Landscape and Horticultural Technology

Associate of Applied Science Degree

Named one of the top six Outstanding Post-Secondary Agriculture Programs in the United States by the National Association of Agricultural Educators, the Landscape and Horticultural Technology (LHT) programs at County College of Morris (CCM) provide students with the technical knowledge and practical skills to succeed in a wide range of horticultural related professions.

With a primary focus on ornamental horticulture, students have an opportunity to earn an Associate of Applied Science degree in Landscape Management and Design, Turf and Turfgrass Management, or Landscape Entrepreneur

The programs also provide students who have very focused career goals with the choice of earning Certificates of Achievement in Landscape Design, Grounds Maintenance, Landscape Contractor or Garden Center. These certificates are designed specifically to meet the needs of students who may be currently employed and want to enhance their skill set or for those who already hold a baccalaureate or associate degrees in other areas. Certificates of Achievement may also be desirable for students who are making a career change and want or need to earn a credential as quickly as possible.

Each program is designed to prepare students for employment in specialized occupations in the field of agriculture, horticulture, and ornamental horticulture.

The Landscape Entrepreneur degree program prepares students for careers in horticulture business operations including retail and wholesale endeavors, service businesses, retail and wholesale equipment suppliers, and floral shops.

The Landscape Management and Design degree program prepares students to become professional landscape designers or specialists in the design and installation of landscapes in both the residential and commercial markets.

The Turf and Turfgrass Management degree program is specifically structured to prepare students to become professional turf managers of commercial complexes, sports turf, recreational turf and golf courses.

The emphasis in each program is on the development of professional attributes, problem-solving capability and strong technical skills. Students are provided opportunities to develop leadership ability and entrepreneurial skills as well as skills in management.

Graduates of the Landscape and Horticultural Technology programs can find employment as landscape designers, landscape installers, managers and supervisors, golf course superintendents, grounds maintenance supervisors, and much more. Upon completion of the associate's degree, students may also elect to transfer to a four-year institution to further their education. The Department of Landscape and Horticultural Technology has an articulation agreement with Delaware Valley College which provides CCM-LHT graduates a guarantee of junior status as long as they meet the minimum grade point criteria.

For more information, visit the Landscape and Horticultural Technology (https://www.ccm.edu/departments/landscape-and-horticultural-technology/) website.

Degrees

- AAS Landscape Entrepreneur (p. 1)
- AAS Landscape Management and Design (p. 2)
- AAS Turf and Turfgrass Management (p. 2)

Landscape Entrepreneur

(P3325)

This program provides career preparation in the skills needed to work in horticultural related service industries as well as in both wholesale and retail sales of horticultural products. It is ideal for those who love the business aspect of the horticultural field but who do not feel drawn to designing and for those with a desire to be actively involved in sales positions. The Landscape Entrepreneur degree program includes a strong emphasis on both horticultural technical knowledge as well as business management skills. Career opportunities are varied and, in addition to retail and wholesale nurseries, include equipment suppliers, landscape product suppliers, fertilizer and pesticide sales, as well as business management related to design build companies.
Due to continual program revisions mandated by the accrediting agencies and/or changes in state mandated requirements, students should consult their academic advisors when selecting courses.

General Education Foundation		**20**
ENG-111	English Composition I	
ENG-112	English Composition II	
Social Science or Humanities		
Choose from General Education course list		
Math-Science-Technology		
MAT-124	Statistics	
or MAT-110	College Algebra	
BIO-127	Biology of Environmental Concerns	
or BIO-129	Introduction to Botany	
CHM-117	Introductory Chemistry Lecture	
CHM-118	Introductory Chemistry Laboratory	
Small Business Core		12
ACC-105	Computerized Accounting	
BUS-219	Small Business Operations	
MKT-113	Principles of Marketing I	
Choose 3 credits from the following		
BUS-205	Landscape Specifications and Estimating	
or BUS-242	Customer Relations	
or MKT-215	Sales Principles and Practices	
or MKT-216	Advertising	
or MKT-208	Social Media Marketing	
General Education Foundation Credits		32
Landscape and Horticultural Technology Core		**28**

LHT-110	Plant Science	
LHT-215	Plant Pest Management	
LHT-114	Landscape Plant Identification Management and Use	
or LHT-108	Herbaceous Plant Materials	
LHT-116	Horticultural Soils	
LHT-211	Landscape Design and Planning I	
LHT-212	Landscape Design and Planning II	
LHT-115	Horticultural Computer Software Applications	
LHT-227	Internship Work Experience - LHT (90-200 Hours)	
Choose 3 credits from the following		
LHT-124	Grounds Maintenance and Development	
LHT-130	Arboriculture	
LHT-231	Landscape Construction and Equipment	
Landscape and Horticultural Technology Core Credits		0
Total Credits		**60**

