

Landscape Architecture & Horticulture

Tyler's landscape architecture and horticulture programs trace back to the Pennsylvania School of Horticulture for Women, founded at Ambler in 1911. Through an ecological approach to planning, design, development, and care of the land, the programs in Landscape Architecture and Horticulture promote the development of skills to improve the quality of urban, suburban, and rural communities. The unique curricula integrate horticulture and landscape architecture. For courses on the Ambler campus, the curriculum utilizes the 187-acre Temple University Ambler Arboretum and state-of-the-art greenhouse facilities as a living laboratory for learning. Undergraduate programs include baccalaureate degree programs in landscape architecture and horticulture; a two-year Associate in Science degree in horticulture, minors in environmental horticulture and landscape studies; and certificates in horticulture. A Master of Landscape Architecture is also offered. Both the Bachelor of Science in Landscape Architecture and the Master of Landscape Architecture are accredited by the Landscape Architectural Accreditation Board.

Careers in horticulture and landscape architecture are available in both the public and private sector.

For landscape architecture graduates, there are a variety of employment options including:

- Careers in the public sector in landscape architecture design and management positions. These might be affiliated with regional, county, or city planning commissions.
- Careers in private practice including the design of open space in relation to recreational, residential, commercial, institutional, and industrial projects, as well as the overall planning of new communities.
- Work on parks, recreation, trails, and open space planning and design.
- Work in environmental protection, historic preservation, landscape restoration, land reclamation, and green infrastructure.

Graduates with a degree in horticulture could be involved in the production, use, installation, and management of plants. They may:

- Work in public horticulture in arboreta, botanic gardens, parks, or golf courses.
- Teach in a high school, community college, or at the university level.
- Pursue an advanced degree and conduct research in plant propagation or stormwater management.
- Produce plants in greenhouses and nurseries for sale and landscape use.
- Design, install, and/or maintain residential, commercial, or public landscapes.
- Research new technologies and plants in private and public institutions.
- Work toward registration as a horticultural therapist.
- Write about plants and horticulture for articles, books, and copy on web sites.
- Work as an extension agent or specialist helping residential and commercial clients.
- Work in interior landscaping or floral design.
- Work as a sales representative for horticultural or allied industries.
- Own and operate their own business.

Continuing Studies

The Department offers a variety of credit courses and certificate programs. These courses and certificates are available to degree-seeking students as well as others interested in horticulture. For many, these courses are a means of advancing careers; for others, they are a source of personal enrichment. It is also possible, over a period of years, to complete all of the requirements for some credit certificate programs and for the associate's and the bachelor's degrees in Horticulture by attending late afternoon, evening, and weekend classes.

Rashida Ng, Chair, Architecture and Environmental Design
Tyler School of Art and Architecture
Architecture Building, Room 204
2001 N. 13th Street
Philadelphia, PA 19122
215-204-8813
rashida.ng@temple.edu

Sasha W. Eisenman, Ph.D., Program Head, Landscape Architecture and Horticulture
Tyler School of Art and Architecture
201 Dixon Hall
580 Meetinghouse Road
Ambler, PA 19002
267-468-8168
eisenman@temple.edu

Pauline Hurley-Kurtz, Curriculum Head, Landscape Architecture
Tyler School of Art and Architecture
207 Dixon Hall
580 Meetinghouse Road
Ambler, PA 19002
267-468-8187
phurleyk@temple.edu

Programs

- Associate in Science in Horticulture (<http://bulletin.temple.edu/undergraduate/tyler/landscape-architecture-horticulture/as-horticulture>)
- Bachelor of Science in Horticulture (<http://bulletin.temple.edu/undergraduate/tyler/landscape-architecture-horticulture/bs-horticulture>)
- Bachelor of Science in Landscape Architecture (<http://bulletin.temple.edu/undergraduate/tyler/landscape-architecture-horticulture/bs-landscape-architecture>)
- Bachelor of Science in Landscape Architecture with Concentration in Horticulture (<http://bulletin.temple.edu/undergraduate/tyler/landscape-architecture-horticulture/bs-landscape-architecture-horticulture-concentration>)

Botany Courses

BOT 1111. General Botany. 4 Credit Hours.

Sexual, structural, and vegetative characteristics of bacteria, algae, fungi, nonvascular and vascular plants. An emphasis is placed on angiosperm (flowering plant) diversity, anatomy, morphology, phylogeny, and ecology. The course explores the importance of plants and the impact of people on our plant communities. NOTE: This course can be used to satisfy the university Core Science & Technology First Level (SA) requirement. To determine if this course in combination with another course can satisfy the GenEd Science & Technology requirement, see your advisor.

Course Attributes: SA

Repeatability: This course may not be repeated for additional credits.

BOT 1112. Plant Ecology. 3 Credit Hours.

The structure and function of plants are studied in relationship to their fit into the environment. The interaction of plants with each other and with their environment through study of natural and artificial systems, including wetlands, meadows, forests, deserts, disturbed sites, and managed landscapes.

Repeatability: This course may not be repeated for additional credits.

BOT 2121. Plant Physiology. 4 Credit Hours.

