NYBG Continuing Education Program Guide

Dear Friends of NYBG,

As Vice President of Education, I am thrilled to introduce you to our program guide, which showcases a diverse array of Continuing Education courses designed to deepen your connection with plants and nature.

This guide showcases the certificate programs offered at the New York Botanical Garden, each carefully designed to foster expertise in a variety of botanical subjects. Meticulously crafted to provide both theoretical knowledge and practical skills, we offer a spectrum of courses tailored to various experience levels, from introductory workshops to advanced lectures.

And, while this guide offers an overview of core programs and required courses, it represents just a fraction of the rich educational experiences available at NYBG. Our full schedule of courses at **nybg.org/ContEd** expands on this foundation with a wide array of electives and seasonal offerings.

We invite you to take the next step and explore the offerings within these pages. Find a course that resonates with your interests and begin cultivating a deeper appreciation for our environment.

Thank you for being part of our community. We look forward to seeing you in our classes!

Warm regards,

Jamie Boyer, Ph.D.
Vice President of Education

FIND YOUR PLANT PATHWAY

Details at **nybg.org/ContEd**

Learn With Us

With over a century of teaching botanical excellence, NYBG offers a rich assortment of continuing education programming that connects eager learners with renowned plant experts and the Garden's unparalleled resources.

General Classes
From botany to floral design, botanical art, wellness, and much more in between, we host a variety of enriching entry-level classes that can enable you to explore a new hobby or sharpen your skills.

Certificate Programs
Take your love of plants to the next level. Our comprehensive certificate programs are designed by experts and honed to deliver the necessary skills to pursue a new career path or enhance your current portfolio. You'll gain cross-disciplinary experience, network with industry professionals, and expand your expertise in the following subjects:

- Botanical Art and Illustration
- Botany
- Floral Design
- Gardening
- Horticulture
- Landscape Design
- Therapeutic Horticulture
- Urban Naturalist

Lectures & Symposia
Dive into the study, preservation, and appreciation of the plant world through our calendar of special talks that welcome the world's top plantspeople, scientists, artists, and designers. Explore more at **nybg.org/lectures**

Ways to Learn

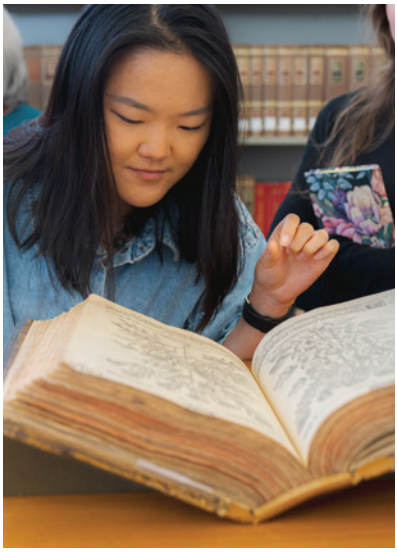
In-Person: Get access to 250-acres of garden spaces.

Online: Meet with Garden experts live from the comfort of your own environment.

Blended: Balance it out with hybrid classes—taught live through a mix of in-person and online lessons.

Self-Paced: Have the flexibility to learn online anytime, anywhere as you engage with pre-recorded lessons and expert-led interactive videos.

Registration and Student Support



Registration Information
Continuing Education classes at NYBG are offered year-round. Browse this guide for a general overview of our programs and visit **nybg.org/ContEd** when you're ready to dig deeper and register for classes!

For assistance, contact the registration office at **ContinuingEd@nybg.org**

Student Services
When you embark on a certificate path at NYBG, we have a dedicated team to provide support along the way. From maintaining student records to managing the graduation process, our Student Services team will help you reach your goals.

Member Discounts
Become a Member and receive discounts on Continuing Education classes among other benefits. For more information, visit **nybg.org/membership**

LuEsther T. Mertz Library
NYBG is home to the most comprehensive botanical and horticultural library in the world. Continuing Education students may apply for a library card and check out books from the circulating collection for three weeks at a time, and have access to more than 100 electronic databases from home.

Learn more at **nybg.org/library**

Accessibility
NYBG is accessible to persons with disabilities. Please ask about accommodations when you register or visit **nybg.org** for more information.

Subscribe to our newsletter and be the first to know about all things education at NYBG

General Classes

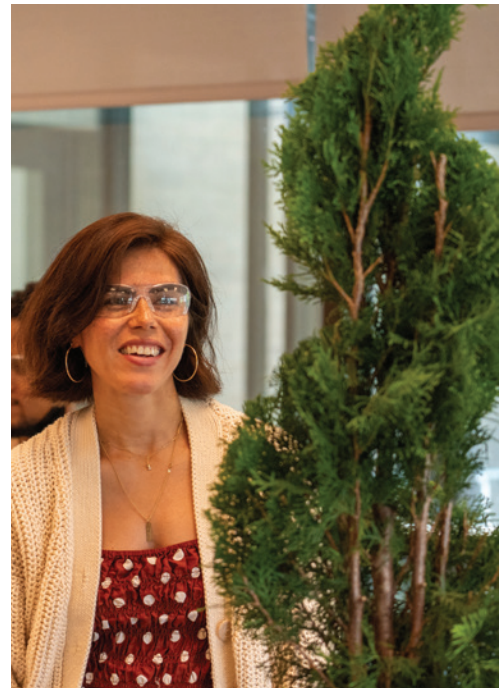
Whether you're new to the plant world or in search of an enriching hobby, we offer a variety of entry-level classes that can broaden your botanical know-how.

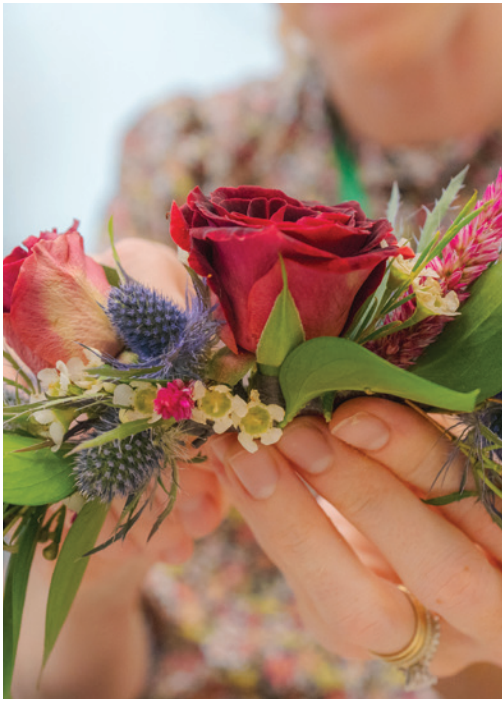
From one-day workshops on drawing, crafts, and floral design to multi-session courses that establish a foundation in gardening, plant science, herbalism, and more—explore classes offered year-round in a variety of subjects and formats to fit your schedule.

Some tried-and-true favorites are listed below for you to explore.

- **Botanical Watercolor Workshops**
  Become familiar with the basic watercolor techniques used by botanical artists while painting your favorite flower or fruit.
- **Intro to Landscape Design**
  Explore the terminology, concepts, and basic principles of landscape design through lecture and simple two-dimensional exercises.
- **Beekeeping Basics**
  Dig into the why and how of beehives, and learn how they function as one living organism.
- **Seasonal Preserves**
  Get hands-on and learn how to naturally preserve your favorite fruits and veggies.
- **Herbal Workshops**
  Discover how plants can be used for medicine, self-care, and relaxation.
- **Flower Arranging with Store-Bought Bouquets**
  Using simple design principles and fresh flowers, learn how to create your own eye-catching arrangements.

Browse all classes at **nybg.org/ContEd**





BOTANICAL ART & ILLUSTRATION

Contemporary botanical art captures the beauty of the natural world with precision, and our extraordinary instructors share their expertise in this nurturing yet rigorous program. NYBG offered North America's first formal botanical art certificate program, and has remained a leader in the discipline for more than three decades. Whether you're looking for personal enrichment or a professional credential, the NYBG Certificate is a prestigious indicator of mastery and accomplishment.

Gaillardia aristata, Medicago sativa, Echinaceae purpurea, Mixed Media on Bitumen Paper, ©Kari Englehardt, 2023 Graduate

Questions?
Contact the Program Coordinator at **bilcoordinator@nybg.org**
Register at **nybg.org/ContEd**

The Certificate Program

The Botanical Art & Illustration requirements provide a solid, well-rounded foundation in scientifically accurate drawing based on observation and fine art techniques in a variety of media. Those who achieve the highest level of accomplishment receive a certificate in Botanical Art & Illustration with Honors, an indication of superior work.

Certificate Requirements

Course	Code	Hours
Botanical Drawing I: Methods and Materials	BIL 301	18
Botanical Drawing II: Developing Your Skills	BIL 302 ●	18
The Basics of Visual Composition	BIL 421 ●	18
Botanical Drawing III: Focus on Flowers	BIL 303 ●	18
Plant Morphology for Botanical Artists	BIL 300 ●	20
Botanical Watercolor I	BIL 331 ●	24
Practical Aspects of Botanical Art	BIL 392 ● ❦	10
One of the following Internet Tools courses:		
Internet Tools for Creatives, Part I: Social Media	BIL 394 ❦	5
Internet Tools for Creatives, Part II: Website	BIL 395 ❦	7
Pen and Ink	BIL 400 ●	18
Colored Pencil	BIL 415 ●	18
Electives (courses vary by season)		54
Total Required Hours		**221***

*Plus a final project that meets certificate standards
● Prerequisite required before you can register
❦ Offered in the Fall–Winter (October–March)

Additional Information

Final Project for Certification
In order to be considered for certificate completion, you must submit a final project, a body of work of consistent quality and style with a well-developed, cohesive theme and a competent use of medium. This project should be both a culmination of the foundation learned here at NYBG and a stepping stone into the larger world of botanical art. A project proposal must be submitted to the program coordinator in advance for approval.