Landscape Management and Design

(P3320)

This program provides career preparation in the skills needed to design, build and manage ornamental and natural landscapes. It is ideal for those with an artistic flair who also enjoy working outdoors and for anyone who derives satisfaction from building and completing projects. Students learn to measure, analyze, draw and install landscapes. Hands-on activities are provided whenever possible. Career opportunities abound for the landscape designer and opportunities to either work for or develop a landscape design and build company are also tremendous. Because students also learn technical aspects of landscape installation, graduates are in as much demand as skilled technicians in landscape and plant material installation. Graduates may also elect to transfer into a Landscape Architecture program, enrolling in a bachelor's or master's degree program.

General Education Foundation		
Communication		6
ENG-111	English Composition I	
ENG-112	English Composition II	
Math-Science-Technology		3
MAT-124	Statistics	
or MAT-11(	College Algebra	
Social Science or Humanities		3
Choose from General Education Humanities or Social Science course list		
General Education Electives		8
BIO-127	Biology of Environmental Concerns	
CHM-117	Introductory Chemistry Lecture	
CHM-118	Introductory Chemistry Laboratory	
General Education Foundation Credits		20
Landscape Management and Design Core		
LHT-115	Horticultural Computer Software Applications (+)	3
LHT-111	Introduction to Horticulture	4
LHT-114	Landscape Plant Identification Management and Use	3
LHT-108	Herbaceous Plant Materials	3
LHT-215	Plant Pest Management	4
LHT-235	Irrigation Systems	4
LHT-211	Landscape Design and Planning I	3
LHT-212	Landscape Design and Planning II	3
BUS-205	Landscape Specifications and Estimating	3
LHT-116	Horticultural Soils	4
LHT-233	Cooperative Agricultural Experience	3
Choose one of the following technical electives:		3
LHT-124	Grounds Maintenance and Development	
LHT-110	Plant Science	
LHT-231	Landscape Construction and Equipment	
LHT-130	Arboriculture	
LHT-101	Introduction to Turf Management	
Landscape Management and Design Core Credits		40
Total Credits		**60**

Due to continual program revisions mandated by the accrediting agencies and/or changes in state mandated requirements, students should consult their academic advisors when selecting courses.

Turf and Turfgrass Management

(P3324)

This program provides career preparation in the skills needed to manage large turf areas including golf courses, sports turf and both active and passive recreational turf areas. It is ideal for those who enjoy sports or who have participated in sports and want to find a rewarding career that provides continued contact with sports-related activities. Technical skills including understanding turfgrass physiology and morphology, soils management, installation techniques, and grounds management are all included in this course of study. Additionally, management and problem-solving skills are also an integral component. Graduates of the Turf and Turfgrass Management program are prepared for entry into a career in turf management or may choose to transfer to a four-year program in turf science.

General Education Foundation (20 Cr)		
Communication		6
ENG-111	English Composition I	
ENG-112	English Composition II	
Math-Science-Technology		3
MAT-110	College Algebra +	
or MAT-124	Statistics	
Social Science or Humanities		3
Choose from General Education Course List (Social Science or Humanities)		
Select either the Biology or the Chemistry General Education Science sequences:		8
BIO-121 & BIO-122	General Biology I and General Biology II	
OR		

CHM-125 & CHM-126	General Chemistry I - Lecture and General Chemistry I - Laboratory	
CHM-127 & CHM-128	General Chemistry II - Lecture and General Chemistry II - Laboratory	
General Education Foundation (20 Cr) Credits		20
Turf and Turfgrass Management Core		
LHT-101	Introduction to Turf Management	3
LHT-108	Herbaceous Plant Materials	3
LHT-110	Plant Science	3
LHT-111	Introduction to Horticulture	4
LHT-114	Landscape Plant Identification Management and Use	3
LHT-116	Horticultural Soils	4
LHT-215	Plant Pest Management	4
LHT-231	Landscape Construction and Equipment	3
LHT-234	Landscape and Turf Installation	3
LHT-235	Irrigation Systems	4
LHT-233	Cooperative Agricultural Experience	3
Choose one of the following technical electives:		3
LHT-115	Horticultural Computer Software Applications + +	
LHT-124	Grounds Maintenance and Development	
LHT-130	Arboriculture	
Turf and Turfgrass Management Core Credits		40
Total Credits		**60**

+For students who intend to transfer, MAT-110 is recommended. Be advised that students must be exempt from or pass MAT-016, Intermediate Algebra as it is a required prerequisite for BIO 121 & 122 and CHM 125/126 & CHM 126/127

++LHT 115, Horticultural Computer Software Applications can be used to fulfill the Technology Literacy requirement for students who do not pass the Technology Literacy Competence exam.