An introduction to the major topics and concepts of plant physiology. Discusses the structure and functions of the different parts of a plant. Focuses on water and nutrition, biochemistry and metabolism, and growth and development of plants. NOTE: This course can be used to satisfy the university Core Science & Technology Second Level (SB) requirement.

Course Attributes: SB

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

(BOT 1111|Minimum Grade of D-|May not be taken concurrently
AND CHEM 1021 to 1024|Minimum Grade of D-|May not be taken concurrently)
OR BIOL 1011 to 1012|Minimum Grade of D-|May not be taken concurrently.

BOT 2156. Plant Genetics and Diversity. 3 Credit Hours.

Genetics of plants, including Mendelian and extranuclear genetics, quantitative genetics, and population genetics. The course also considers the basis for, and significance and preservation of plant genetic diversity. The course considers man's impact on plant genetic diversity, including plant extinction, conservation, breeding, and biotechnology.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

(BOT 1111|Minimum Grade of D-|May not be taken concurrently
AND CHEM 1021 to 1024|Minimum Grade of D-|May not be taken concurrently)

BOT 3122. Applied Plant Physiology. 3 Credit Hours.

Highlights the major environmental factors that affect plant growth and development and explores ecologically sound approaches to solving stress-related problems. Focuses on techniques for designing experiments to examine the impact of environmental stress on the growth and development of a plant, and on techniques for manipulating a microenvironment in the production of horticulture crops.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

BOT 2121|Minimum Grade of D-|May not be taken concurrently.

BOT 3166. Plant Taxonomy. 3 Credit Hours.

Systematic botany, evolutionary relationships of angiosperm families. Identification, classification, and nomenclature based on analysis of plant structure, genetics, physiology, and ecology. Identification of local native flowering plants; preparation of preserved specimens.

Class Restrictions: Must be enrolled in one of the following Classes: Junior 60 to 89 Credits, Senior 90 to 119 Credits, Senior/Fifth Year 120+ Credits.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

BOT 1111|Minimum Grade of D-|May not be taken concurrently.

Horticulture Courses

HORT 1001. Fundamentals of Horticulture. 2 Credit Hours.

Principles of horticultural science; basic techniques of horticulture, including soil management, plant propagation, selection and maintenance of plant materials, and landscape design. NOTE: Horticulture 1001 (0015), unless it is the student's first Landscape Architecture/ Horticulture course or part of a successful credit certificate, is not applicable toward degree credit.

Repeatability: This course may not be repeated for additional credits.

HORT 1211. Woody Plants I. 3 Credit Hours.

The study of native and introduced trees, shrubs, and vines that are the foundation of our natural and designed landscapes with emphasis on identification, culture, association in plant communities, and appropriate use.

Repeatability: This course may not be repeated for additional credits.

HORT 1212. Woody Plants II. 3 Credit Hours.

Study of native and introduced trees, shrubs, and vines that are the foundation of our natural and designed landscapes with emphasis on identification, culture, association in plant communities, and appropriate use. The focus of this course is on conifers and broadleaf evergreens.

Repeatability: This course may not be repeated for additional credits.

HORT 1555. Equipment Maintenance. 3 Credit Hours.

This course covers proper operation, repair, and normal maintenance procedures for motorized equipment, including tractors, mowers, tillers, shredders, sprayers, chain saws, and hand-held trimmers and blowers.

Repeatability: This course may not be repeated for additional credits.

HORT 1566. Horticulture Business Management. 3 Credit Hours.

Emphasis on managerial philosophies and responsibilities including: ethics; development of staff; problem solving; scheduling; budgets; tax laws; personnel recruiting and networking; public relations and marketing; reading specifications and blueprints; estimating and bidding; and writing business plans.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

MATH 0701|Minimum Grade of C-|May not be taken concurrently
OR MATH 0702 to 4999| Required Courses:1|Minimum Grade of D-|May be taken concurrently
OR MC3 Y|May not be taken concurrently
OR MC4 Y|May not be taken concurrently
OR MC5 Y|May not be taken concurrently
OR MC6 Y|May not be taken concurrently
OR MC3A Y|May not be taken concurrently
OR MC6A Y|May not be taken concurrently
OR MATW Y|May not be taken concurrently
OR MC3S Y|May not be taken concurrently.

HORT 1651. Art of Floral Design I. 3 Credit Hours.

A lecture-studio course in which students learn the aesthetic principles of design firsthand as they create a series of floral compositions from natural and artificial materials. Development of a critical eye by analyzing and critiquing their own and each other's work. Also considers traditions of floral design as it has been practiced in Eastern and Western cultures. NOTE: This course can be used to satisfy the university Core Arts (AR) requirement. Although it may be usable towards graduation as a major requirement or university elective, it cannot be used to satisfy any of the university GenEd requirements. See your advisor for further information.

Course Attributes: AR

Repeatability: This course may not be repeated for additional credits.

HORT 1652. Art of Floral Design II. 3 Credit Hours.

Applies the philosophy of the relationships of nature and creativity to commercial design and compositions for home and exhibition. Also engages students in further study and experimentation in assembling plant materials and found objects indigenous to classical styles as well as considering the influences of avant-garde design from the art world.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

HORT 1651|Minimum Grade of D-|May not be taken concurrently.