Verdigris, Scaled up 5:1,
Colored Pencil,
©Christiane Fashek, 2022 Graduate

Course Descriptions

Botanical Drawing I: Methods And Materials

Accurate observation is an essential skill for botanical artists. Using basic shapes, fruits, and leaves, learn contour drawing with an emphasis on proportion. Explore techniques such as foreshortening, perspective, and line weight.

Botanical Drawing II: Developing Your Skills

Learn to tone fruit, vegetables, leaves, and branches. Focus on concepts of light source, value, and shading to create form. Translate color into black and white, and create the illusion of depth and space in your work.

Prerequisite: Botanical Drawing I

Botanical Drawing III: Focus On Flowers

Apply your understanding of contours, perspective, and tone to accurately draw three distinct, fully-toned flowering plants. Explore compositional possibilities, textures, and details.

Prerequisite: Botanical Drawing II

The Basics of Visual Composition

Forethought and an understanding of basic composition principles are the foundation of any balanced work of art. Through group critiques, discussions, and a variety of exercises we'll experiment with a wide range of principles including focal point, the rule of thirds, value, and negative space to help your artwork achieve maximum visual impact. This class is best taken early in your certificate program.

Prerequisite: Botanical Drawing II

Botanical Watercolor I

This comprehensive class covers the basics. Learn how to use your brushes to make smooth, underlying washes, and create fine detail. Color theory teaches you how paints interact, and how to select the right colors for your subject. Paper selection, transferring preliminary drawings, and more round out this strong foundation.

Prerequisite: Botanical Drawing II

Colored Pencil

Colored pencil can be applied to look like either drawing or painting, making it a versatile medium for botanical art. Learn a variety of techniques including burnishing, tonal construction, and layering colors for different hues and densities.

Prerequisite: Botanical Drawing II

Pen and Ink

Among the most versatile media, pen and ink can be used to create high quality, easily reproducible drawings. Learn how to produce different strokes and how to create tone by using stipple, line, and crosshatch techniques.

Prerequisite: Botanical Drawing II

Plant Morphology for Botanical Artists

Examine the enormous variety of forms and structural adaptations of flowering plants. Through lectures, demonstrations, and laboratory studies, learn to recognize and draw the many plant parts and growth stages of the most common plant families.

Prerequisite: Botanical Drawing I

Practical Aspects of Botanical Art

Cover the basics: dealing with galleries and artists' reps, including pricing, contracts, and sales agreements; how/when to sell certain rights; how to market your work through promotional printing and making products; as well as licensing. How to prepare for entering an exhibition or developing your own one-person show will round out the concepts. **Prerequisite: Watercolor I**

Internet Tools for Creatives Part I: Social Media

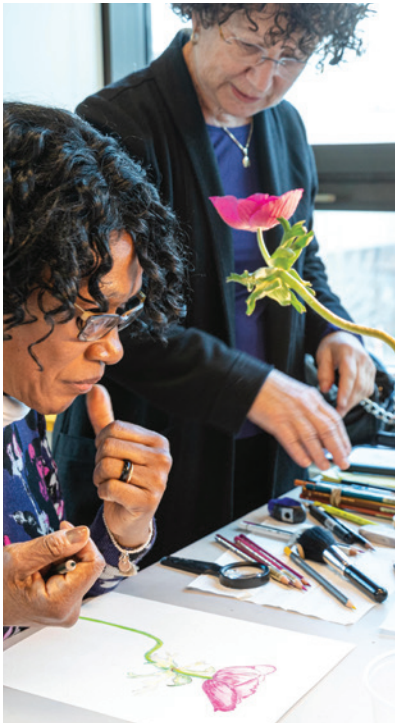
Learn to develop and implement a social media strategy to showcase your work and attract and engage followers. You'll define your goals for using social media as a marketing tool, and create a strategy to achieve those goals, as well as discover tips for attracting and engaging followers.

Internet Tools for Creatives Part II: Website

A professional online presence is key to growing your business. In this hands-on class, you'll build a simple website (no coding required!) to showcase your portfolio using the free Wix.com platform or a Squarespace template and free online photo-editing tools. Internet proficiency necessary.

In-Progress Portfolio Critique

As a developing artist, you need personalized, supportive evaluation to improve. This is your chance to bring your finished art and work-in-progress for respectful, careful feedback via group discussion and teacher-led demos. Are your details complete? Are your tonal values correct? Works in colored pencil, graphite, or watercolor are welcome. This class is highly recommended for certificate candidates.



BOTANICAL ART & ILLUSTRATION ELECTIVES

Build on foundational skills in elective courses that vary by season. Students seeking a certificate may focus their electives on watercolor, colored pencil, drawing, or choose a natural science concentration. See some examples below:

- **Botanical Watercolor II**
- **Colored Pencil on Toned Paper**
- **Painting Orchids**
- **Ink Wash Techniques**
- **Complex Compositions in Graphite**

BOTANY

A botany class gives you a deeper understanding of how plants connect us to the natural world, and can be your gateway to herbal healing, cross-cultural understanding, and appreciation of nature's seasonal beauty.

Questions?
Contact the Program Coordinator at **botcoordinator@nybg.org**
Register at **nybg.org/ContEd**

The Certificate Program

Botany Certificate courses in subjects such as native flora, ethnobotany, ecology, and botanical nomenclature reflect NYBG's strengths in botanical science research, as well as its world-famous and unequaled resources—the William and Lynda Steere Herbarium, housing nearly 8 million dried plant specimens, and the LuEsther T. Mertz Library with 550,000 volumes, 12,000 serial titles, and 11 million archival documents. Over the course of the program, students will come to know how plants function, grow, develop, and reproduce—and learn to identify a wide array of plants by stems, leaves, flowers, and fruit.

Certificate Requirements

Course	Code	Hours
Plant Structure	BOT 315	24
Plant Physiology	BOT 316 ●	21
Plant Diversity	BOT 317 ●	24
Dendrology: Woody Plant Identification	BOT 375 ●	15
Herbaceous Plant Identification	BOT 376 ● ☀	15
One of the four Native Flora courses:		12
Native Flora in Autumn	BOT 331 ●	
Native Flora in Winter	BOT 332 ●	
Native Flora in Spring	BOT 333 ● ☀	
Native Flora in Summer	BOT 334 ● ☀	
Electives (courses vary by season)		58
Total Required Hours		**169***

*Course hours do not include exam hours
● Prerequisite required before you can register
Offered in the Fall–Winter (October–March)
☀ Offered in the Spring–Summer (April–September)

BOTANY ELECTIVES

Uncover the beauty, diversity, and resilience of the plant kingdom through elective courses. Elective hours count toward a certificate, but are also open to non-certificate students. A sample of electives are listed below:

- **Botanical Latin**
- **Seasonal (and Psychedelic) Mushrooms**
- **Paleobotany: The Origin of Plants**
- **The Science of Tree Communication**
- **Morphology of Flowering Plants**

Plant Structure
Get a solid grounding in the basic plant body—from the cell to the roots, stems, leaves, flowers, and fruit. We'll use dissecting and compound light microscopes to observe plant anatomy, then introduce the base-level chemistry required to understand the world of plants.

Dendrology: Woody Plant Identification
Learn to identify the native and naturalized trees, shrubs, and woody vines of the Northeast by their vegetative characteristics using their scientific and common names. You'll also hone your ability to use taxonomic keys and field guides. ● **Prerequisite: Plant Structure**

Plant Diversity
Explore the myriad structures and diverse life cycles of plants, algae, fungi, and bacteria. Discover how and why scientists have divided and classified these organisms. ● **Prerequisite: Plant Structure**

Herbaceous Plant Identification
Study the characteristics that are fundamental to herbaceous plant identification. We will focus on broad-leaved plants rather than grasses, sedges, and rushes. ● **Prerequisite: Plant Structure**

Plant Physiology
Explore the role of plant hormones in growth and development, as well as plant movement, water transport through the plant body, and plant metabolism, including photosynthesis and respiration (anaerobic and aerobic). ● **Prerequisite: Plant Structure**

Native Flora in Spring
Follow the bloom sequence of a wide variety of spring wildflowers, shrubs, and trees. Learn to identify native plants using taxonomic keys and family characteristics. You'll practice these skills using a 10X hand lens during walks in the Garden. ● **Prerequisite: Plant Structure**

