Sustainable Horticulture (SH & AGRC)

Sustainable Horticulture (SH)

In the Sustainable Horticulture associate's degree program students learn sustainable landscape techniques and technologies including design, implementation, and management of green roofs and green walls; stormwater management best practices; sustainable choices in plant materials; and use of alternative energy systems in landscapes.

Students complete foundation courses in landscape horticulture and environmental science, and then take additional technical courses in sustainable horticulture.

Core business courses prepare students for leadership roles in local businesses and municipalities, while cooperative education employment experiences allow students to further develop their knowledge in positions with companies utilizing sustainable horticulture.

The Sustainable Horticulture program is accredited by the National Association of Landscape Professionals (NALP).

For more information, please contact the Business Technologies Division at (513) 569-1620.

To apply for this program at Cincinnati State, visit the Admissions (http://www.cincinnatistate.edu/academics/admission/) section of the College website.

Sustainable Agriculture Management Certificate (AGRC)

The Sustainable Agriculture Management Certificate program leads to career opportunities in specialty crop growing operations, farmers' markets, and other urban agriculture initiatives.

The program is designed for completion in one year (three semesters) as a full-time student. Students are involved in continuous hands-on learning at a local farm throughout the program.

Coursework includes soil and plant science, detailed production of specialty crops, and an introduction to raising small animals, along with the financial, marketing, and management skills needed to successfully run an agriculture business.

For more information, please contact the Business Technologies Division at (513) 569-1620.

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Sustainable Horticulture (SH)

Semester 1		Lec	Lab	Credits
ENG 101	English Composition 1 (**G**)	3	0	3
LH 140	Landscape Operations (**T**)	2	3	3
LH 105	Horticulture Occupations (**B**)	1	1	1
LH 120	Soil Science and Plant Nutrition (**T**)	2	2	3
LH 130	Woody Plant Materials (**B**)	1	5	3
FYE 1XX	First Year Experience Elective (**B**)	1	0	1
XXX XXX	Environmental Science Elective (**B**)	3	0	3
Semester 2				
BUS 190	Professional Practices (**B**)	1	0	1
LH 110	Applied Botany (**G**)	2	3	3
LH 151	Landscape Design 1 (**T**)	2	3	3
LH 155	Computer-Aided Landscape Design (**T**)	2	3	3
ENG 1XX	English Composition Elective (**G**)	3	0	3
MAT 1XX	Mathematics Elective (**G**)	3	0	3
Semester 3				
LH 165	Landscape Construction (**T**)	2	3	3
LH 135	Herbaceous Plant Materials (**T**)	2	3	3
LH X9X	Cooperative Education Elective 1: Landscape Horticulture (**T**)	1	40	2
Semester 4				
ACC 101	Financial Accounting (**B**)	2	2	3
LAW 101	Business Law (**B**)	3	0	3
LH 230	Landscape Solutions to Stormwater Management (**T**)	2	3	3
LH 245	Plants for Sustainable Landscapes (**T**)	2	3	3
Semester 5				
LH 240	Landscape Management (**T**)	2	3	3
LH 290	Sustainable Landscape Design Capstone (**T**)	2	3	3
XXX XXX	Arts/ Humanities Elective or Social/ Behavioral Science Elective (**G**)	3	0	3

XXX XXX Management/ Marketing Elective (**B**)	3	0	3
Semester 6			
LH X9X Cooperative Education Elective 2: Landscape Horticulture (**T**)	1	40	2
Total Credits:	**51**	**120**	**67**

