040, 1050, 1073, 1074, 1075) do not count toward the 121-hour minimum requirement for the BS degree.
- A minimum of 30 semester hours of credit earned through regular course enrollment at this University, and regular course enrollment in the last semester in the College of Food, Agricultural, and Environmental Sciences.
- A cumulative point-hour ratio of at least 2.00 on all coursework completed at The Ohio State University as well as at least a 2.00 in the major.
- If a major-required course or major elective is a GE Theme course, two 3-4 cr courses (no more than one per theme area) is permitted to double count in the GE and major hours. GE Theme courses are indicated with a ❖ symbol.
- Students are encouraged to participate in education abroad opportunities. Consult with your advisor for how education abroad credit applies to your degree or consider the CFAES Global Option.
- Students must complete a minimum of 40 hours in major/major supporting coursework with at least 12 hours taken from the academic unit(s) offering the major at OSU in the baccalaureate program.
- Courses required in the major (including major supporting courses and major electives) may **not** be taken pass/non-pass.
- Coursework taken as open electives may include a maximum of 4 credit hours of physical activity courses (all 1139-1197 courses), and a maximum of 4 credit hours of campus music organizations.
- A college maximum of six hours of individual studies courses (x193) can be applied toward graduation; some majors may have a lower maximum.
- Students of CFAES must complete an internship of 1-2 hours as a requirement for degree. Any additional internship credit hours may count towards major hours (consult with your advisor). A college maximum of six hours of internship credit can be applied toward graduation; some majors may have a lower maximum.
- A maximum of three credits of 3488 can be applied toward graduation although some majors may have a lower maximum. A cumulative point-hour ratio of 2.0 is required to register for 3488 credit.
- Credit hours for 4999 ("with Research Distinction") and 4999H ("with Honors Research Distinction") are repeatable to maximum of six hours.
- **An application for degree must be submitted online at least two semesters prior to the intended graduation term. Application found at: https://students.cfaes.ohio-state.edu/academics/undergraduate/graduation**

Policies and General Requirements for Minors/Minor Equivalent

- The minor/minor equivalent must contain a minimum of 12 credit hours distinct from the major and/or additional minors (i.e., if a minor requires more than 12 credit hours, a student is permitted to overlap those hours beyond 12 with the major or with another minor).
- A 2.00 cumulative point-hour ratio is required in the minor/minor equivalent with a minimum C- grade for any course to be listed in the minor or minor equivalent (includes transfer credit).
- For programs requiring a minor: minors should be declared by the time students complete 60 hours.
- A student is permitted to count up to 6 credit-hours of transfer and/or EM credit in the minor or minor equivalent.
- Coursework graded Pass/Non-Pass cannot count in the minor. No more than 3 credit-hours of course work graded S/U may count toward the minor. Maximum of 3 credit-hours of xx93 are allowed to count in the minor.

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Effective Term: Autumn 2023

Bachelor of Science in Agriculture
Major: Sustainable Plant Systems
Specialization: Turfgrass Science

Students learn to manage and maintain turf as they gain knowledge in plant biology, soil and turfgrass science. Students in this major will complete a minimum of 121 hours outlined as follows.

General Education Requirements		
Requirement	**Course Options**	**Hours**
GE Launch Seminar	**GENED 1201**	1
Writing and Information Literacy	***Student Choice***	3
Mathematical & Quantitative Reasoning/Data Analysis	Major requirement: **MATH 1130, 1148, 1150, 1151, or 1156** * *(or Student Choice – see below)*	4-5
Literary, Visual and Performing Arts	***Student Choice***	3
Historical & Cultural Studies	***Student Choice***	3
Natural Science	Major requirement: **BIOLOGY 1113** * *(or Student Choice – see below)*	4
Social & Behavioral Sciences	Major requirement: **AEDECON 2001** or **ECON 2001.01** * *(or Student Choice – see below)*	3
Race, Ethnic and Gender Diversity	***Student Choice***	3
Theme: **Citizenship for a Diverse & Just World** [a]	***Student Choice***	4-6
Theme: **Student Choice** [a]	***Student Choice***	4-6
GE Reflection	**GENED 4001**	1
	Credit Hours:	**33-38**

***** Indicates a pre/corequisite course for this major that also satisfies this GE category. If a student makes an alternative selection in this GE category, **they must also complete this course.**

B.S. in Agriculture Degree Requirements		
Requirement	**Course Options**	**Hours**
College & Department Survey	**FAES 1100 (0.5) & HCS 1100 (0.5)**	1
Oral Expression	**AGRCOMM 3130 or COMM 2110**	3
Additional Science	**CHEM 1110, 1210, or 1220**	5
Internship	**FAES 3191 & HCS 4191.01**	2
Minor Equiv. [b]	See pg. 2	15-18
	Credit Hours:	**26-29**

[a] Students complete either a 4-credit course or two 3-credit courses in each of two General Education Theme areas: Citizenship for a Diverse & Just World (required), and the student's choice of available GE Themes. If any major-required courses are identified as a GE Theme course, one course in each GE Theme area may double count in the GE and major hours. Theme courses are identified with a ❖ symbol.
[b] Students in this program complete a group of courses called a minor equivalent. Declaring an additional minor is not required.
[c] Only up to 6 credits of any combination of 4193, 4998, 4999, or 4999H can count towards major electives.
[d] Review prerequisites.