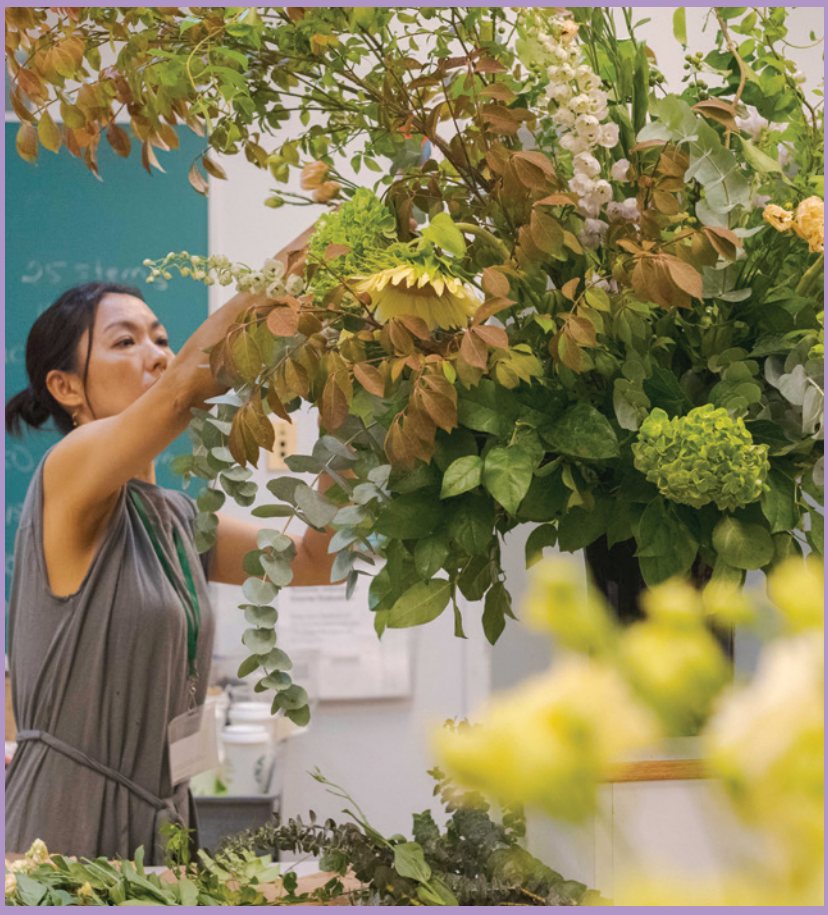
Native Flora in Summer
Learn to identify native and introduced herbs, ferns, shrubs, and trees as they appear in summer, and get to know plants that may be found in fields, on roadsides, and in woodlands and wetlands. You'll become familiar with their structure and taxonomy, and practice using taxonomic keys. ● **Prerequisite: Plant Structure**

Native Flora in Autumn
In autumn, our native Northeast flora can be spectacular, but difficult to identify. With a 10X power hand lens and a plant key, you'll learn to identify these wildflowers, shrubs, and trees on the Garden grounds. ● **Prerequisite: Basic Plant ID or Plant Structure**

Native Flora in Winter
In class and in forays around the Garden, you'll learn to recognize the winter characteristics of native and common woody plants by bud types, leaf scars, fruit remnants, and other distinguishing marks. ● **Prerequisite: Plant Structure**

FLORAL DESIGN

NYBG is home to New York City's oldest and most prestigious Floral Design Program. We've sent hundreds of graduates on to rewarding careers for over four decades. Through this program, you'll develop the mastery and confidence to express yourself through flowers.



Questions?
Contact the Program Coordinator at **fdncoordinator@nybg.org**
Register at **nybg.org/ContEd**

The Certificate Program

The NYBG Certificate in Floral Design is a nationally recognized mark of excellence that tells the world you have the talent and knowledge to interpret changing trends and provide creative design solutions. With comprehensive hands-on instruction from industry pros, you'll create dozens of original floral designs for all occasions, gain a solid grounding in floral theory and history, and develop the contacts and business savvy you need to advance your career or manage your own business.

Certificate Requirements

Certificate students must complete 142 total course hours (116 required + 26 elective), an 80-hour internship, and a portfolio submission that showcases photos of class assignments and their own unique creations. For internship and portfolio guidelines, email **fdncoordinator@nybg.org**.

Course	Code	Hours
Fundamentals of Form	FDN 300	16
Fundamentals of Style	FDN 302 ●	16
Wedding Design I: Personals	FDN 304 ●	18
Color Theory for Floral Design	FDN 306	6
Flower ID from A to Z	FDN 308	6
Interior Plantscapes	FDN 310	8
Shopping the New York Flower Market	FDN 400 ●	4
Modern Sympathy Designs	FDN 382 ●	6
Wedding Design II: Ceremony & Reception	FDN 305 ●	16
Grand-Scale Arrangements	FDN 502 ●	8
Event Planning for the Floral Designer	FDN 504 ●	12
Electives (courses vary by season)		26
Total Required Hours		**142**

● Prerequisite required before you can register

Additional Information

Materials

For in-person classes, we provide all materials, except a floral knife, pruners, wire cutters, and shears. Floral tool kits are available for purchase at NYBG. To inquire, email **ContinuingEd@nybg.org**.

For online classes, please review individual course descriptions on our website for a list of hard goods (containers, tools, etc.) you must purchase and/or have available.

Fundamentals of Form
Learn the basics of successful floral design and master the mechanics needed for round, triangular, parallel, and crescent arrangements. Experiment with shape, line, and symmetry while composing beautiful, balanced creations.

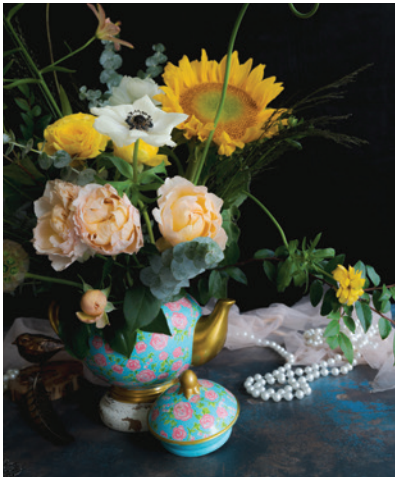
Fundamentals of Style
The ability to command a broad vocabulary of styles defines the professional floral designer. From Neo-Classical and Victorian to English garden and Flemish, understanding floral styles expands your design options, evokes specific moods, and helps create the perfect setting.
● **Prerequisite: Fundamentals of Form**

Color Theory for Floral Design
Colors—like flowers themselves—evoke feelings and set the mood. Explore the role of color in floral design across a spectrum of flowers. This course gives you a solid grounding in color theory, while highlighting popular hues and color combinations.

Flower ID from A To Z
Learn to identify new floral varieties of old favorites, seasonal flowers, and various foliages. Topics include special handling requirements of many flower types.

Wedding Design I: Personals
Flowers are crucial for a memorable wedding. Learn the art of successful floral wedding design, including fine wiring and taping to create corsages and boutonnieres with fresh flowers, ribbons, and bows. Advance to styling and assembling bridal and bridesmaid bouquets. ● **Prerequisite: Fundamentals of Style**

Wedding Design II: Ceremony & Reception
Design and create arrangements appropriate for the ceremony, season, and setting, including aisle and altar designs, pew arrangements, and banquet table centerpieces. Work with a remarkable array of flowers, foliage, and fabrics to create captivating garlands and columns. We'll discuss a variety of ceremonial styles, including chuppahs, in both outdoor and indoor venues.
● **Prerequisite: Wedding Design I**



FLORAL DESIGN ELECTIVES

Develop your own design aesthetic in elective courses that vary by season. Elective hours count toward a certificate, but are also open to non-certificate students. Some elective topics include:

- **Ikebana: A Comprehensive Approach**
- **Explore Tablescapes: Floral Runners**
- **Compote Arrangements**
- **Sustainable Design Techniques**
- **Style and Shoot**

SUMMER INTENSIVE PROGRAM

5-Week Program, starts every July

Jump-start your career in Floral Design! In just five weeks, complete all classroom credits required for the NYBG Certificate, so you can get started on your internship requirement at your convenience.

Visit **nybg.org/summerintensives** to learn more!

Grand-Scale Arrangements

Full, lavish arrangements to enhance entrance halls, ballrooms, parties, and hotels are always in demand. Learn the mechanics behind how these dramatic arrangements are designed and constructed. ● **Prerequisite: Wedding Design II**

Event Planning for the Floral Designer

In addition to exquisite design, a successful event requires a well-conceived plan. Learn how to write a sales proposal based on cost analysis, finalize the terms of the design contract, and order and organize materials, personnel, and deliveries, all within a specified budget and timeline. Learn how to stage décor for large-scale event arrangements, design cocktail receptions, and develop formal and informal tablescapes. ● **Prerequisite: Wedding Design II**

Interior Plantscapes

Florists and designers who want long-lasting, gorgeous interior plantings won't want to miss this unique class highlighting essential horticulture practices for selecting and maintaining plants for atria, corporate offices, and special events. Trimming, pruning, soil testing, pest prevention, cleaning, and more are covered.

Shopping The New York Flower Market

Learn to navigate the bustling New York flower district! Discover where to get the best flowers and hard goods from the pros. ● **Prerequisite: Fundamentals of Form**

Modern Sympathy Designs

Sympathy arrangements, properly composed, pay tribute to a departed loved one and offer solace to the grieving. There are details to be discussed with a bereaved family, special etiquette to be observed, and a wide choice of designs that make a touching statement of final tribute. Construction and mechanics of funeral baskets, casket sprays, and set pieces associated with a diversity of cultural traditions are emphasized. ● **Prerequisite: Fundamentals of Form**

GARDENING

Increase your gardening knowledge and realize the physical and social benefits of this practice. Our courses, taught by top professionals, provide cutting-edge information on ecologically responsible garden care and design—from soil science and composting to plant use and pest control.