Electives

First Year Experience Elective		
FYE 100	College Success Strategies: Overview	1
FYE 105	College Success Strategies: Overview and Application	2
FYE 110	College Success Strategies: Practice and Application	3
Environmental Science Elective		
EVS 110	Environmental Science: Conservation and Cleanup	4
EVS 120	Environmental Geology	4
EVS 130	Environmental Science: Ecology and Ecosystems	4
EVT 175	Watershed Management	3
BIO 270	Ecology	5
English Composition Elective		
ENG 102	English Composition 2: Contemporary Issues	3
ENG 103	English Composition 2: Writing about Literature	3
ENG 104	English Composition 2: Technical Communication	3
ENG 105	English Composition 2: Business Communication	3
Management/Marketing Elective		
MGT 101	Principles of Management	3
MGT 105	Human Resource Management	3
MGT 120	Entrepreneurship	3
MGT 130	Project Management	3
MKT 101	Principles of Marketing	3
MKT 105	Marketing and Customer Relations	3
MKT 130	Principles of Sales	3
Mathematics Elective		
MAT 105	Quantitative Reasoning	3
MAT 111	Business Mathematics	3
MAT 125	Algebra and Trigonometry	4
Arts/Humanities Elective or Social/Behavioral Science Elective (select one course)		
Any Ohio Transfer 36 course from ART, LIT, MUS, PHI, REL, THE, or COMM 130		
or, any Ohio Transfer 36 course from ECO, GEO, HST, LBR, POL, PSY, SOC, or SPN 101		
Cooperative Education Electives (4 credit hours required)		
LH 191	Part-Time Cooperative Education 1: Landscape Horticulture	1
LH 192	Part-Time Cooperative Education 2: Landscape Horticulture	1
LH 193	Part-Time Cooperative Education 3: Landscape Horticulture	1
LH 194	Part-Time Cooperative Education 4: Landscape Horticulture	1
LH 291	Full-Time Cooperative Education 1: Landscape Horticulture	2
LH 292	Full-Time Cooperative Education 2: Landscape Horticulture	2

Some courses are offered in alternative versions identified with a letter after the course number-- for example, ENG 101 and ENG 101A.

- This curriculum displays only course numbers without the added letter.
- The alternative version, when available, meets the requirements of the course version without the added letter.

The letters G, B, and T (displayed after course titles or elective descriptions) identify types of courses required by the Ohio Department of Higher Education as part of an associate's degree curriculum.

G = General Education course in this curriculum

B = Basic Skills course in this curriculum

T = Technical course in this curriculum

Sustainable Agriculture Management Certificate (AGRC)

Semester 1		**Lec**	**Lab**	**Credits**
AGR 100	Introduction to Urban Agriculture	2	3	3
LH 120	Soil Science and Plant Nutrition	2	2	3
AGR 150	Fall Production	0	6	3
ACC 101	Financial Accounting	2	2	3
Semester 2				
AGR 105	Vegetable Crop Production	2	3	3
LH 110	Applied Botany	2	3	3
AGR 155	Spring Production	0	6	3
MKT 1XX Marketing Elective		3	0	3
Semester 3				
MGT 120	Entrepreneurship	3	0	3
AGR 135	Fruit and Nut Production	2	3	3
AGR 140	Farm Ecology Management	2	3	3
AGR 160	Summer Production	0	6	3
Total Credits:		**20**	**37**	**36**

Electives

Marketing Elective		
MKT 105	Marketing and Customer Relations	3
MKT 130	Principles of Sales	3

Some courses are offered in alternative versions identified with a letter after the course number-- for example, ENG 101 and ENG 101A.

- This curriculum displays only course numbers without the added letter.
- The alternative version, when available, meets the requirements of the course version without the added letter.

Sustainable Horticulture (SH)

- SH graduates are prepared to enter the green industry workforce at the technician level or above.
- SH graduates evaluate soils for the suitability of given plants.
- SH graduates understand how plants grow and interact with the environment.
- SH graduates are prepared to analyze a property, prepare an estimate and price proposals for landscape management services.
- SH graduates have a broad-based knowledge of woody and herbaceous plants including identification, culture, and potential issues with common landscape plants.
- SH graduates can communicate effectively through multiple means with clients, crew, supervisors, and the public.
- SH graduates can recognize, evaluate, and solve problems in landscapes.
- SH graduates can identify and safely operate a variety of equipment and tools commonly used in the green industry.
- SH graduates can identify potential plant pests, determine if controls are needed, evaluate potential controls, and apply the most effective control.
- SH graduates create landscape designs based on site properties, client needs, and functional analysis.
- SH graduates identify and manage plants, both native and non-native, that are appropriate for sustainable landscapes and green infrastructure.
- SH graduates recognize plants that are invasive in the Cincinnati region and recommend and implement control measures.