General Education	**33-38**
Degree Requirements	**26-29**
Major	**53-54**
Open Electives	**0-9**
Minimum Total Credit Hours	**121**

Major Coursework		
Course	**Title**	**Hours**
HCS 2202	Form and Function in Cultivated Plants	4
HCS 2204	Ecology of Managed Plant Systems ❖	3
HCS 2205	Ecology of Managed Plant Systems Lab	1
HCS 2260	Data Analysis and Interpretation for Decision Making	3
HCS 2270	Historical Perspectives on Golf Course Design and Management	2
HCS 3310	Crop Responses to the Environment	3
HCS 3370	Sports Turf Management	2
HCS 3420	Seed Science	3
HCS 3470	Introduction to Turfgrass Management	3
HCS 4504	Advanced Golf Operations (Capstone)	3
HCS 4570	Turfgrass Management and Science	3
HCS 5422	Biology & Management of Weeds and Invasive Plants	3
HCS 5670	Golf Courses and the Environment	2
ENR 3000	Soil Science	3
ENTMLGY 4600	Intro to Insect Science	1
ENTMLGY 5608	Turfgrass Insect Pest Management	2
PLNTPTH 3001	General Plant Pathology	3
PLNTPTH 3002	General Plant Pathology Lab	2
Major Electives: Select 7-8 credit hours from:		
HCS 2340.01	Woody Ornamental Plants	3
HCS 2340.02	Herbaceous Ornamental Plants	3
HCS 2501	Basic Club Design and Repair	1
HCS 3220	Crop Origins and Diversity	2
HCS 3320	Plant Propagation	3
HCS 3380	Latino Workforce in Land Based Industries	2
HCS 3488.01	Professional Development in Hort. And Crop Science	1-3
HCS 4193	Individual Studies [c]	1-3
HCS 4520	Medicinal Plants	2
HCS 4998	Undergraduate Research [c]	1-12
HCS 4999	Research with Distinction [c]	1-6
HCS 4999H	Honors Research with Distinction [c]	1-6
HCS 5097.01-04 & 5797.01-04	Study Abroad Predeparture & Study Abroad	4
HCS 5325	Plant Genetics	3
HCS 5602	Ecology of Agriculture	3
HCS 5621	Physiology of Cultivated Plants	3
HCS 5622	Biochemical Processes in Cultivated Plants	3
HCS 5625[d]	Applied Plant Biotechnology	2
HCS 5825[d]	Plant Breeding	2
	Credit Hours:	**53-54**

Minor Equivalent (15-18 hours)		
Select 15-18 credits from one of the groups below:		
Group A: Management		
AEDECON 3101	Principles of Agribusiness Management	3
AEDECON 3102	Principles of Agribusiness Marketing	3
AEDECON 3160	Human Resource Management in Small Business	3
AGSYSMT 2240	Basic Metal Fabrication for Agriculture	3
AGSYSMT 3232	Engines and Power Transmission	3
AGSYSMT 3580	UAS and Remote Sensing in Agriculture	3
AGSYSMT 4580	Precision Agriculture	3
BUSMHR 2210	Personal Leadership & Team Effectiveness	3
BUSML 3150	Foundations of Marketing	3
CONSCI 2910	Consumer Problems and Perspectives	3
CONSCI 3910	Customer Service and Satisfaction	3
ENR 3001	Soil Science Laboratory	1
ENR 5272	Turfgrass Soils	2
ENR 5279	Urban Soils and Ecosystems Services	3
ENTMLGY 5500	Biological Control	3
ENTMLGY 5600	Integrated Pest Management	3
ENTMLGY 5800	Pesticide Science	3
PLNTPTH 5130	Turfgrass Diseases and Integrated Turf Health Management	4
PLNTPTH 5603	Plant Disease Management	3
Group B: Research		
CHEM 2310	Introductory Organic Chemistry	4
BIOCHEM 4511	Introduction to Biological Chemistry	4
EEOB 3310.01 *-or-* 3310. 02	Evolution	4
EEOB 3410	Ecology	4
ENR 5268	Soils and Climate Change	3
GEOG 5900	Weather, Climate, & Global Warming	3