Questions?
Contact the Program Coordinator at **garcoordinator@nybg.org**
Register at **nybg.org/ContEd**

The Certificate Program

Upon completion of the NYBG Gardening Certificate Program, students will:

- Create beautiful and ecologically sound gardens that combine trees, shrubs, perennials, annuals, and bulbs.
- Be proficient in identifying, selecting, cultivating, and caring for trees and shrubs, vegetables, flowers, and fruit.
- Have the confidence to grow and maintain home, terrace, or community gardens.
- Understand the essential concepts of sustainable gardening practices for trees, shrubs, lawns, perennials, and vegetables.

Certificate Requirements

Course	Code	Hours
Fundamentals of Gardening	GAR 301	12
Introduction to Plant Science	HRT 300	16
Soil Science for Gardeners	GAR 302	12
Gardening with Native Plants	GAR 315	8
Insect Identification and Management	GAR 320	12
Disease Identification and Management	GAR 324	12
Fundamentals of Garden Design	GAR 342 ●	12
Vegetable Gardening	GAR 431 ●	12
Complete Garden Care and Maintenance	GAR 440 ●	18
Pruning Principles and Practices	HRT 321	15
Plants for Landscaping	HRT 358	16
Plant Propagation I: Basic Principles	HRT 411 ●	18
Electives (courses vary by season)		23
Total Required Hours		**187**

● Prerequisite required before you can register
Offered in the Fall–Winter (October–March)

Fundamentals of Gardening
Explore the basics of successful, environmentally friendly gardening. Topics include soils and their improvement, seed sowing, vegetative propagation, planting, pruning, watering, weeding, mulching, and disease and pest control.

Introduction to Plant Science
This user-friendly intro course surveys the major plant groups—flowering plants, conifers, ferns, and bryophytes—focusing on their form and structure. Become botanically literate and gain practical experience in dissecting and analyzing plant structures.

Soil Science for Gardeners
Understand how soil qualities affect overall plant productivity and make sustainable gardening possible. Topics include soil formation and physical properties; soil-water relationships; irrigation, drainage, and fertilization techniques; and basic soil sampling, pH, and nutrient testing. Note: This is not the same class as Soil Science I (HRT 301).

Gardening with Native Plants
Learn how native plants enhance gardens and augment biodiversity. Study native herbaceous and woody plants: their identification, habitat, and culture. Hear about the significance of woodland soils, and how to promote a healthy environment to support spring ephemerals, summer perennials, shrubs, and trees.

Plant Propagation I
Learn principles and techniques of plant propagation by seed and cuttings. Explore basic sexual and asexual propagation, focusing on fruit development, seedling production, root initiation, stem and leaf cuttings, and layering. ● **Prerequisite: Intro to Plant Science**

Vegetable Gardening
Examine pre-planting procedures, from soil preparation to crop rotation planning. Study the timing and techniques of planting, pest management, and harvest and post-harvest handling. Survey heirloom varieties, new cultivars, and classic selections. ● **Prerequisite: Fundamentals of Gardening**

Complete Garden Care and Maintenance
Learn sustainable garden and landscape maintenance techniques, including planting methods, plant care, and maintenance regimens for trees, shrubs, lawn, and perennial gardens. Discuss site analysis and plant selection, organic gardening practices, and how to create a calendar of landscape and garden tasks. ● **Prerequisite: Fundamentals of Gardening**

SUMMER INTENSIVE PROGRAM
3-Week Program, starts every July

In just three weeks, complete more than 40% of the coursework required for the certificate and gain a solid base in the principles of environmentally sound gardening from expert professionals. You'll also see how these principles are put into practice through curator-led tours of various Garden collections.

For full details, go to
nybg.org/summerintensives

Disease Identification and Management

It's essential to identify plant diseases before they become widespread in your garden. Explore the basics of disease management, and learn how the principles of Integrated Pest Management (IPM) can help you maintain a strong and healthy garden. Note, this class is not the same as HRT481.

Insect Identification and Management

Pest identification is key to maintaining a healthy garden. Identify which common insects are pests and which are beneficial. Learn the most common orders of insects and the damage they can cause, as well as simple, non-toxic methods of preventing major infestations.

Plants for Landscaping

Choose the right plant for the right place, based on site-specific design and maintenance criteria. Learn landscape values such as size, texture, color, and flowering and fruiting seasons. Review trees, shrubs, groundcovers, annuals, and perennials suitable for this region.

Fundamentals of Garden Design

This class introduces basic garden design principles using the interplay of structural features, plant characteristics, and site assessment. Learn to creatively combine trees, shrubs, perennials, annuals, and bulbs based on color, shape, texture, and size. ● **Prerequisite: Plants for Landscaping**

Pruning Principles and Practices

Through classwork and hands-on practice, develop pruning tools and techniques to help shrubs, conifers, broadleaves, evergreens, and deciduous plants thrive. Explore how woody plant structure and physiology influence pruning. Learn how to create and maintain hedges and explore authentic pollarding techniques. ● **Prerequisite: Intro to Plant Science**

GARDENING ELECTIVES

Gain insight into creating beautiful, diverse, and healthy gardens, big or small, through elective courses that vary by season. Elective hours count toward a certificate, but are also open to non-certificate students. A sample of elective topics is listed below:

- **Basics of Perennial Maintenance**
- **Container Gardening**
- **Spring & Summer-Blooming Native Plants**
- **Knowing and Growing Roses**
- **Basic Color Theory of Gardeners**
- **Small Space Veggie Gardening**

HORTICULTURE

Develop the vital skills needed to protect and manage sustainable landscapes, maintain healthy trees, design attractive gardens, and produce landscape plants.

Questions?
Contact the Program Coordinator at **hrtcoordinator@nybg.org**
Register at **nybg.org/ContEd**

The Certificate Program

Increasing concerns for environmental quality, conservation, and restoration are driving strategies nationwide at landscaping companies, nurseries and garden centers, public parks, botanical gardens, and private estates. The NYBG Horticulture Certificate is a NY State-licensed credential that helps professionals to enhance their profiles and individuals to pursue new green careers. Taught by landscape and horticulture experts, this unique program blends classroom theory with field studies in the Garden's historic landscape, offering a high standard of training in four areas of concentration: **Plant Production, Sustainable Landscape Management, Arboriculture,** and **Sustainable Garden Design**.

Certificate Requirements

Course	Code	Hours*
Plant Production Track 1		
Introduction to Plant Science	HRT 300	16
Soil Science I: Physical Properties	HRT 301	18
Soil Science II: Chemistry and Nutrition	HRT 302 ●	18
Horticultural Techniques: Greenhouse Practices	HRT 312 ●	15
Insect Pests of Landscape Plants	HRT 381 ●	18
Plant Propagation I: Basic Principles	HRT 411 ●	18
Plant Propagation II: Applications	HRT 412 ●	18
Disease Identification & Management	HRT 481 ●	18
Nursery and Greenhouse Management	HRT 491 ●	24
Total Required Hours		**163**
Sustainable Landscape Management Track 2		
Introduction to Plant Science	HRT 300	16
Soil Science I: Physical Properties	HRT 301	18
Soil Science II: Chemistry and Nutrition	HRT 302 ●	18
Horticultural Techniques: Landscape Gardening	HRT 311 ●	18
Pruning Principles and Practices	HRT 321 ●	15
Basic Design and Installation of Irrigation Systems	HRT 323	12
Business Practices for the Landscape Professional	LAN 457	12
Insect Pests of Landscape Plants	HRT 381 ●	18
Tree Management	HRT 422 ●	14
Landscape Management	HRT 443 ●	24
Disease Identification & Management	HRT 481 ●	18
Invasive Weed ID & Management	HRT 482 ●	12
Mathematics for Horticulturists	HRT 356	6
Total Required Hours		**201**

*Course hours do not include exam hours
● Prerequisite required before you can register

Certificate Requirements (continued)

Course	Code	Hours*
Arboriculture Track 3		
Introduction to Plant Science	HRT 300	16
Soil Science I: Physical Properties	HRT 301	18
Soil Science II: Chemistry and Nutrition	HRT 302 ●	18
Tree Climbing for Arborists	HRT 304	15
Chainsaws: Use, Safety, and Maintenance	HRT 308	6
Pruning Principles and Practices	HRT 321 ●	15
Landscape Plants: Fall Trees and Shrubs	HRT 331 ●	12
Landscape Plants: Conifers	HRT 333 ●	12
Landscape Plants: Spring Trees and Shrubs	HRT 334 ● ☀	12
Insect Pests of Landscape Plants	HRT 381 ● ☀	18
Tree Management	HRT 422 ●	14
Urban Tree Care	HRT 426 ●	12
Winter Tree Identification	HRT 440 ●	8
Disease Identification & Management	HRT 481 ●	18
Total Required Hours		**194**

Sustainable Garden Design Track 4		
Introduction to Plant Science	HRT 300	16
Soil Science I: Physical Properties	HRT 301	18
Landscape Plants: Broadleaved Evergreens	HRT 332 ●	9
Landscape Plants: Spring Trees and Shrubs	HRT 334 ● ☀	12
Landscape Plants: Spring Perennials	HRT 336 ● ☀	9
Landscape Plants: Late Season Perennials & Grasses	HRT 338 ●	12
Landscape Plants: Annuals	HRT 341 ● ☀	8
Landscape Plants: Bulbs	HRT 342 ●	12
Annual and Perennial Garden Maintenance	HRT 344 ●	8
Plants for Landscaping	HRT 358	16
Plant Communities	HRT 353	6
Sustainable Garden Care	HRT 395 ●	8
Sustainable Garden Design	HRT 551 ●	20
Landscape Design History	LAN 301	24
Graphics I	LAN 311	24
Total Required Hours		**202**

*Course hours do not include exam hours
● Prerequisite required before you can register
Offered in the Fall–Winter (October–March)
☀ Offered in the Spring–Summer (April–September)

Introduction to Plant Science
All Tracks
This user-friendly intro course surveys the major plant groups—flowering plants, conifers, ferns, and bryophytes—focusing on their form and structure. Become botanically literate and gain practical experience in dissecting and analyzing plant structures.