HORT 2114. Soils. 3 Credit Hours.

The physical, chemical, and biological properties of soils are examined, considering water/mineral, organism/air relationships. Soil morphology, classification, genesis, and geographic distribution are studied. An understanding of soil horizon from textbook to actual site soil pits is developed. NOTE: This course can be used to satisfy the university Core Science & Technology Second Level (SB) requirement. To determine if this course in combination with another course can satisfy the GenEd Science & Technology requirement, see your advisor.

Course Attributes: SB

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

(CHEM 1021|Minimum Grade of D-|May not be taken concurrently
AND CHEM 1023|Minimum Grade of D-|May not be taken concurrently)
OR EES 1001|Minimum Grade of D-|May not be taken concurrently
OR BOT 1111|Minimum Grade of D-|May not be taken concurrently.

HORT 2221. Herbaceous Plants I. 3 Credit Hours.

The identification, culture, and appropriate designs for native and cultivated annuals, perennials, bulbs, and wildflowers; collaboration with nature in designing and maintaining ecologically sound gardens.

Repeatability: This course may not be repeated for additional credits.

HORT 2222. Herbaceous Plants II. 3 Credit Hours.

Topics include: identification, culture, and creation of environmentally appropriate designs for native and cultivated annuals, perennials, herbs, and roses; cost analysis; designing and maintaining ecologically sound gardens.

Repeatability: This course may not be repeated for additional credits.

HORT 2256. Interior Plantscaping. 3 Credit Hours.

Explores the culture and use of foliage and flowering plants indoors, management of the interior environment for plants, plant identification, and business practices for interior plantscapers.

Repeatability: This course may not be repeated for additional credits.

HORT 2323. Greenhouse Management. 3 Credit Hours.

Introduces the basic concepts and principles utilized in greenhouse operation and management. Centers on topics such as greenhouse structure, environmental control, substrate, fertilization, watering, light and temperature, pest and disease control, growth control, and post production management. Focuses on managing the greenhouse environment to maximize the productivity of crops and examines the latest trends in the greenhouse industry.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

BOT 1111|Minimum Grade of D-|May not be taken concurrently.

HORT 2324. Plant Propagation. 3 Credit Hours.

Principles and practices of sexual and asexual methods of propagation, including micropropagation.

Repeatability: This course may not be repeated for additional credits.

HORT 2334. Food Crops I. 3 Credit Hours.

An introductory hands-on course in sustainable food production, handling, and distribution of crops. Food tasting is an integral part of this course.

Repeatability: This course may not be repeated for additional credits.

HORT 2353. Food Crops II. 3 Credit Hours.

The focus of this course is on Community Supported (Sustainable) Agriculture (CSAs), food co-ops, farmers' markets, and restaurants.

Repeatability: This course may not be repeated for additional credits.

HORT 2356. Greenhouse Production. 3 Credit Hours.

Considers scheduling greenhouse crop production and cultural requirements of several major floricultural plants, finished plants, liners and plugs, including the latest cultivars used in urban nursery/garden centers. Identification of greenhouse grown plant material and field trips to innovative growers are also components of the course.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

HORT 2323|Minimum Grade of D-|May not be taken concurrently.

HORT 2366. Nursery Operation, Management, and Production Techniques. 3 Credit Hours.

Includes an overview of the nursery industry and examines the management and operation of wholesale and retail nurseries, and the production of plants in both container and field-grown conditions.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

HORT 1212|Minimum Grade of D-|May not be taken concurrently.

HORT 2552. Trees in the Urban Landscape. 2 Credit Hours.

Urban life is tough on trees - pollution, weather extremes, neglect, traffic accidents, construction, and vandalism all take their toll. This course provides an overview of Western civilization's efforts to integrate trees into the urban landscape, with a particular emphasis on Philadelphia's urban forest. Urban treescapes through the nineteenth and twentieth century are explored from the perspective of social, cultural, economic, political and ecological influences. Philadelphia's Center City and its adjacencies serve as a laboratory for field walks, tree identification exercises, and for exploring urban forestry practices and policies.

Repeatability: This course may not be repeated for additional credits.

HORT 2555. Arboriculture. 3 Credit Hours.

Basic biology and care of trees; diagnosis of common pests, diseases, mechanical, nutritional, and environmental problems. Types and use of proper equipment for climbing, pruning, maintenance, and structural requirements. Professional training includes insurance, liability, tree evaluation, job estimates, tree inventories, record keeping, and working with municipalities and community groups.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

HORT 1211|Minimum Grade of D-|May not be taken concurrently.

HORT 2556. Introduction to Beekeeping. 3 Credit Hours.

Introduces students to the science and art of keeping honey bees and the critical role played by honey bees in sustaining our environment by pollinating food crops and wild flowers. Topics include: establishment of colonies; seasonal management; honey production; and environmental challenges to honey bee health, including pests, diseases, and insecticides/herbicides. The laboratory portion makes use of the apiary located on the Ambler Campus, allowing hands-on application of course topics.