Policies and General Requirements for Degree

- A minimum of **121** total credit hours. Remedial coursework (English 1109; EDUTL 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1010; Mathematics 1040, 1050, 1073, 1074, 1075) do not count toward the 121-hour minimum requirement for the BS degree.
- A minimum of 30 semester hours of credit earned through regular course enrollment at this University, and regular course enrollment in the last semester in the College of Food, Agricultural, and Environmental Sciences.
- A cumulative point-hour ratio of at least 2.00 on all coursework completed at The Ohio State University as well as at least a 2.00 in the major.
- If a major-required course or major elective is a GE Theme course, two 3-4 cr courses (no more than one per theme area) is permitted to double count in the GE and major hours. GE Theme courses are indicated with a ❖ symbol.
- Students are encouraged to participate in education abroad opportunities. Consult with your advisor for how education abroad credit applies to your degree or consider the CFAES Global Option.
- Students must complete a minimum of 40 hours in major/major supporting coursework with at least 12 hours taken from the academic unit(s) offering the major at OSU in the baccalaureate program.
- Courses required in the major (including major supporting courses and major electives) may **not** be taken pass/non-pass.
- Coursework taken as open electives may include a maximum of 4 credit hours of physical activity courses (all 1139-1197 courses), and a maximum of 4 credit hours of campus music organizations.
- A college maximum of six hours of individual studies courses (x193) can be applied toward graduation; some majors may have a lower maximum.
- Students of CFAES must complete an internship of 1-2 hours as a requirement for degree. Any additional internship credit hours may count towards major hours (consult with your advisor). A college maximum of six hours of internship credit can be applied toward graduation; some majors may have a lower maximum.
- A maximum of three credits of 3488 can be applied toward graduation although some majors may have a lower maximum. A cumulative point-hour ratio of 2.0 is required to register for 3488 credit.
- Credit hours for 4999 ("with Research Distinction") and 4999H ("with Honors Research Distinction") are repeatable to maximum of six hours.
- **An application for degree must be submitted online at least two semesters prior to the intended graduation term. Application found at: https://students.cfaes.ohio-state.edu/academics/undergraduate/graduation**

Policies and General Requirements for Minors/Minor Equivalent

- The minor/minor equivalent must contain a minimum of 12 credit hours distinct from the major and/or additional minors (i.e., if a minor requires more than 12 credit hours, a student is permitted to overlap those hours beyond 12 with the major or with another minor).
- A 2.00 cumulative point-hour ratio is required in the minor/minor equivalent with a minimum C- grade for any course to be listed in the minor or minor equivalent (includes transfer credit).
- For programs requiring a minor: minors should be declared by the time students complete 60 hours.
- A student is permitted to count up to 6 credit-hours of transfer and/or EM credit in the minor or minor equivalent.
- Coursework graded Pass/Non-Pass cannot count in the minor. No more than 3 credit-hours of course work graded S/U may count toward the minor. Maximum of 3 credit-hours of xx93 are allowed to count in the minor.

Subject: FW: CEA specialization and minor
Date: Thursday, February 9, 2023 at 3:10:57 PM Eastern Standard Time
From: Barker, David
To: Luikart, Meredith
Attachments: image001.png, image002.png

Meredith
Concurrence from FABE

Dr David Barker
Professor and Associate Chair
Dept of Horticulture and Crop Science
202 Kottman Hall, 2021 Coffey Rd, Columbus OH 43210
Ph: 614-247-6258 Fax: 614-292-7162
Email: barker.169@osu.edu

From: Shearer, Scott A. <shearer.95@osu.edu>
Sent: Wednesday, November 30, 2022 3:05 PM
To: Barker, David <barker.169@osu.edu>; Osborne, Jeanne <osborne.2@osu.edu>
Cc: Luikart, Meredith <luikart.6@osu.edu>; Lindsey, Alexander J. <lindsey.227@osu.edu>; Kubota, Chieri <kubota.10@osu.edu>; Karcher, Doug <karcher.3@osu.edu>; Klooster, W. <klooster.2@osu.edu>; Gerber, Carri <gerber.140@osu.edu>; Deeter, Laura <deeter.7@osu.edu>; Meadows, Kendyl <meadows.145@osu.edu>
Subject: FW: CEA specialization and minor

David and Jeanne:

Please forge ahead as you have the full support and concurrence of FABE!