Due to continual program revisions mandated by the accrediting agencies and/or changes in state mandated requirements, students should consult their academic advisors when selecting courses.

Certificates of Achievement

- Landscape Design - A Certificate of Achievement within Landscape and Horticultural Technology (p. 3)
- Grounds Maintenance - A Certificate of Achievement within Landscape and Horticultural Technology (p. 3)
- Landscape Contractor - A Certificate of Achievement within Landscape and Horticultural Technology (p. 3)
- Garden Center - A Certificate of Achievement within Landscape and Horticultural Technology (p. 4)

Landscape and Horticultural Design Certificates of Achievement

The Landscape and Horticultural Technology Certificates of Achievement are designed for current or future professionals who want to improve their technical knowledge and skills in any of the four certificate areas. Each curriculum is balanced with theory and hands-on experiences. Students complete projects using the greenhouses, the plant preparation laboratory, the landscape design studio, the computer laboratory and the horticultural shop. The four certificate areas are: Landscape Design, Grounds Maintenance, Landscape Contractor and Garden Center. The Certificates of Achievement are designed primarily for part-time students who are currently working or plan to work in one of these areas. The courses required to fulfill the certificates may be offered both day and evening for working students. Students with diverse career goals may earn more than one certificate.

Landscape Design

A Certificate of Achievement within Landscape and Horticultural Technology

(P0320)

LHT-108	Herbaceous Plant Materials	3
LHT-110	Plant Science	3
LHT-114	Landscape Plant Identification Management and Use	3
LHT-211	Landscape Design and Planning I	3
LHT-212	Landscape Design and Planning II	3
BUS-205	Landscape Specifications and Estimating	3
Total Credits		**18**

Grounds Maintenance

A Certificate of Achievement within Landscape and Horticultural Technology

(P0321)

LHT-110	Plant Science	3
LHT-215	Plant Pest Management	4
LHT-124	Grounds Maintenance and Development	3
LHT-111	Introduction to Horticulture	4
LHT-116	Horticultural Soils	4
Total Credits		**18**

Landscape Contractor

A Certificate of Achievement within Landscape and Horticultural Technology

(P0322)

LHT-110	Plant Science	3
LHT-114	Landscape Plant Identification Management and Use	3
LHT-211	Landscape Design and Planning I	3
LHT-116	Horticultural Soils	4
BUS-205	Landscape Specifications and Estimating	3
LHT-231	Landscape Construction and Equipment	3
Total Credits		**19**

Garden Center

A Certificate of Achievement within Landscape and Horticultural Technology

(P0323)

LHT-110	Plant Science	3
LHT-215	Plant Pest Management	4
LHT-114	Landscape Plant Identification Management and Use	3
LHT-111	Introduction to Horticulture	4
Business Elective [1]		3
LHT-108	Herbaceous Plant Materials	3
Total Credits		**20**

[1] *Students should consult their academic advisors when selecting these courses.*

Faculty

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Courses

LHT-101. Introduction to Turf Management. 3 Credits.
LECT 30 hrs LAB 45 hrs
Intended to provide students with the skills needed to professionally manage turf facilities including golf courses, recreational and athletic fields. Topics include turf establishment and reseeding, turf management, turf maintenance, irrigation, control of turf pests and maintenance of turf areas. This course may be eligible for New Jersey Pesticide Recertification Credits in both core and selected categories. This course is offered as a traditional face-to-face course with an online supplement.
Additional Fees: Course fee applies.

LHT-108. Herbaceous Plant Materials. 3 Credits.
LECT 30 hrs LAB 45 hrs
Teaches field identification techniques for herbaceous plants including annuals, biennials and perennials. The installation, selection and uses of herbaceous plants in a landscape, maintenance of herbaceous plants, and the selection of tools and equipment in the maintenance of herbaceous landscape plants are also included.This course is offered as a face-to-face course with an online supplement and also as a hybrid course.
Additional Fees: Course fee applies.