Repeatability: This course may not be repeated for additional credits.

HORT 2565. Turf Management. 3 Credit Hours.

The establishment and maintenance of turf grasses under varying soil and environmental conditions, particularly urban conditions. The identification of species and newer strains of grasses and their appropriate uses. An environmental approach to lawn maintenance and the responsible use of fertilizers, pesticides, and herbicides is stressed.

Repeatability: This course may not be repeated for additional credits.

HORT 2575. Introduction to Public Horticulture. 3 Credit Hours.

Introduction to principles of horticultural management and administration in the public realm. Examines the activities of botanic gardens and societies, arboreta, zoos, community garden groups, and parks departments. Covers the basic principles of botanic garden management, plant curatorship, collection care, public education, facility design, business management, and long-range planning. NOTE: Designed for students considering a career in public horticulture and those already associated with non-profit institutions who would like to learn more about the field.

Repeatability: This course may not be repeated for additional credits.

HORT 2653. Art of Floral Design III. 3 Credit Hours.

Deeper exploration of the principles of composition and the study of symbolism, periods, and movements of design, as well as construction with plant materials, found objects, lighting, and other media.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

HORT 1652|Minimum Grade of D-|May not be taken concurrently.

HORT 2655. Flower Shop Management. 3 Credit Hours.

The business management of the retail flower shop; design of unusual floral displays; handling flowers, plants, and accessories; and making corsages, sprays, bouquets, and wedding decorations.

Repeatability: This course may not be repeated for additional credits.

HORT 2666. Designing with Perennials. 3 Credit Hours.

Perennial designs involve an understanding of the site, respect for adjacent areas, maintenance concerns, and client desires. Student's knowledge of herbaceous plants is used as a basis for developing creative, ecologically sensitive design solutions.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

HORT 2221|Minimum Grade of D-|May not be taken concurrently.

HORT 2753. Introduction to Horticultural Therapy. 3 Credit Hours.

Definition and history of Horticultural Therapy (HT). Presentation of HT programs, such as social, therapeutic and vocational. HT population types are discussed including physically and developmentally disabled, older adults, children, visually impaired, incarcerated populations, and those in healthcare settings. Design of therapeutic spaces, garden design characteristics, universal design and site assessment. Overview of the profession.

Repeatability: This course may not be repeated for additional credits.

HORT 2754. Horticultural Therapy Skills. 3 Credit Hours.

Developing horticulture skills and techniques for use in therapy programs for diverse client populations. HT programming to include: setting goals and objectives; assessment and evaluation; use of adaptive tools and devices; use of plant materials and supplies for HT programs.

Repeatability: This course may not be repeated for additional credits.

HORT 2755. Horticultural Therapy Program Management. 3 Credit Hours.

Examines Horticultural Therapy programs and the impact of gardening, plants, and nature on diverse client populations. Site visits to local facilities. Research into funding sources, writing proposals for programs, developing program budgets, and grant writing.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

HORT 2753|Minimum Grade of D-|May not be taken concurrently

OR HORT 2754|Minimum Grade of D-|May not be taken concurrently.

HORT 2850. Special Topics in Horticulture/Landscape Architecture I. 3 Credit Hours.

Study of topics and problems in horticulture, landscape architecture, and related disciplines. NOTE: Students may obtain a description of the current version at the department office and in the schedule of classes. This course may be repeated for credit.

Repeatability: This course may be repeated for additional credit.

HORT 2860. Special Topics in Horticulture/Landscape Architecture II. 3 Credit Hours.

Study of topics and problems in horticulture, landscape architecture, and related disciplines. NOTE: Students may obtain a description of the current version at the department office and in the schedule of classes. This course may be repeated for credit.

Repeatability: This course may be repeated for additional credit.

HORT 2870. Special Topics. 1 to 3 Credit Hour.

Variable offerings from semester to semester of selected topics not part of the regular listing of courses. The topic can be in an area of specialization of a faculty member or an examination of a current development in the field. NOTE: Students may obtain a description of the current version at the department office and in the schedule of classes. This course may be repeated for credit.

Repeatability: This course may be repeated for additional credit.

HORT 2881. Cooperative Education. 3 Credit Hours.

A program of full-time summer work in horticulture or landscape design for a minimum of seven weeks. Cooperative Education gives the student the opportunity to integrate academic learning with practical work experience, thereby broadening his or her skills and perspectives.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Horticulture, Landscape Architecture.

Degree Restrictions: Must be enrolled in one of the following Degrees: Associate in Science, Bachelor of Science.

Repeatability: This course may be repeated for additional credit.

HORT 2883. Directed Studies in Horticulture. 1 to 3 Credit Hour.

Specialized topics from various areas of horticulture in which individuals will work independently and be supervised by a faculty member.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Horticulture, Landscape Architecture.

Degree Restrictions: Must be enrolled in one of the following Degrees: Associate in Science, Bachelor of Science.

Repeatability: This course may be repeated for additional credit.

HORT 2982. Honors Projects in Horticulture. 1 to 3 Credit Hour.

For exceptional students interested in pursuing independent, in-depth study. Credits based on the quantity and quality of work fulfilling the established course outline.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Horticulture.