Soil Science I
All Tracks
Soil is a dynamic, living organism and the very foundation of sustainable horticulture and agriculture. This course focuses on the texture, structure, density, and color of different soils and the dynamic relationship that exists among soil, water, and plants. Through lectures and at-home labs, learn irrigation and drainage techniques and explore how soil, organic matter, and microbiology relate to plant health and soil conservation.

Soil Science II: Chemistry and Nutrition
Tracks 1, 2, & 3
Go beyond basic soil chemistry and examine how a soil's pH affects what nutrients are available to plants. Explore the ionic exchange capacities of soil, the complex nitrogen cycle, and the effects of composted soil amendments and fertilizers. Discover how soil and plant tissue tests can help monitor plant nutrition and health. **Prerequisite: Soil Science I**

Disease Identification & Management
Tracks 1, 2, & 3
Learn common diseases of woody and herbaceous ornamentals and turfgrass, and the cultural, biological, and least-toxic strategies for their control.
Prerequisite: Intro to Plant Science

Insect Pests of Landscape Plants
Tracks 1, 2, & 3
Learn to identify the insects common to the northeastern United States that feed on woody and herbaceous plants and the damage that they cause. Study how to judge the severity of an infestation and to select and implement control measures based on the insect's biology.
Prerequisite: Intro to Plant Science

Plant Propagation I
Track 1
Learn principles and techniques of plant propagation by seed and cuttings. Explore basic sexual and asexual propagation, focusing on fruit development, seedling production, root initiation, stem and leaf cuttings, and layering. **Prerequisite: Intro to Plant Science**

Plant Propagation II
Track 1
Learn to work with plants that are difficult to propagate by seed or cuttings. Subjects include advanced seed propagation and techniques of grafting, budding, and micro-propagation. Learn tissue culture at NYBG's Pfizer Laboratory, and tour a retail nursery for a hands-on grafting project.
Prerequisite: Plant Propagation I

Horticultural Techniques: Greenhouse Practices
Track 1
This course introduces students to the practical skills required for growing plants in greenhouses with an emphasis on integrated management techniques. Topics include structures and equipment, soils and other growing media, irrigation and fertilization practices, potting and repotting, and cultural practices.
Prerequisite: Intro to Plant Science and Soil Science I

Nursery & Greenhouse Management

Track 1

Learn the basic principles and best practices of greenhouse and nursery construction and design, and commercial greenhouse and field plant production. Understand how to manage a commercial growing operation, including site selection, planning and layout, and production methods of greenhouse and nursery crops, both in the field and in containers.

● **Prerequisite: Horticultural Techniques: Greenhouse Practices**

Horticultural Techniques: Landscape Gardening

Track 2

Learn the basics of ecologically-appropriate landscape gardening. Topics include soil preparation, efficient watering and fertilization, planting and transplanting, cultivation, and plant maintenance. ● **Prerequisite: Intro to Plant Science and Soil Science I**

Landscape Management

Track 2

Examine sustainable techniques for managing and maintaining commercial and residential landscapes. Develop programs that reduce adverse effects on the environment, including alternative approaches to conventional lawn management. ● **Prerequisites: Intro to Plant Science and Soil Science II**

Mathematics for Horticulturists

Track 2

This course is designed for horticulturists who are responsible for maintaining outdoor landscapes. We will cover how to calculate area to help estimate plant and soil needs, apply rates for fertilizers, and calculate amounts of soil amendments.

Basic Design and Installation of Irrigation Systems

Track 2

Learn how to design, install, and maintain conventional, specialty drip, and micro-drip irrigation systems. Drip systems are useful for rooftop and terrace gardens, planters, raised beds, and many landscape and nursery production systems. We will cover basic hydraulics and review the best irrigation products. Learn to troubleshoot, practice visual maintenance, and identify service requirements. Design books supplied.

Business Practices for the Landscape Professional

Track 2

Study how to effectively organize and operate a small landscape business that will sustain itself and earn a profit. Learn how to attract new clients, position yourself in a crowded market, and choose the right type of business model. Gain experience in preparing proposals and contracts, pricing services and materials, and creating budgets. You'll walk away from this class with a basic plan to guide you in creating a successful business.

Invasive Weed Identification & Management

Track 2

Students will be introduced to the topics of invasion biology and weed management and their related terminology. Approximately 60 invasive or weed species common throughout the northeast region of the United States will be presented, with a focus on woody species. Management techniques and management plans will also be discussed. Field walks will be given on NYBG grounds. ● **Prerequisite: Intro to Plant Science**

See page 31 for information on state licensing and accreditation.

Pruning Principles and Practices
Tracks 2 & 3
Through classwork and hands-on practice, develop pruning tools and techniques to help shrubs, conifers, broadleaves, evergreens, and deciduous plants thrive. Explore how woody plant structure and physiology influence pruning. Learn how to create and maintain hedges and explore authentic pollarding techniques. Come dressed for fieldwork, and bring bypass pruners if you have them. ● **Prerequisite: Intro to Plant Science**

Tree Management
Track 2 & 3
Explore a holistic approach to keeping trees healthy and vigorous. Topics include planting and transplanting, pruning, fertilization, root system management, common problems, tree defenses, and lightning protection. Samples of tree problems, supplies, and tools are exhibited. ● **Prerequisite: Pruning Principles and Practices and Soil Science I**

Landscape Plants: Fall Trees and Shrubs
Track 3
Explore how to identify and use shade trees and shrubs that are native to and thrive in our region, including *Acer*, *Quercus*, and *Viburnum*, which are particularly ornamental in fall.
● **Prerequisite: Intro to Plant Science**

Urban Tree Care
Track 3
Soil compaction, construction damage, and land development practices can lead to tree decline and early tree mortality. Examine the biology of trees, and learn how they respond to changes in the urban environment. Explore techniques for assessing and preserving tree health and vigor, as well as new diagnostic tools and methods for tree and site analysis in developed urban sites. ● **Prerequisite: Intro to Plant Science**

Winter Tree Identification
Track 3
Learn basic winter tree identification using dormant-season characteristics of deciduous plants as well as conifers. Dress for the weather. ● **Prerequisite: Intro to Plant Science**

Chainsaws: Use, Safety, and Maintenance
Track 3
Whether you're a budding arborist or weekend woodcutter, knowing how to use your chainsaw safely and maintain it properly are keys to success. This lecture-demonstration course by an ISA-certified arborist teaches you the basics of chainsaw use and care, sharpening, and bar tensioning.

Landscape Plants: Conifers
Track 3
Learn to identify, classify, and use the best regional native and non-native conifers for naturalistic and formal landscape designs. ● **Prerequisite: Intro to Plant Science**

Tree Climbing for Arborists
Track 3
Designed for people interested in arboriculture, this course will help students develop their climbing skills. Learn techniques such as rope setting, knot tying, body thrusting, doublecrotching, foot locking, and limb walking. Taught on Garden grounds, this class offers expert instruction and critique. Wear comfortable clothing, sturdy work or hiking boots, and light leather or cloth gloves. All other equipment is provided.

Landscape Plants: Spring Trees and Shrubs
Track 3 & 4
Learn the identification, classification, and landscape use of spring-flowering trees and shrubs. Major plant groups include *Magnolia*, *Malus*, *Prunus*, *Viburnum*, and other genera, which are particularly ornamental in spring.
● **Prerequisite: Intro to Plant Science**

Plants for Landscaping
Track 4
Choose the right plant for the right place, based on site-specific design and maintenance criteria. Learn landscape values such as size, texture, color, and flowering and fruiting seasons. Review trees, shrubs, groundcovers, annuals, and perennials suitable for this region.

Landscape Plants: Annuals
Track 4
Study the identification, culture, and landscape use of approximately 60 annuals and select tender perennials, including major groups of common species and more unusual types. Learn how to choose low-maintenance plants, and review scientific and common names. ● **Prerequisite: Intro to Plant Science**

Landscape Plants: Late Season Perennials & Grasses
Track 4
This course is designed for horticulturists and gardeners who are familiar with the basic culture of perennials. Learn the identifying characteristics, classification, scientific and common names, and landscape uses of approximately 60 summer- and fall-blooming native and non-native perennials and grasses.
● **Prerequisite: Intro to Plant Science**

Landscape Plants: Spring Perennials
Track 4
This course is designed for horticulturists and gardeners who are familiar with the basic culture of perennials. Study how to identify, classify, and use 60 spring-blooming perennials in the landscape. Review scientific and common names.
● **Prerequisite: Intro to Plant Science**

Sustainable Garden Care
Track 4
Explore how to create a healthy garden while supporting biodiversity and conserving resources. We'll discuss ways to minimize water usage, effectively handle stormwater, create a healthy soil food web, and use non-toxic alternatives to maintain optimal plant health.
● **Prerequisites: Intro to Plant Science and Soil Science I**

Plant Communities
Track 4
Fundamentally change the way you view natural landscapes by learning about the complex factors that inform which plants grow in what combinations. Understanding how and why these plant communities form will help you design beautiful landscapes that are more resilient, diverse, and harmonious.