Faculty

Program Chair

Samuel (Mark) Deacon, MS
mark.deacon@cincinnatistate.edu

Co-op Coordinator

Brian Hooten, MAOL
brian.hooten@cincinnatistate.edu

Business Division Advising

(513) 569-1620
BTDadvisors@cincinnatistate.edu

Courses

LH 105 Horticulture Occupations
1 Credit. 1 Lecture Hour. 1 Lab Hour.
An introduction to horticulture occupations in the Cincinnati region. Topics include: job levels, working conditions, abilities needed, and benefits within the horticulture industries; resume preparation; interviewing; and business etiquette for the landscaping industry.
Prerequisites: None

LH 110 Applied Botany
3 Credits. 2 Lecture Hours. 3 Lab Hours.
A course on plant classification, structures, physiology, and development, and the environmental conditions that affect plant growth.
Prerequisites: Placement into ENG 101A

LH 115 Floral Design and Marketing
3 Credits. 2 Lecture Hours. 2 Lab Hours.
A course on concepts and techniques of floral design. Topics include: floral design styles, pricing, shop management, and specialized work such as weddings and funerals. Students must attend off-campus field trips.
Prerequisites: None

LH 120 Soil Science and Plant Nutrition
3 Credits. 2 Lecture Hours. 3 Lab Hours.
A course on physical, chemical, and biological properties of soils. Topics include: soil formation; soil conservation; and properties of soils that affect plant growth, development, and health.
Prerequisites: Placement into ENG 101A

LH 125 Turfgrass Management
3 Credits. 2 Lecture Hours. 2 Lab Hours.
A course on principles and practices for management of turfgrass installations. Topics include: turfgrass identification, growth, uses, and establishment; and pest control. Students must attend field trips.
Prerequisites: None

LH 130 Woody Plant Materials
3 Credits. 1 Lecture Hour. 5 Lab Hours.
A course on woody plants grown by nurseries and found in the landscape and in naturalized settings of Ohio. Topics include: identifying the features and landscape uses of deciduous and evergreen trees, shrubs, and vines. Students must attend weekly plant walk field trips.
Prerequisites: Placement into ENG 101A

LH 135 Herbaceous Plant Materials
3 Credits. 2 Lecture Hours. 3 Lab Hours.
A course on annual, biennial, and non-woody plants commonly used in landscapes of the greater Cincinnati region. Topics include: identification, culture, and design uses of plants for landscapes.
Prerequisites: Placement into ENG 101A

LH 140 Landscape Operations
3 Credits. 2 Lecture Hours. 3 Lab Hours.
A course on equipment used for landscape activities such as planting trees and shrubs and maintaining landscaped areas. Topics include: job safety; and operations of equipment such as loaders, backhoes, tractors, and commercial mowers. Students must attend field trips.
Prerequisites: None

LH 145 Horticulture Mechanics
3 Credits. 2 Lecture Hours. 2 Lab Hours.
An introduction to the mechanical systems used in the landscape industry. Topics include small engine theory, operation, and repair; gasoline and diesel fuels; hydraulic power systems; and traditional and alternative electrical systems.
Prerequisites: None

LH 151 Landscape Design 1
3 Credits. 2 Lecture Hours. 3 Lab Hours.
A course on landscape development for residential and small commercial sites. Topics include: the design process, proper design development, and graphics and lettering. Students must provide their own drawing tools and must attend field trips.
Prerequisites: Placement into ENG 101A

LH 155 Computer-Aided Landscape Design
3 Credits. 2 Lecture Hours. 3 Lab Hours.
A course on techniques for using computers in landscape design and contracting to generate plot plans, planting plans, and presentation drawings.
Prerequisites: Placement into ENG 101A