Degree Restrictions: Must be enrolled in one of the following Degrees: Associate in Science, Bachelor of Science.

Cohort Restrictions: Must be enrolled in one of the following Cohorts: SCHONORS, UHONORS, UHONORSTR.

Course Attributes: HO

Repeatability: This course may be repeated for additional credit.

HORT 3256. Advanced Plant Materials. 3 Credit Hours.

Advanced studies in woody and herbaceous plants, including identification of less commonly used material, late spring and summer aspects of garden design, maintenance, and restoration. Practical aspects of this course include weekly field trips, actual garden seed sowing, and garden maintenance.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

(HORT 1212|Minimum Grade of D-|May not be taken concurrently
AND HORT 2221|Minimum Grade of D-|May not be taken concurrently)

HORT 3423. Applied Entomology. 3 Credit Hours.

In lecture and laboratory, students learn the basic diagnostic skills for identifying pest problems. Integrated Pest Management (IPM) is emphasized as the approach for managing pests of plants grown in stressful environments.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

HORT 1212|Minimum Grade of D-|May not be taken concurrently.

HORT 3424. Applied Plant Pathology. 3 Credit Hours.

Explores plant pathological theories and practices. The causes of plant diseases, such as fungi, bacteria, virus, nematodes, plant parasites, as well as environmental stresses, also are examined. Diagnostic skills for determining causes and current management measures are highlighted through lectures and laboratory work. Prepares students to solve horticultural pathology problems.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

BOT 1111|Minimum Grade of D-|May not be taken concurrently.

HORT 3456. Tree Pathology. 3 Credit Hours.

A study of tree health and management. Infectious and noninfectious diseases of shade trees are studied in lectures and in-depth field trips. Emphasizes the effects of urban stress, economically important diseases, and complex tree declines.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

BOT 1111|Minimum Grade of D-|May not be taken concurrently.

HORT 3514. Landscape Restoration. 3 Credit Hours.

Develops an ecologically based understanding of how to establish, restore, and manage meadows, forest, and wetland systems. Emphasizes natural processes and integrating the built landscape with our natural systems, and also explores plant communities and wildlife habitats of Southeastern Pennsylvania. Students participate in the management of natural landscapes on the Ambler campus and nearby parkland.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

HORT 1212|Minimum Grade of D-|May not be taken concurrently.

HORT 3523. Landscape Management. 3 Credit Hours.

Develops an understanding of issues of professional, innovative, and appropriate landscape management. Major focus is given to site analysis, pruning, nutrition, water management, and other maintenance techniques. Also stresses business management, pricing, bidding, specifications, and contracts.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

HORT 1212|Minimum Grade of D-|May not be taken concurrently.

HORT 3882. Independent Study. 1 to 3 Credit Hour.

Explorative study or research not met in any established course. Initiated by the student, the project must be sponsored by a faculty member with an approved agreement outlining the content and requirements, including readings, meetings, and papers. NOTE: Special authorization required for all students. Students must have the agreement of a faculty sponsor and must submit a formal proposal to this faculty member and Department before registering for the course.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Horticulture.

Degree Restrictions: Must be enrolled in one of the following Degrees: Associate in Science, Bachelor of Science.

Repeatability: This course may be repeated for additional credit.

HORT 3885. Internship. 1 Credit Hour.

A minimum of one semester or 350 hours of employment is required in an area related to the student's horticultural field of interest. Should provide a meaningful work experience. NOTE: The internship should be taken between the sophomore and junior years.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Horticulture.

Class Restrictions: May not be enrolled in one of the following Classes: Freshman 0 to 29 Credits.

Degree Restrictions: Must be enrolled in one of the following Degrees: Associate in Science, Bachelor of Science.

Repeatability: This course may be repeated for additional credit.

HORT 4896. Senior Seminar. 3 Credit Hours.

Using a broad range of critical thinking skills derived from previous course experiences, students write and present an in-depth research paper on a horticultural topic. In preparation for graduation, students develop a cover letter, resume, and curriculum vitae and discuss professional internships. NOTE: Fulfills the capstone writing intensive requirement for the B.S. in Horticulture.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Horticulture.

Class Restrictions: Must be enrolled in one of the following Classes: Senior 90 to 119 Credits, Senior/Fifth Year 120+ Credits.

Degree Restrictions: Must be enrolled in one of the following Degrees: Bachelor of Science.

Course Attributes: WI

Repeatability: This course may be repeated for additional credit.

Pre-requisites:

BOT 2121|Minimum Grade of C-|May not be taken concurrently.

Landscape Architecture Courses**LARC 0841. Sustainable Design. 3 Credit Hours.**

What's the big deal about global warming and how should we respond to it? Explore the issues and underlying causes. See how contemporary designers from Germany, Netherlands, UK and Japan are responding to scientific knowledge with sustainable designs for buildings, cars, towns and parks. Develop your own creative project to reduce the greenhouse effect. Have you ever wondered about what happens to local abandoned factories and degraded streams and rivers? Philadelphia is a national hotbed for sustainable design. Visit local restoration sites, modern "green" buildings, parks that reclaim waste water and transformed industrial parks to see firsthand what is happening in our area. Learn how design is transforming to propel us toward a low waste, energy conserving society in the 21st century. NOTE: This course fulfills a Science & Technology (GS) requirement for students under GenEd and Science & Technology Second Level (SB) for students under Core. This course should not be taken by students who have successfully completed LARC 1013.