Landscape Plants: Broadleaved Evergreens
Track 4
Become familiar with the cultural requirements, identifying features, and uses of native and non-native broadleaved evergreens, and incorporate them into both naturalistic and formal landscape settings. Major plant groups studied include *Ilex*, *Rhododendron*, *Buxus*, and evergreen groundcovers.
● **Prerequisite: Intro to Plant Science**

Landscape Plants: Bulbs
Track 4
This course is designed for horticulturists, gardeners, or designers who want to learn to identify and classify familiar and unusual spring-, summer-, and autumn-flowering bulbs. We will also focus on understanding their biology. ● **Prerequisite: Intro to Plant Science**

Sustainable Garden Design
Track 4
This studio-oriented course covers basic site analysis, planting plans, and color schemes (analogous or sequential, complementary, and monochrome). Presentations, discussions, and design projects combine practical information with theoretical garden design.
● **Prerequisites: Graphics I, Annuals, Spring Perennials, and Late Season Perennials & Grasses**

Annual and Perennial Garden Maintenance
Track 4
Manage annual and perennial gardens with a variety of practices: soil and weed management, watering, pest identification and control, and seasonal clean-up. Develop a management plan for a small perennial garden.
● **Prerequisites: Soil Science I and Plants for Landscaping or Late Season Perennials & Grasses**

Landscape Design History
Track 4
Explore theories, traditions, and principles that have shaped the design of landscapes from antiquity to the present, through visual presentations, assigned readings, projects, and classroom discussion.

Graphics I: Hand Rendering
Track 4
Graphics are essential in developing and communicating your ideas. Practice various graphic techniques on a range of materials and equipment and learn how to organize and render landscape plans on paper for optimal presentation to clients. Homework required.

INTERESTED IN A FULL-TIME PROGRAM?

Check out NYBG's School of Professional Horticulture which offers a two-year, cohort-based program that combines hands-on training with academic study to educate and prepare you to become a skilled professional horticulturist.

The School of Professional Horticulture (SoPH) is nationally accredited by ACCET and licensed by the New York State Education Department.

To learn more, visit **nybg.org/soph**.

LANDSCAPE DESIGN

The need to develop, preserve, and protect our open spaces and environmental and cultural resources has never been greater. NYBG's engaging program gives you a solid, plant-focused foundation to help build skills you can use at home and beyond. Join us by taking a single class for pleasure or pursuing a professional certificate in Landscape Design.

Questions?
Contact the Program Coordinator at **lancoordinator@nybg.org**
Register at **nybg.org/ContEd**

The Certificate Program

Whether you're just starting to pursue your passion or taking your expertise to the next level, the NYBG Landscape Design Certificate distinguishes your portfolio and showcases your skills development. Outstanding instructors who are working professionals guide you through a comprehensive program, where you will:

- Analyze existing landscapes, identify site-specific problems, and develop design solutions.
- Prepare planting plans that are practical, sustainable, and aesthetically pleasing for a variety of projects.
- Demonstrate skills associated with site engineering practices, principles, and techniques.
- Develop strategies for success using skills in planning, pricing, purchasing, and more.

Certificate Requirements

Course	Code	Hours
Tier 1– Introductory Classes		
Landscape Design History	LAN 301	24
Graphics I	LAN 311	24
Landscape Measurement	LAN 340	12
Landscape Plants: Fall Trees and Shrubs	HRT 331 ●	12
Landscape Plants: Spring Trees and Shrubs	HRT 334 ● ☀	12
Plants for Landscaping	HRT 358	16
Tier 2		
Landscape Design I: Site Analysis and Schematic Design	LAN 401 ●	24
Landscape Design II: Design Development	LAN 402 ●	24
Estimating	LAN 380 ●	9
Graphics II: DynaSCAPE	LAN 427 ●	24
Site Materials and Details	LAN 422 ●	24
Tier 3		
Grading & Drainage	LAN 428 ●	30
Graphics III: Photoshop	LAN 417 ● ❄	24
Landscape Design III: Planting Design	LAN 403 ●	24
Business Practices for the Landscape Professional	LAN 457	12
Landscape Design IV: Design and Construction	LAN 520 ● ❄	33
Portfolio and Presentation Skills	LAN 555 ●	15
Total Required Hours		**343**

● Prerequisite required before you can register
❄ Offered in the Fall–Winter (October–March)
☀ Offered in the Spring–Summer (April–September)

Tier 1

Landscape Design History
Explore theories, traditions, and principles that have shaped the design of landscapes from antiquity to the present, through visual presentations, assigned readings, projects, and classroom discussion.

Graphics I: Hand Rendering
Graphics are essential in developing and communicating your ideas. Practice various graphic techniques on a range of materials and equipment and learn how to organize and render landscape plans on paper for optimal presentation to clients. Homework required.

Landscape Measurement
Precise field measurement is the crucial first step in landscape design. Learn how to properly use automatic levels and tapes. Topics will include accurately measuring distances, differences in elevation, and angles. A basic understanding of geometry and trigonometry is helpful.

Landscape Plants: Fall Trees and Shrubs
Explore how to identify and use shade trees and shrubs that are native to and thrive in our region, including *Acer*, *Quercus*, and *Viburnum*, which are particularly ornamental in fall.
● **Prerequisite: Intro to Plant Science**

Landscape Plants: Spring Trees and Shrubs
Learn the identification, classification, and landscape use of spring-flowering trees and shrubs. Major plant groups include *Magnolia*, *Malus*, *Prunus*, *Viburnum*, and other genera, which are particularly ornamental in spring.
● **Prerequisite: Intro to Plant Science**

Plants for Landscaping
Choose the right plant for the right place, based on site-specific design and maintenance criteria. Learn landscape values such as size, texture, color, and flowering and fruiting seasons. Review trees, shrubs, groundcovers, annuals, and perennials suitable for this region.

State Licensing and Accreditation

The School of Horticulture and Landscape Design—which includes NYBG's Horticulture and Landscape Design Certificate Programs—is licensed with the New York State Bureau of Proprietary School Supervision (BPSS), a division of the New York State Department of Education. Licensure under the state recognizes these certificate programs as high quality and career oriented.

For full details, visit **nybg.org/accreditation**

Tier 2

Landscape Design I: Site Analysis and Schematic Design

Turning a vision into a plan is the designer's first challenge. Analyze landscapes, formulate the requirements of a design project, and then translate them into schematic design solutions. Take part in class discussions and critiques, and present projects. Extensive out-of-class design homework required. ● **Prerequisites: Landscape Design History and Graphics I**

Landscape Design II: Design Development

Apply basic design to site-specific problems, focusing on the process of design development. Start with a concept, then progress through the schematic phase to a preliminary design solution. Examine the relationships of landscape elements and materials to the design process. ● **Prerequisites: Landscape Design I and Graphics II**

Estimating

Learn how accurately estimating landscape materials, labor, overhead, and contingencies can help you stay profitable and compete successfully in today's business climate. ● **Prerequisite: Landscape Design II**

Graphics II: Dynascape

Learn the various tools and applications of this software package for landscape designers. Topics include: developing base plans from surveys, techniques for quick estimates, and utilizing the online plant database. Basic computer skills and PC laptop required. ● **Prerequisite: Graphics I**

Site Materials and Details

Learn the basic principles of constructing residential landscape features such as walks, steps, simple decks, garden structures, walls, and benches. Study landscape construction standards, techniques, and commonly used materials, and learn to draft construction details. ● **Prerequisite: Graphics II**

Need CEUs?