LHT-110. Plant Science. 3 Credits.
LECT 30 hrs LAB 45 hrs
Plant Science includes studying the effects of the environment on plant growth and development, plant morphology and physiology, and plant classification. Students apply theory by propagating, maintaining and studying plants using the Landscape and Horticultural Technology program greenhouse facility. This course is offered as a traditional face-to-face course with an online supplement.
Additional Fees: Course fee applies.

LHT-111. Introduction to Horticulture. 4 Credits.
LECT 45 hrs LAB 45 hrs
Plant production, plant propagation, greenhouse management and marketing of bedding plants represent the major topics of study. Students apply classroom theory by producing both annual and perennial plants from seed, cuttings and division. Commercial production techniques are emphasized, including professional greenhouse management. This course is offered as a traditional face-to-face course with an online supplement.
Additional Fees: Course fee applies.

LHT-114. Landscape Plant Identification Management and Use. 3 Credits.
LECT 30 hrs LAB 45 hrs
This course focuses on field identification techniques applied to the study of woody plant material including trees, shrubs, groundcovers and vines. Both conifer and deciduous plants are covered. The landscape uses of plants and the factors which should be used to guide plant selection are also discussed. Over 100 species of woody plant material are studied including trees, shrubs, vines and groundcovers. The County College of Morris campus, local garden centers and arboreta of the Morris County Park Commission are all used for field study. This course is offered as a traditional face-to-face course with an online supplement.
Additional Fees: Course fee applies.

LHT-115. Horticultural Computer Software Applications. 3 Credits.
LECT 30 hrs LAB 45 hrs
Improves technical literacy by familiarizing students with the most effective ways to use the computer as a tool for online research, landscape design, landscape imaging and digital presentation development. Computer-assisted drafting is a major focus, and students also are introduced to GPS and GIS technology applications in agriculture. Students are provided with the opportunity to achieve competence in the selection and use of horticultural computer software. This course includes an online supplement and also offers students the opportunity to lease or purchase landscape design software at a significant discount.
Additional Fees: Course fee applies.

LHT-116. Horticultural Soils. 4 Credits.
LECT 45 hrs LAB 45 hrs
The origin, composition and management of soils, including study of the physical and chemical properties with emphasis on ion exchange processes, soil classification, soil amendments and biological processes that occur in the soil. The lab provides students with the opportunity to learn how to analyze and evaluate soil productivity including nutrient and pH levels as well as texture and structure. The emphasis throughout the course is on the development of problem-solving abilities which can be applied to field work. Students are required to complete a semester project which requires that they analyze the suitability of soils in an assigned area. This course is offered as a face-to-face course. This course will prepare students for the New Jersey Fertilizer Applicator Examination.
Additional Fees: Course fee applies.

LHT-124. Grounds Maintenance and Development. 3 Credits.
LECT 30 hrs LAB 45 hrs
This course provides students with the skills needed to professionally manage exterior environments. Topics include turf and landscape plant management, irrigation, control of landscape pests, winter property management and maintenance of landscape construction features as well as the maintenance of grounds equipment. This course is offered as a face-to-face course with an online supplement and as a hybrid course.
Additional Fees: Course fee applies.

LHT-130. Arboriculture. 3 Credits.
LECT 30 hrs LAB 30 hrs
This course introduces students to the science and technology of tree care in urban and suburban environments. Topics included are the anatomy and physiology of trees, fertility, water relations, pest management, pruning, disease management, tree/utility line conflicts, preservation of older trees in the landscape and identification of hazardous trees.
Additional Fees: Course fee applies.

LHT-211. Landscape Design and Planning I. 3 Credits.
LECT 30 hrs LAB 45 hrs
Class instruction emphasizes the theory, principles and practices of design and planning, effective use of plant materials, artistic consideration of form and function, and basic drawing and drafting techniques. Students learn to apply the design process as a problem-solving technique to produce finished designs. The process of design is a major focus and students are also taught presentation techniques. Sustainable practices are infused throughout the course. This course is offered as a face-to-face course with an online supplement or as a hybrid online course. Student project work is posted online using a free online portfolio system.
Prerequisites: LHT-114 or permission of department chair
Additional Fees: Course fee applies.

LHT-212. Landscape Design and Planning II. 3 Credits.
LECT 30 hrs LAB 45 hrs
A continuation of Landscape Design and Planning I. Class instruction focuses on problem-solving for difficult sites, including designing for slopes, sustainability, landscape lighting design, cultural influences on design and specialty garden design. Cost estimation, presentation skills and GPS applications are also covered. This course is offered as a face-to-face course with an online supplement or as a hybrid online course.
Prerequisites: LHT-211 or permission of department chair
Additional Fees: Course fee applies.