Course Attributes: GS

Repeatability: This course may not be repeated for additional credits.

LARC 0852. Green vs. Gray: Improving and Sustaining Urban Ecosystems. 3 Credit Hours.

Explores urban ecosystems and methods of improving and sustaining urban environments using the City of Philadelphia as a living laboratory. Students learn about urban ecology, urban field experiments, and the work required to sustain green infrastructure within a city landscape. As a Community-Based Learning (CBL) course, students engage in ten hours of field work and environmental stewardship which can range from the Pennsylvania Horticultural Society's Tree Tender training, tree planting, restoring urban ecological systems and vacant lots, working in sustainable urban agriculture and/or greening school rooftops. NOTE: This course fulfills a Science & Technology (GS) requirement for students under GenEd and Science & Technology Second Level (SB) for students under Core.

Course Attributes: GS

Repeatability: This course may not be repeated for additional credits.

LARC 1013. Natural and the Built Environment. 3 Credit Hours.

An introduction to the interrelated disciplines of Landscape Architecture, Horticulture, Planning, and Architecture. Explores existing and natural site conditions and their impact on influencing and shaping the built environment. Also examines key issues in the interrelationships and applications of these allied professions. NOTE: This course should not be taken by students who have successfully completed LARC 0841.

Repeatability: This course may not be repeated for additional credits.

LARC 1044. Landscape Architecture Foundation I. 3 Credit Hours.

This course is an introduction to fundamental design principles, drawing and graphic communication skills. Students learn to 'see' and 'express' the landscape around us in terms of a new language of form, mass, space, line and composition. Emphasis is placed on exploring 2D and 3D aspects of space making principles, combining plans, sections, 3D renderings and models to develop a comprehensive understanding of spatial forms.

Repeatability: This course may not be repeated for additional credits.

LARC 1111. Introduction to Green Careers in Landscape Architecture. 1 Credit Hour.

This entry level course provides an introduction to the discipline of landscape architecture and how it prepares students for careers in the growing green and sustainability fields. Students will learn how landscape architects, with their knowledge of natural systems, are at the forefront of creating new and innovative sustainable or green practices in the design of our environments.

Repeatability: This course may not be repeated for additional credits.

LARC 1144. Landscape Architecture Foundation II. 3 Credit Hours.

This course is a further exploration and understanding of the visual language, principles, and design elements and processes used in landscape architecture. Students will apply elements and principles introduced in Foundation I to the design of real and imaginary spaces using modes of 2D, 3D drawings and model making. Ideas of abstraction, experience and time will be introduced and explored in design exercises. Students will advance freehand drawing, graphic and model making skills while also learning some basic digital media applications.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

LARC 1044|Minimum Grade of C-|May not be taken concurrently.

LARC 1244. Surveying. 3 Credit Hours.

Focuses on the fundamentals of plane surveying: basic measurement of distance, angle and elevation; use of basic surveying equipment: total station, levels and tapes, field notes; and basic computations: traverse closure and determination of areas.

Repeatability: This course may not be repeated for additional credits.

LARC 1544. Landscape Architecture Computer Technology I. 3 Credit Hours.

An introduction to Computer Aided Drafting using AutoCAD. Focuses on learning the basic commands for drawing in two dimensions including: absolute and relative coordinates, working in layers, paper and model space, manipulation of text, and plotting. NOTE: Prior to fall 2016, the course title was "Introduction to CAD."

Repeatability: This course may not be repeated for additional credits.

LARC 1982. Honors Projects. 1 to 3 Credit Hour.

For exceptional students interested in pursuing independent, in-depth study. Credits are based on the quantity and quality of work fulfilling the established course outline.

Cohort Restrictions: Must be enrolled in one of the following Cohorts: SCHONORS, UHONORS, UHONORSTR.

Course Attributes: HO

Repeatability: This course may be repeated for additional credit.

LARC 2143. Landscape Architecture Design Studio I. 6 Credit Hours.

Development of the student's comprehension of important elements in the ecologically based landscape design process. Projects lead students through typical design processes that include inventory and analysis, case studies, evaluation of opportunities and constraints, development of conceptual ideas, and detailed landscape designs. The design process is applied to a variety of small scale, urban and suburban site design projects. Using a combination of computer, mechanical and free hand presentation techniques, studio work typically includes: site inventory and research and analysis; program development; concept alternatives; master planning; and detail design studies.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

LARC 1142|Minimum Grade of D-|May not be taken concurrently
OR LARC 1144|Minimum Grade of D-|May not be taken concurrently.

LARC 2144. Landscape Architecture Design Studio II. 6 Credit Hours.

The development of mixed use and sustainable communities within the natural, social, cultural and economic context of development or redevelopment. Investigations of large-scale land use and community planning projects in the urban or rural context. Real world projects range from preparing community based revitalization plans and designs for inner city neighborhoods or redeveloping a rural or suburban area.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

LARC 2143|Minimum Grade of D-|May not be taken concurrently.