APLD and ASLA members can earn Continuing Education Units (CEUs) by attending some of our lectures. Browse upcoming lectures at **nybg.org/ContEd.**

Tier 3

Grading & Drainage
Through discussion, fieldwork, and homework, students will identify landforms and watersheds, calculate slopes, and manipulate contours to create garden rooms, and control water flow. Learn how to communicate design ideas to contractors and evaluate the opportunities and constraints of a project site. ● **Prerequisite: Landscape Measurement, Landscape Design I, and Graphics II**

Graphics III: Photoshop
Discover how to use a wide variety of Adobe Photoshop tools and techniques to add vibrancy to your hand- or computer-rendered drawings. Hone your own aesthetic as you craft plan views, section drawings, and design details that are client ready. ● **Prerequisite: Graphics II**

Landscape Design III: Planting Design
Through a series of design assignments, prepare a variety of planting plans that are practical, appropriate, and aesthetically satisfying. Explore the significance of site conditions as well as plant form, text, color, and ecological associations. ● **Prerequisites: Landscape Design II, Graphics II, and Plants for Landscaping. Recommended: Fall Trees and Shrubs and Spring Trees and Shrubs**

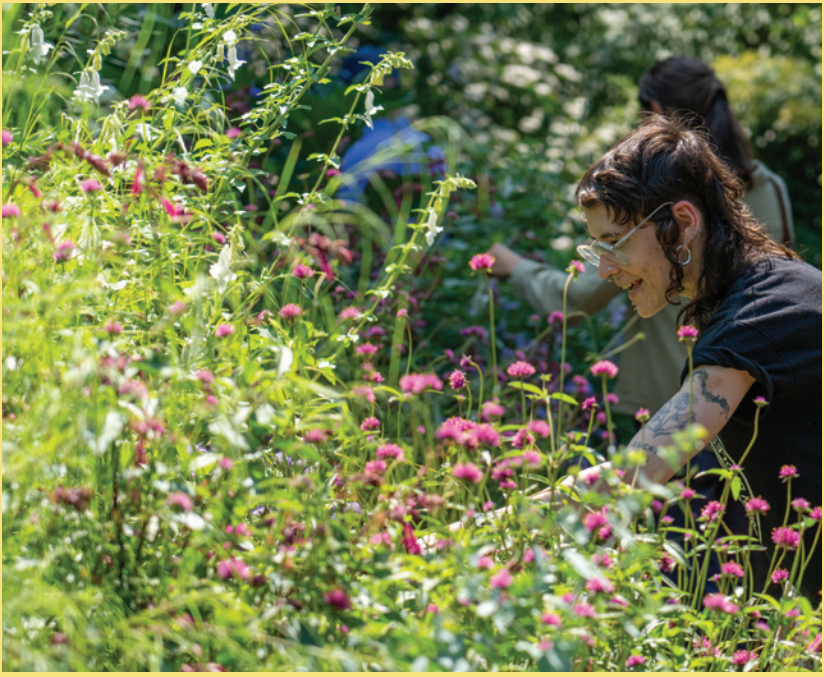
Business Practices for the Landscape Professional
Study how to effectively organize and operate a small landscape business that will sustain itself and earn a profit. Learn how to attract new clients, position oneself in a crowded market, and choose the right type of business model. Gain experience in preparing proposals and contracts, pricing services and materials, and creating budgets. You will walk away from this class with a basic plan to guide you in creating a successful business.

Landscape Design IV: Design and Construction
Draw upon all of the skills you've developed in the Landscape Design program to create a residential project from start to finish, combining design with construction principles. Emphasis is on construction drawings, documents, and specifications, as well as estimating. ● **Prerequisites: Landscape Design III, Grading & Drainage, and Site Materials and Details**

Portfolio and Presentation Skills
Create visually compelling print and digital portfolios to present to potential clients. Learn how to develop professional documentation for a variety of audiences through in-class design charrettes and individualized projects. ● **Prerequisite: Landscape Design III**

THERAPEUTIC HORTICULTURE

Learn to create experiences that utilize plants, gardening, and nature to empower individuals and groups whose lives have been affected by illnesses, injuries, disabilities, and life circumstances in order to achieve improvements in cognitive, physical, social, emotional, and spiritual well-being.



Questions?
Contact the Program Coordinator at **thpcoordinator@nybg.org**
Register at **nybg.org/ContEd**

The Certificate Program

Respected nationwide, NYBG's program is led by highly trained practitioners. Whether you're embarking on a new path or want to further enhance your therapeutic horticulture knowledge in human services, education, mental health, or other fields, we will facilitate your skills and knowledge development. Through this program, you'll learn to select and care for diverse groups of plants suitable for indoor and outdoor use, understand the characteristics and needs of service communities, and develop goals, activities, and evaluation methods that fit the specific needs of an individual or group.

Certificate Requirements

Certificate students must complete 176 course hours, 10 site visit hours, and 100 hours of field experience. After completing all Therapeutic Horticulture requirements, students should contact the Program Coordinator to discuss options for their field experience.

Course	Code	Hours
Introductory & Service Community-Related		
Introduction to Therapeutic Horticulture	THP 301	10
Therapeutic Horticulture for Older Adults	THP 401 ●	12
Therapeutic Horticulture for Youth with Disabilities	THP 402 ●	12
Therapeutic Horticulture for Mental Health	THP 404 ●	12
Therapeutic Horticulture for Neurological Conditions	THP 403 ●	12
Therapeutic Horticulture for Chronic Health Conditions	THP 405 ●	12
Foundations of Horticulture		
Fundamentals of Gardening	GAR 301	12
Introduction to Plant Science	HRT 300	16
Plant Propagation I: Basic Principles	HRT 411 ●	18
Therapeutic Horticulture Techniques and Materials		
Accessibility in Therapeutic Horticulture Programming	THP 406 ●	8
Indoor Plants for Therapeutic Programs	THP 350 ●	8
Outdoor Plants for Therapeutic Programs	THP 320 ●	8
Therapeutic Horticulture Activity Planning	THP 407 ●	10
Therapeutic Horticulture Program Management	THP 409 ●	10
Electives (courses vary by season)*		16
Therapeutic Horticulture Site Visits		10
Total Required Hours		**186**

● Prerequisite required before you can register
*Browse electives at **nybg.org/ContEd**

Introductory & Service Community Classes

Introduction to Therapeutic Horticulture
Explore the theoretical foundations and evidence-based research that supports using the people-plant relationship as a therapeutic tool to improve health and well-being. Engage in hands-on activities to discover the beneficial cognitive, physical, psychological, and social-emotional impacts associated with working with plants for a wide range of service communities.

TH for Older Adults
Explore how therapeutic horticulture can improve the health, function, and quality of life for older adults in various settings, from independent to assisted living, day programs, skilled nursing, and memory care facilities. You will also gain an understanding of the physical, sensory, cognitive, psychological, and social aspects of aging. ● **Prerequisite: Intro to Therapeutic Horticulture**

TH for Youth with Disabilities
Discover how therapeutic horticulture can greatly enrich and support the formative years—from early childhood through adolescence. Learn about the causes and characteristics of various types of developmental disabilities and youth at risk. Explore ways to incorporate therapeutic horticulture and the natural environment into academic learning, life skills training, sensory processing, physical development, and social and emotional learning. ● **Prerequisite: Intro to Therapeutic Horticulture**

TH for Mental Health
A growing body of evidence supports the use of horticulture for psychological well-being. Discover how therapeutic horticulture can be a preventative practice for all people in dealing with the stressors of the modern world and how it can be integrated into more formal behavioral health programs. Explore approaches using plants and gardening that can positively impact the healing process of mental health disorders such as depression, anxiety, and substance abuse. ● **Prerequisite: Intro to Therapeutic Horticulture**

TH for Neurological Conditions
Learn about the physical, cognitive, and psycho-social changes that occur because of neurological conditions caused by stroke, traumatic brain injury, neuromuscular disorders, cerebral palsy, and spinal cord injury. We will explore the rehabilitative process and discuss how to adapt therapeutic horticulture activities to maintain optimal functioning while enhancing the quality of life for persons with these conditions. ● **Prerequisite: Intro to Therapeutic Horticulture**

TH for Chronic Health Conditions
Chronic conditions that require ongoing medical attention, such as cardiovascular disease, respiratory conditions, diabetes, cancer, and bone and joint diseases, can interfere with activities of daily living. Create goal-directed therapeutic horticulture activities to improve the quality of life for participants with these conditions. ● **Prerequisite: Intro to Therapeutic Horticulture**

SITE VISITS
Get a close-up look at the day-to-day activities of organizations practicing therapeutic horticulture in the New York area. *Additional site visit locations are added seasonally.*
● **Prerequisite for all: Intro to Therapeutic Horticulture**

- **The G.R.O.W. Garden at the James J. Peters VA Medical Center**
- **Mercy Home for Children**
- **NYU Langone Medical Center, Therapeutic Horticulture Services, Manhattan**
- **Good Samaritan Regional Medical Center: The Garden of Hope**

Foundations in Horticulture Classes

Introduction to Plant Science
This user-friendly intro course surveys the major plant groups—flowering plants, conifers, ferns, and bryophytes—focusing on their form and structure. Become botanically literate and gain practical experience in dissecting and analyzing plant structures.

Plant Propagation I
Learn principles and techniques of plant propagation by seed and cuttings. Explore basic sexual and asexual propagation, focusing on fruit development, seedling production, root initiation, stem and leaf cuttings, and layering. **Prerequisite: Intro to Plant Science**

Fundamentals of Gardening
Explore the basics of successful, environmentally friendly gardening. Topics include soils and their improvement, seed sowing, vegetative propagation, planting, pruning, watering, weeding, mulching, and disease and pest control.