LH 160 Irrigation Design, Installation, and Management
3 Credits. 2 Lecture Hours. 3 Lab Hours.
A course on designing, installing, and managing residential and commercial irrigation systems. Students must participate in field work.
Prerequisites: LH 125 and LH 151 (minimum grade C for both)

LH 165 Landscape Construction
3 Credits. 2 Lecture Hours. 3 Lab Hours.
A course on techniques and use of materials for constructing and installing landscape planting features and structures such as gardens, terraces, walls, mounds, ponds, irrigation, and outdoor lighting. Students must participate in field work.
Prerequisites: LH 151 (minimum grade C)

LH 170 From Field to Kitchen
3 Credits. 2 Lecture Hours. 3 Lab Hours.
A course on edible plants, herbs, and spices and their use in culinary preparations.
Prerequisites: None
Instructor Consent Required

LH 175 Interior Plantscaping
3 Credits. 2 Lecture Hours. 2 Lab Hours.
A course on the use of foliage and blooming plants to enhance interior areas of buildings. Topics include: classification, culture, and design applications.
Prerequisites: Placement into ENG 101A

LH 191 Part-Time Cooperative Education 1: Landscape Horticulture
1 Credit. 1 Lecture Hour. 20 Lab Hours.
Students seeking an associate's degree participate in their first part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.
Prerequisites: BUS 190 (minimum grade C)

LH 192 Part-Time Cooperative Education 2: Landscape Horticulture
1 Credit. 1 Lecture Hour. 20 Lab Hours.
Students seeking an associate's degree participate in their second part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.
Prerequisites: LH 191

LH 193 Part-Time Cooperative Education 3: Landscape Horticulture
1 Credit. 1 Lecture Hour. 20 Lab Hours.
Students seeking an associate's degree participate in their third part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.
Prerequisites: LH 192

LH 194 Part-Time Cooperative Education 4: Landscape Horticulture
1 Credit. 1 Lecture Hour. 20 Lab Hours.
Students seeking an associate's degree participate in their fourth part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.
Prerequisites: LH 194

LH 195 Part-Time Cooperative Education 5: Landscape Horticulture
1 Credit. 1 Lecture Hour. 20 Lab Hours.
Students seeking an associate's degree participate in their fifth part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.
Prerequisites: LH 195

LH 196 Part-Time Cooperative Education 6: Landscape Horticulture
1 Credit. 1 Lecture Hour. 20 Lab Hours.
Students seeking an associate's degree participate in their sixth part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.
Prerequisites: LH 195

LH 205 Landscape Pests and Controls
3 Credits. 2 Lecture Hours. 3 Lab Hours.
A course on identification, diagnosis, and control of common insect, disease, and weed pests in the landscape industry. Topics include: integrated pest management/plant health care principles, and Ohio Department of Agriculture Commercial CORE and Category 6d exams.

Prerequisites: LH 110 and LH 130 and LH 135 (minimum grade C for all)

LH 210 Turfgrass Pests and Controls
3 Credits. 2 Lecture Hours. 2 Lab Hours.
A course on identification, diagnosis, and control of common insect, disease, and weed pests of turfgrasses. Topics include: integrated pest management/plant health care principles, and Ohio Department of Agriculture Commercial CORE and Category 8 exams. Students must attend field trips.
Prerequisites: LH 110 and LH 125 (minimum grade C for both)

LH 215 Arboriculture
3 Credits. 2 Lecture Hours. 3 Lab Hours.
A course on principles and techniques of the commercial arboriculture business. Topics include: trees and the environment; protection, diagnosis, and treatment of tree health problems; techniques for pruning, removal, and climbing; and job safety. Students must attend field trips.
Prerequisites: LH 110 and LH 130 (minimum grade C in both)