LARC 2241. Landscape Engineering I. 3 Credit Hours.

Emphasizes the basic concepts, ideas, and techniques that deal with the visual, functional, and ecological aspects of grading and landform manipulation.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Horticulture, Landscape Architecture.

Degree Restrictions: Must be enrolled in one of the following Degrees: Bachelor of Science.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

LARC 1142|Minimum Grade of D-|May not be taken concurrently
OR LARC 1144|Minimum Grade of D-|May not be taken concurrently.

LARC 2242. Landscape Engineering II. 3 Credit Hours.

Introduction to the principles, processes, and techniques of site engineering for "soft" elements of landscape architecture. Based on the understanding and appreciation of ecological principles, functional requirements, and aesthetic considerations, students learn elements of design/engineering such as advanced grading, storm water management, and road alignment.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

LARC 2241|Minimum Grade of D-|May not be taken concurrently.

LARC 2243. Landscape Engineering III. 3 Credit Hours.

This landscape engineering course for landscape architects integrates technical skills, esthetics considerations and sustainability in the use and applications of the 'hardscape' elements of landscape architecture such as walls, paving, steps, etc., as well as advanced landform design and stormwater management.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

LARC 2241|Minimum Grade of D-|May not be taken concurrently.

LARC 2457. American Traditions of Landscape Architecture. 3 Credit Hours.

Examination of ideas, needs, visions, and values that have shaped both the designed and the common landscapes of America from the colonial period until the early 1900s.

Repeatability: This course may not be repeated for additional credits.

LARC 2496. Landscape Traditions. 3 Credit Hours.

Presents a comprehensive overview of western civilization's efforts to create useful, beautiful, and symbolic spaces from ancient times until the modern day. NOTE: This is a writing intensive class. Students are urged to complete English 0802 or equivalent prior to registering for this class.

Course Attributes: WI

Repeatability: This course may not be repeated for additional credits.

LARC 2551. Landscape Architecture Computer Technology II. 3 Credit Hours.

This course builds on the basic computer knowledge introduced in LA Computer Technology I. The focus of this course is on learning the Adobe Suite applications to aid in developing professional quality presentations and exploring how to select the most useful software for a particular project.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

LARC 1544|Minimum Grade of C-|May not be taken concurrently.

LARC 2553. Landscape Architectural Computer Graphics. 3 Credit Hours.

Focuses on the use of digital media for visual presentation. Exposes students to image editing, publishing, and/or computer-aided design programs. Students learn how to create illustrative and technical drawings and/or portfolio work. NOTE: Course may be repeated once for a maximum of six credits.

Repeatability: This course may be repeated for additional credit.

Pre-requisites:

LARC 1544|Minimum Grade of D-|May not be taken concurrently.

LARC 2564. Landscape Architecture Computer Technology III. 3 Credit Hours.

Addresses more advanced concepts in two-dimensional AutoCAD and introduces CAD applications as three-dimensional tools in the generation of perspective drawings. Includes plotting in color and integration with other graphic applications. NOTE: Prior to fall 2016, the course title was "Advanced CAD."

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

LARC 1544|Minimum Grade of D-|May not be taken concurrently.

LARC 2754. Water Design in the City. 2 Credit Hours.

Cities throughout history have thrived or failed because of water. Every society's ability to secure its water supply, clean stormwater, and address flooding issues impacts the quality of life of its citizens and the aesthetic dimension of the urban landscape. Learn about artistic strategies for dealing with urban stormwater and how cities throughout the U.S. and the world are redesigning their streets, parks, and buildings to more effectively manage urban water resources. Discover aspects of green infrastructure that address strategies for water filtration, conveyance, and storage. The City of Philadelphia is the laboratory for the case studies and for building an understanding of artful stormwater management strategies.

Repeatability: This course may not be repeated for additional credits.

LARC 2758. Summer Field Ecology. 3 Credit Hours.

Students learn to "read" the landscape through the exploration of the landscape provinces of the Delaware River Basin. Through visiting natural landscapes in each of the sub-regions, students see how the relationship of geology, soils, hydrology, plant communities, and land use history reveals an understanding of the visual characteristics, opportunities, and constraints of development inherent in the natural environment.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

BOT 1112|Minimum Grade of D-|May not be taken concurrently.

LARC 2870. Special Topics. 1 to 3 Credit Hour.

Variable offerings from semester to semester of selected topics not part of the regular listing of courses. The topic can be in an area of specialization of a faculty member or an examination of a current development in the field. NOTE: Students may obtain a description of the current version at the department office and in the schedule of classes. This course may be repeated for credit.

Repeatability: This course may be repeated for additional credit.

LARC 2885. Internship. 1 Credit Hour.

This internship requires a minimum of one semester or 350 hours of employment with a landscape architecture firm, landscape contractor, or in a related field. During the internship, students should test concepts developed in class with real work experience. NOTE: Work should be completed between sophomore and junior years.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Landscape Architecture.