TH Techniques & Materials Classes

Accessibility in TH Programming
Evaluate tools, equipment, structures, spaces, and techniques used by participants in therapeutic horticulture activities. Explore universal design principles and how to incorporate them into programming, activities, garden design, and tools to meet the widest range of people's needs. Design and construct a kit of adaptive tools and assistive devices through problem-solving activities. **Prerequisite: At least 2 Service Community courses**

Indoor Plants for Therapeutic Programs
Discover which plants work best for particular site conditions and specific therapeutic horticulture service communities. Then, develop effective plant care plans for a variety of programs to ensure they have the adequate light, soil, humidity, and water they need. **Prerequisite: Fundamentals of Gardening and at least 2 Service Community courses**

Outdoor Plants for Therapeutic Programs
Tour the gardens and collections of NYBG to expand your repertoire of edible and ornamental plants for therapeutic programming. Learn their specific requirements and care, while exploring design possibilities, safety, and applications for use with various service communities. **Prerequisite: Fundamentals of Gardening and at least 2 Service Community courses**

TH Activity Planning
Learn to conduct needs assessments, develop activity plans, and write specific goals with measurable objectives that address individual and group needs. Explore the dynamics of group work and the leadership techniques necessary for successful group facilitation. You'll put theory into practice by structuring TH activities for specific populations. **Prerequisite: At least 4 Service Community courses**

TH Program Management
Gain skills in developing program proposals, writing protocols, establishing evaluation methods and record-keeping policies, and managing staff and volunteers for therapeutic horticulture programs. We'll discuss how to develop budgets, fundraise, and follow best legal practices for those considering establishing their own business. **Prerequisite: At least 4 Service Community courses**

URBAN NATURALIST

In this teeming metropolis, nature is all around us in diverse habitats, from the cracks in sidewalks to our parks and beaches. Get equipped with the observation and identification skills needed to be an effective environmental steward.

Questions?
Contact the Program Coordinator at **natcoordinator@nybg.org**
Register at **nybg.org/ContEd**

The Certificate Program

Through NYBG's Urban Naturalist Certificate Program, you'll learn to keenly observe the natural world, create scientifically useful records of your observations, and investigate the interrelationships between species.

Certificate Requirements

Certificate students must complete 107 course hours and a field study project.

Course	Code	Hours
Basic Plant ID	BOT 308	6
Two of the four Native Flora courses:		24–30
Native Flora in Autumn	BOT 331 ●	—
Native Flora in Winter	BOT 332 ●	—
Native Flora in Spring	BOT 333 ●	—
Native Flora in Summer	BOT 334 ●	—
One of the two Birds courses:		12–15
Natural History of Birds: Fall	NAT 321	—
Natural History of Birds: Spring	NAT 317	—
Natural History of Insects	NAT 322	12
Introduction to Urban Ecology	NAT 338	6
The Ecosystems of New York City	NAT 337 ●	8
Urban Ecology Field Study Workshop	NAT 323 ●	9
Electives (courses vary by season)*		30
Total Required Hours		**107**

*Urban Naturalist electives—along with all Botany electives—count toward the 30 required elective hours.
● Prerequisite required before you can register
Offered in the Fall–Winter (October–March)
Offered in the Spring–Summer (April–September)

Additional Information

Field Study Project

To receive a certificate, you must select a natural site, and after making in-depth observations over many months, present a survey of the plants and animals found there as well as a plan for how the site can be improved to provide ecological and social benefits.

Basic Plant ID
This is the class for plant-lovers eager to up their game! Learn the terminology and basic botanical nomenclature that will help you recognize and describe key differences in common plants.

Native Flora in Autumn
In autumn our native Northeast flora can be spectacular, but difficult to identify. With a 10X power hand lens and a plant key, you'll learn to identify these wildflowers, shrubs, and trees on the Garden grounds. ● **Prerequisite: Basic Plant ID**

Native Flora in Winter
In class and in forays around the Garden, you'll learn to recognize the winter characteristics of native and common woody plants by bud types, leaf scars, fruit remnants, and other distinguishing marks. ● **Prerequisite: Basic Plant ID**

Native Flora in Spring
Follow the bloom sequence of a wide variety of spring wildflowers, shrubs, and trees. Learn to identify native plants using taxonomic keys and family characteristics. You'll practice these skills using a 10X hand lens during walks in the Garden. ● **Prerequisite: Basic Plant ID**

Native Flora in Summer
Learn to identify native and introduced herbs, ferns, shrubs, and trees as they appear in summer, and get to know plants that may be found in fields, on roadsides, and in woodlands and wetlands. You will become familiar with their structure and taxonomy, and practice using taxonomic keys.
● **Prerequisite: Basic Plant ID**

Natural History of Birds: Fall
With its wide variety of habitats and its position on the Atlantic Flyway, NYC is a bird-lover's paradise, with over 300 distinct resident or migratory species living here or passing through. Practice observing distinctive feather patterns, beak and body shapes, using field guides effectively, and evaluating songs and behaviors to improve your ability to identify species in the field. We'll emphasize the role individual birds play in our ecosystem, while enjoying the unique nature of autumnal birding!

Natural History of Birds: Spring
With its variety of habitats and position on the Atlantic Flyway, NYC is a bird-lover's paradise, with over 300 distinct resident or migratory species present at some point each year. Improve your ability to identify species by learning a variety of field marks, distinctive feather patterns, beak and body shapes, songs, and behaviors.

Natural History of Insects

Study the critical and fascinating roles that insects play in maintaining healthy ecosystems and within their own complex social systems. Learn to observe and identify insects while exploring the wonder of metamorphosis and the amazing variety of defensive strategies and adaptations insects have developed to survive.

Introduction to Urban Ecology

Urbanization is changing biodiversity, interspecies relationships, and even animal behavior in the tri-state area and beyond. Get an introduction to the particular habitats found here, as well as plants and animals common to each; and why certain species of flora and fauna thrive in our highly altered, fragmented urban environment, while others do not, and what this means for our collective future.

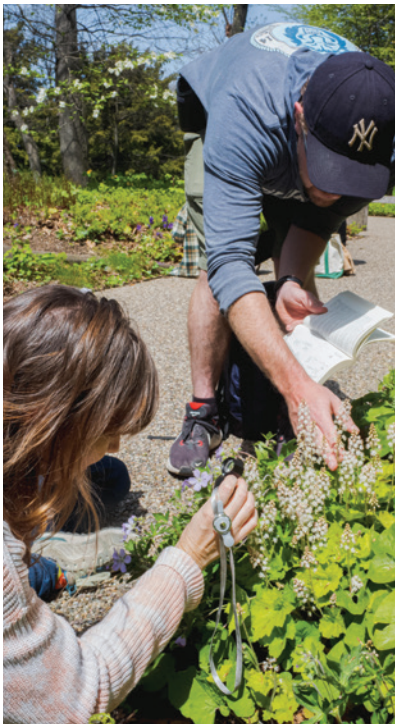
The Ecosystems of New York City

The tri-state area contains many distinct ecosystems, including woodlands, salt marshes, meadows, and fresh water wetlands. Study the unique characteristics of local habitats and the species they support, paying close attention to interspecies relationships. We'll spend time in Pelham Bay Park to identify and document the web of relationships found in NYC's forests and wetland areas. ● **Prerequisite: Native Flora and Natural History of Birds**

Urban Ecology Field Study Workshop

Learn to measure and monitor the ecological diversity observed and celebrated in and around New York City environs. Practice using field techniques for recording observations in nature and assessing vegetation, animal life, and habitats.

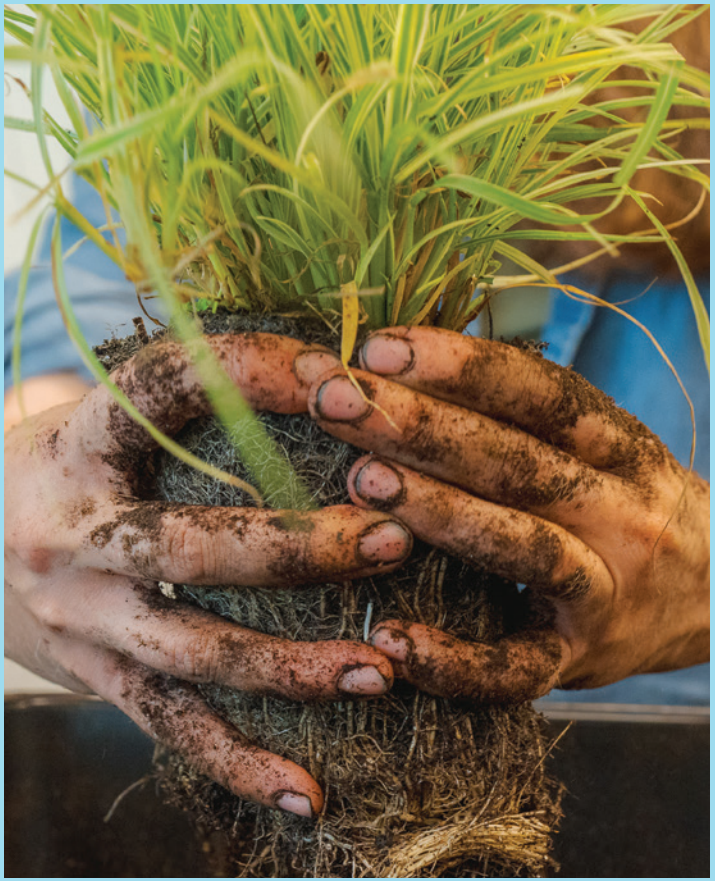
● **Prerequisite: Native Flora and Natural History of Birds**



URBAN NATURALIST ELECTIVES

Develop keen observational skills and gain a better understanding of local flora and fauna in elective courses. Elective hours count toward a certificate, but are also open to non-certificate students. Some elective topics include:

- **Dragonflies & Damselflies of the Northeast**
- **Pollination Ecology**
- **Field Sketching**
- **Ancient and Venerable Trees**
- **Bronx River Ecology**



Grow your garden, grow your mind with NYBG's world-class Continuing Education program. Join our welcoming community of plant lovers as you dig into expert-led classes at the Garden, online, or both.

nybg.org/ContEd

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