Regards,
Scott

Scott A. Shearer, PhD, PE | Professor and Chair
Food, Agricultural and Biological Engineering | 200A Agricultural Engineering Building
590 Woody Hayes Drive | Columbus, OH 43210-1058
Office: 614.292.7284 | Mobile: 859.509.5026 | FAX: 614.292.9448
www.fabe.osu.edu | twitter.com/ScottShearer95

From: Chen, Qian <chen.1399@osu.edu>
Sent: Wednesday, November 30, 2022 2:33 PM
To: Shearer, Scott A. <shearer.95@osu.edu>
Subject: RE: CEA specialization and minor

Scott,

Given the support from our FABE faculty in the related areas, I fully support the CEA specialization and minor.

Thanks,

Victoria

Q. Victoria Chen, Ph.D., LEED AP BD+C
Professor of Construction Systems Management
Academic Affairs Committee Chair
Dept. of Food, Agricultural, and Biological Engineering
The Ohio State University
E-Mail: chen.1399@osu.edu
Tel: (614) 292-2254

From: Shearer, Scott A. <shearer.95@osu.edu>
Sent: Wednesday, November 30, 2022 2:08 PM
To: Chen, Qian <chen.1399@osu.edu>
Subject: FW: CEA specialization and minor

Victoria:

You good with providing concurrence?

Regards,
Scott

Scott A. Shearer, PhD, PE | Professor and Chair
Food, Agricultural and Biological Engineering | 200A Agricultural Engineering Building
590 Woody Hayes Drive | Columbus, OH 43210-1058
Office: 614.292.7284 | Mobile: 859.509.5026 | FAX: 614.292.9448
www.fabe.osu.edu | twitter.com/ScottShearer95

From: Osborne, Jeanne <osborne.2@osu.edu>
Sent: Wednesday, November 30, 2022 12:35 PM
To: Barker, David <barker.169@osu.edu>
Cc: Luikart, Meredith <luikart.6@osu.edu>; Lindsey, Alexander J. <lindsey.227@osu.edu>; Kubota, Chieri <kubota.10@osu.edu>; Shearer, Scott A. <shearer.95@osu.edu>; Karcher, Doug <karcher.3@osu.edu>;

Klooster, W. <klooster.2@osu.edu>; Gerber, Carri <gerber.140@osu.edu>; Deeter, Laura <deeter.7@osu.edu>; Meadows, Kendyl <meadows.145@osu.edu>
Subject: RE: CEA specialization and minor

Dave,
I assume the effective term for the new specialization will actually be AU23 since we are past AU22, but the major itself is AU22; so, we will need to figure out how to indicate all of this once we get it through committee.

Take care,

Jeanne

From: Barker, David <barker.169@osu.edu>
Sent: Wednesday, November 30, 2022 12:29 PM
To: Osborne, Jeanne <osborne.2@osu.edu>
Cc: Luikart, Meredith <luikart.6@osu.edu>; Lindsey, Alexander J. <lindsey.227@osu.edu>; Kubota, Chieri <kubota.10@osu.edu>; Shearer, Scott A. <shearer.95@osu.edu>; Karcher, Doug <karcher.3@osu.edu>; Klooster, W. <klooster.2@osu.edu>; Gerber, Carri <gerber.140@osu.edu>; Deeter, Laura <deeter.7@osu.edu>; Meadows, Kendyl <meadows.145@osu.edu>
Subject: CEA specialization and minor

Jeanne

Please consider our request to add a specialization in Controlled Environment Agriculture (CEA) to the HCS Sustainable Plant Systems major, and a minor in Controlled Environment Agriculture.
Attached are:
Cover letter
CEA specialization
CEA minor
4-year plan

We have sought concurrence from FABE and the email correspondence has approval from FABE faculty, we are waiting for final concurrence from Scott Shearer [Scott, we added ASM2913 (Dr Ling classes) as electives in the minor equivalent. Dr Kubota had considered other ASM classes, but were either too advanced or not sufficiently focused on CEA industry]

The 4-year plan will not directly accommodate ATI transition students since HCS3200 and GE Theme-1 classes are included as Year 2 class recommendations, and are not available at ATI. The GE Theme 1 will not be an issue in cases for students selecting Sustainability as their theme since HCS2204 is an approved GE sustainability theme class. Students not selecting the Sustainability theme could accommodate this additional course in their final 2 years. We prefer Columbus student to take HCS3200 in their sophomore year, and ATI transition students can accommodate this in their third year courses, while taking SPS-CEA electives during their first 1-2 years at ATI.

Please let me know if you need additional information, or revision to these attachments.

Dr David Barker
Professor and Associate Chair
Dept of Horticulture and Crop Science
202 Kottman Hall, 2021 Coffey Rd, Columbus OH 43210
Ph: 614-247-6258 Fax: 614-292-7162
Email: barker.169@osu.edu