LH 225 Greenhouse Management and Plant Production
3 Credits. 2 Lecture Hours. 2 Lab Hours.
A course on principles and practices for greenhouse management and plant production. Topics include: greenhouse structures and maintenance, and managing environmental conditions vital to plant growth. Students must attend field trips.
Prerequisites: LH 110 and LH 135 (minimum grade C for both)

LH 230 Landscape Solutions to Stormwater Management
3 Credits. 2 Lecture Hours. 3 Lab Hours.
A course on using landscaping to manage stormwater and water runoff. Topics include: the ecology, design, installation, and maintenance of water management and retention systems including bioswales, green roofs, and rain gardens. Students must attend field trips.
Prerequisites: LH 110 and LH 120 and LH 151 (minimum grade C for all)

LH 240 Landscape Management
3 Credits. 2 Lecture Hours. 3 Lab Hours.
A course on principles and practices of management used in the landscape industry. Topics include: seasonal planning for landscape maintenance, contracts and specifications, cost estimating, business management, and personnel management. Students must attend field trips.
Prerequisites: LH 110 and LH 120 and LH 130 (minimum grade C for all), and MAT 093 or MAT 105A or appropriate Math placement

LH 245 Plants for Sustainable Landscapes
3 Credits. 2 Lecture Hours. 3 Lab Hours.
A course on identification, culture, and uses of nursery-grown woody and herbaceous plants in Cincinnati-area sustainable landscapes. Topics include: using native species appropriately, and controlling invasive species. Students must attend weekly field trips.
Prerequisites: LH 130 and LH 135 and LH 151 (minimum grade C for all)

LH 252 Landscape Design 2
3 Credits. 2 Lecture Hours. 3 Lab Hours.
A course on application of design theory to develop creative solutions to landscape problems. Topics include: graphic skills such as section, elevation, isometric and perspective techniques; construction plans; interaction with clients; and sales presentations. Students must attend field trips.
Prerequisites: LH 130 and LH 140 and LH 151 (minimum grade C for all)

LH 255 Golf Course and Athletic Field Management
3 Credits. 2 Lecture Hours. 3 Lab Hours.
A course on techniques for golf course and athletic field management. Topics include: layout and construction, course/field management systems, maintenance, budgeting, record-keeping, golf-specific turf care, turfgrass selection and enhancement, practices for playability enhancement, field set-up, and renovation of existing fields. Students must attend field trips.
Prerequisites: LH 125 (minimum grade C)

LH 265 Landscape Grading, Drainage, and Surveying
3 Credits. 2 Lecture Hours. 2 Lab Hours.
A course on landscape site preparation. Topics include: site assessment, establishing grades, soil conservation and improvement, surface and sub-surface drain systems, cut-and-fill calculations, and safe operation of equipment. Students must attend field trips.
Prerequisites: LH 151 (minimum grade C) and MAT 093 or appropriate placement

LH 290 Sustainable Landscape Design Capstone
3 Credits. 2 Lecture Hours. 3 Lab Hours.
Students complete a project while examining the landscape designer's role in restoring and protecting habitats. Topics include: site choice, stormwater controls, xeriscaping, criteria for LEED and other certifications, and techniques for landscape features such as green roofs and rain gardens. Students must attend field trips.
Prerequisites: LH 151 and LH 155 and LH 230 and LH 245 (minimum grade C for all)

LH 291 Full-Time Cooperative Education 1: Landscape Horticulture
2 Credits. 1 Lecture Hour. 40 Lab Hours.
Students seeking an associate's degree participate in their first full-time field learning experience related to their degree. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.
Prerequisites: BUS 190 (minimum grade C)

LH 292 Full-Time Cooperative Education 2: Landscape Horticulture
2 Credits. 1 Lecture Hour. 40 Lab Hours.
Students seeking an associate's degree participate in their second full-time field learning experience related to their degree. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.
Prerequisites: LH 291

LH 293 Full-Time Cooperative Education 3: Landscape Horticulture
2 Credits. 1 Lecture Hour. 40 Lab Hours.
Students seeking an associate's degree participate in their third full-time field learning experience related to their degree. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.
Prerequisites: LH 292