Class Restrictions: May not be enrolled in one of the following Classes: Freshman 0 to 29 Credits.

Degree Restrictions: Must be enrolled in one of the following Degrees: Bachelor of Science.

Repeatability: This course may be repeated for additional credit.

LARC 3145. Landscape Architecture Design Studio III. 6 Credit Hours.

Addresses issues pertinent to the design of parks and open space. Students analyze the site context in terms of open space and recreational opportunities, study and discuss comparable park systems and park designs. and may work closely with community groups and elected officials in developing an appropriate design program. The goal is to apply an ecological design process to the design of a park appropriate for a particular neighborhood context.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

LARC 2144|Minimum Grade of D-|May not be taken concurrently.

LARC 3146. Landscape Architecture Design Studio IV: Design/Build. 6 Credit Hours.

Provides individuals the opportunity to build and implement elements of their own design. Students prepare the necessary construction documentation and then actually construct their designs. Working with construction materials enables the student to learn the opportunities and limitations of these materials. This hands-on approach is vital to understanding the relationship between design and implementation processes.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

(LARC 3145|Minimum Grade of D-|May not be taken concurrently)

AND (LARC 2242|Minimum Grade of D-|May not be taken concurrently)

OR LARC 2243|Minimum Grade of D-|May not be taken concurrently)

LARC 3243. Landscape Engineering III. 3 Credit Hours.

Includes the principles, processes, and techniques of site engineering for the "hard" elements of landscape architecture such as walls, paving, steps, decks, etc. Based on the understanding and appreciation of ecological principles, functional requirements, and aesthetic considerations. Includes elements of design/engineering such as siting buildings, grading design of simple structures, understanding the nature of construction materials, and the preparation of working drawings.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

LARC 2242|Minimum Grade of D-|May not be taken concurrently.

LARC 3345. Planting Design. 3 Credit Hours.

Considers the integration of plants into the design process and emphasizes scale, development density, natural site characteristics, natural plant associations, and individual plant characteristics. Planting design studies in a variety of contexts are included.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

(LARC 1142|Minimum Grade of D-|May not be taken concurrently)

OR LARC 1144|Minimum Grade of D-|May not be taken concurrently)

AND (HORT 1212|Minimum Grade of D-|May not be taken concurrently)

LARC 3644. Professional Practice. 3 Credit Hours.

Study of ethics, current business practices, contract documentation, bids, cost estimates, specifications, and interdisciplinary relationships. Seeks to teach the student how to set priorities, manage people, and execute landscape projects.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Landscape Architecture.

Class Restrictions: Must be enrolled in one of the following Classes: Junior 60 to 89 Credits, Senior 90 to 119 Credits, Senior/Fifth Year 120+ Credits.

Degree Restrictions: Must be enrolled in one of the following Degrees: Bachelor of Science.

Repeatability: This course may not be repeated for additional credits.

LARC 3665. Grant Writing. 3 Credit Hours.

Develop skills in researching grant funding possibilities, identifying and developing appropriate restoration projects with potential for grant funding, and writing grant proposals.

Repeatability: This course may not be repeated for additional credits.

LARC 3789. Landscape Restoration Workshop. 3 Credit Hours.

Students learn principles and practices of ecological restoration through hands-on experience. They visit restored landscapes, conduct field measurements in an old growth forest, and contribute to a restoration project on the Ambler Campus. An overnight camping trip is required. By the end of the course, students understand various technical strategies involved in restoration through drawing and writing their field observations, assessing proper techniques for restoration, and then implementing those techniques on a real site.

Repeatability: This course may not be repeated for additional credits.

LARC 3882. Independent Study. 1 to 3 Credit Hour.

Explorative study or research not met in any established course. Initiated by the student, the project must be sponsored by a faculty member with an approved agreement outlining the content and requirements, including readings, meetings, and papers. NOTE: Special authorization required for all students. Students must have the agreement of a faculty sponsor and must submit a formal proposal to this faculty member and Department before registering for the course.

Field of Study Restrictions: Must be enrolled in one of the following Majors: Landscape Architecture.

Degree Restrictions: Must be enrolled in one of the following Degrees: Bachelor of Science.

Repeatability: This course may be repeated for additional credit.

LARC 4147. Landscape Architecture Design Studio V: Fall Senior Studio. 6 Credit Hours.

Focuses on large-scale, complex planning projects dealing with growth management issues and an understanding of all phases of the planning process. The scope of the project includes analysis and evaluation of existing conditions, programming, and creation of conceptual plans, master plans, and detail designs.

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

LARC 3146|Minimum Grade of D-|May not be taken concurrently.

LARC 4198. Landscape Architecture Design Studio VI: Spring Senior Studio. 6 Credit Hours.

The final senior studio deals with a variety of projects that may include landscape design projects involving fine arts, urban design, and town planning. Students are challenged to achieve a comprehensive understanding of the ideas, processes, and concepts. NOTE: Fulfills the capstone writing intensive requirement for the Landscape Architecture major.

Course Attributes: WI

Repeatability: This course may not be repeated for additional credits.

Pre-requisites:

LARC 4147|Minimum Grade of D-|May not be taken concurrently.