LHT-215. Plant Pest Management. 4 Credits.
LECT 45 hrs LAB 45 hrs
This course emphasizes the study of insects, diseases and weeds that are recognized as pests of ornamental plant materials and turf areas. The nature, structure and function of insect body parts, and the growth, habits, injurious effects and life cycles of pest organisms are studied in detail. Pesticides, regulations governing pesticide use and methods of selection and application are discussed with an emphasis on safety. Integrated Pest Management (IPM) techniques are stressed and students apply an understanding of IPM techniques to both greenhouse and landscape management. This course is offered as a face-to-face course, and will prepare students for the New Jersey Pesticide Applicator Examination in core and selected categories.
Prerequisites: LHT-110 or LHT-111 or permission of department chair.
Additional Fees: Course fee applies.

LHT-226. Internship Work Experience - LHT (45-10 0 Hours). 1 Credit.
COOP 45 hrs
This introductory course provides LHT Majors with career-oriented work experience in a paid work environment prior to career employment. The course requires a detailed description of the proposed internship, workplace attendance, frequent communication with the faculty advisor, and a written final report describing the students' work experience. The course satisfies one credit of a three-credit paid internship requirement of the LHT degree core curriculum. Students work a range of 45 to 100 hours.
Prerequisites: Permission of department chair.

LHT-227. Internship Work Experience -LHT (90-200 Hours). 2 Credits.
COOP 90 hrs
This intermediate course provides an internship experience in a paid environment for Landscape and Horticultural Technology majors. Students work a range of 90 - 200 hours. Course completion requires a detailed description of the proposed internship, workplace attendance, frequent communication with the faculty advisor, a written final report, and a closing interview describing the students' work experience.
Prerequisites: Permission of department chair.

LHT-228. Internship Work Experience - LHT (135-3 00 Hours). 3 Credits.
COOP 135 hrs
This comprehensive course provides selected students enrolled in the LHT major with job-oriented training and practical work experience in a paid or unpaid work environment prior to career employment. The course requires a detailed description of the proposed internship, workplace attendance, regular communication with the faculty advisor, an oral presentation, a written final report, and a closing interview describing the students' work experience. Students work a minimum of 135 hours. Students desiring to participate in this experience should make their interest known to the department chairperson by the end of their second semester.
Prerequisites: Permission of department chair.

LHT-231. Landscape Construction and Equipment. 3 Credits.
LECT 30 hrs LAB 45 hrs
Course emphasizes state-of-the-art landscape construction and installation techniques, surveying techniques and the safe operation and maintenance of landscaping equipment. Utilizing the well-equipped Landscape and Horticultural Technology facility, this course provides the student with extensive hands-on instruction in hardscape installation and also focuses on teaching students the value of professional certification programs. This course is offered as a face-to-face course with an online supplement.
Additional Fees: Course fee applies.

LHT-234. Landscape and Turf Installation. 3 Credits.
LECT 30 hrs LAB 45 hrs
This course is intended to provide students with the skills and knowledge needed to succeed as landscape and turf installers and managers. Skills developed include surveying, understanding grading and drainage, and installation techniques for both landscape plants and turf. This course may be eligible for New Jersey Pesticide Recertification credits in both core and selected categories. This course is offered as a face-to-face course with online enhancements and as a hybrid online course.
Prerequisites: LHT-101 or LHT-110 or LHT- 111 or LHT-124 or permission of department chair.
Additional Fees: Course fee applies.

LHT-235. Irrigation Systems. 4 Credits.
LECT 45 hrs LAB 45 hrs
This course is intended to provide the student with a general understanding of the components, use and function of irrigation systems. By completion of this course, the students are able to operate, maintain and repair irrigation systems. This course is offered as a face-to-face course with an online supplement or as a hybrid course.
Additional Fees: Course fee applies.

LHT-291. Special Topics in Agriculture I. 3 Credits.
LECT 45 hrs
This course is an independent study course which involves students in an individualized course of study designed to fit each student's program of study and career goals. There is an online supplement for this course.
Prerequisites: Permission of department chair
Additional Fees: Course fee applies.

LHT-292. Special Topics in Agriculture II. 3 Credits.
LECT 45 hrs
This course is the second independent study course of a two semester sequence which involves students in an individualized course of study designed to fit each student's program of study and career goals. There is an online supplement for this course.
Prerequisites: Permission of department chair
Additional Fees: Course fee applies.