



Certificate in Therapeutic Horticulture

HANDBOOK

September 2018 - January 2020

Engaging with Nature to Improve Human Health



North Carolina Botanical Garden

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Foreword

The North Carolina Botanical Garden (NCBG) is pleased to offer the Certificate in Therapeutic Horticulture (CTH), which provides comprehensive therapeutic horticulture training to professionals and students in the health and allied health professions and to exceptional children educators. This certificate is a strong credential for those interested in incorporating therapeutic horticulture into their chosen field of work. It is our hope that each student graduating from this program will come away with the knowledge, practical expertise, and confidence to make therapeutic horticulture a living, thriving therapeutic modality in the communities we serve.

NCBG is a university-affiliated botanical garden with an outstanding reputation as a garden that integrates a conservation ethic into all of its programs. We are the region's most comprehensive center of knowledge on plants in North Carolina and the southeastern United States, and we provide a broad audience with inspirational experiences, opportunities for health and wellness through outdoor activities, and educational programs within a scientifically based institution. It is the Garden's vision to have a profound influence on how people value and interact with the environment and the biologically diverse world.

The Garden's mission is

“To inspire understanding, appreciation, and conservation of plants in gardens and natural areas and to advance a sustainable relationship between people and nature.”

The Certificate in Therapeutic Horticulture expands this mission with its goals

1. To provide a balanced curriculum of both therapeutic horticulture practices and traditional horticultural knowledge that enables graduates to use plants and nature to improve human health and wellness
2. To expand the field of therapeutic horticulture, so more people in various settings and situations can have access to this unique and dynamic therapeutic modality

The Certificate in Therapeutic Horticulture awards a certificate of proficiency for students successfully completing the requirements. Upon completion of the program students have an understanding of the following:

- Historical and current uses of therapeutic horticulture, research findings that support its efficacy, and the wide range of fields that interface with the therapeutic horticulture profession;
- Therapeutic horticultural techniques and programming for different populations in various health care and educational settings;
- Tools and methods for adapting and modifying gardening for people with different abilities;

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- Fundamentals of horticulture, including native plant and seed propagation; native plant gardening; vegetable, herb, annual flower and indoor plant gardening; how to build good soil; and plant diseases and pests;
 - Introduction to native Piedmont flora;
 - How therapeutic horticulture complements other treatment options, and how other therapeutic modalities intersect with therapeutic horticulture;
 - Marketing skills to promote therapeutic horticulture;
 - Communication and interpersonal techniques to enhance the work;
 - Where and how therapeutic horticulture is practiced through hands-on activities and field trips to local settings; and
 - Therapeutic horticulture in a field of their choosing through an independent internship of student's choice.

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1. INTRODUCTION

1.1 WHO SHOULD APPLY?

Are you...

- invested in human health and want to incorporate the healing effects of the natural world into practice?
- looking for ways for clients to increase creative ventures and connections to natural beauty?
- eager to build confidence and enhance understanding of therapeutic horticulture?
- interested in connecting with like-minded people and professionals who share your passion?

The Certificate in Therapeutic Horticulture is designed for:

- Working professionals with degrees in in Occupational Therapy, Physical Therapy, Social Work, Psychology, Rehabilitation Counseling, or other related Allied Health occupations
- Current graduate students in the above fields;
- Recent graduate students in the above fields not yet working in their fields;
- Educators of Exceptional Children; and
- People with at least 5 years commensurate experience working with people in the above fields who do not have a degree.

No previous horticulture knowledge is required.

Note: Please contact Sally Haskett, NCBG Horticultural Therapy Program Manager, if your field or years of expertise is different from those outlined above. A member of the CTH Planning Committee will contact you to discuss suitability for this program.

Email: haskett@email.unc.edu

1.2 THE BENEFITS OF THE NCBG CERTIFICATE IN THERAPEUTIC HORTICULTURE

For 50 years the North Carolina Botanical Garden has served the public through courses in botany, horticulture, botanical art, native plants, conservation and related fields. Since 1978, the Horticultural Therapy Program within the Education Department and has offered one-day trainings introducing the field of therapeutic horticulture. Feedback has pointed to a growing interest in more in-depth classes in therapeutic horticulture.

Furthering our commitment to advancing the profession of Horticultural Therapy and responding to expressed interest, we are delighted to offer an accessible and comprehensive program. We believe strongly in the benefits of therapeutic horticulture for individuals and communities and are invested in growing the practice.

Accessible

Becoming a registered Horticultural Therapist with the American Horticultural Therapy Association (AHTA) is an extensive process requiring horticultural therapy courses, plant science and human science courses from accredited colleges or universities, and a 480 hour internship. NCBG's Certificate in Therapeutic Horticulture (CTH) offers an alternative educational opportunity to working professionals and students. Courses are offered on the weekend. The program coincides with the calendar year used by many higher educational institutions, thereby allowing access for students and educators.

This certificate is not accredited by the American Horticultural Therapy Association, nor supports the AHTA registration process. CTH is designed to enhance trained professionals in their field of practice.

Comprehensive

The CTH is a series of 24 classes offered on weekends providing classroom learning and field trips in therapeutic horticulture, horticulture, and other important topics relevant to this field. The curriculum totals 70 hours. Many classes incorporate hands-on activities. Nine classes focus on basic horticultural skills and practices. The remaining 15 classes are of two types: those that teach therapeutic horticulture uses, techniques, and methods; and those on related subjects that will promote success in the workplace. Instructors for these classes include AHTA registered horticultural therapists, practicing therapeutic horticulturalists, NCBG horticulture staff, allied health professionals, and other accomplished experts in their respective fields. The classroom portion concludes with a take-home exam, and a 40-hour internship is required for graduation.

The program is a unique compilation of theory and practice which not only seeks to impart knowledge but also offers a wide array of professional expertise.

1.3 WHAT IS THERAPEUTIC HORTICULTURE?

Therapeutic horticulture is the use of plants and plant-related activities to promote mental, emotional, physical, spiritual, and intellectual well-being for clients. Participants' involvement with plants can be active (for example, engaging in gardening activities such as planting seeds or pruning plants) or passive (for example, walking or sitting in a garden setting). Therapeutic horticulture is facilitated by a registered horticultural therapist or other professional trained in the use of horticulture as a therapeutic tool.

Benefits of therapeutic horticulture include physical activity, relaxation and enjoyment, skill development, creative expression, sensory stimulation, intellectual and personal growth, social interaction, and a spiritual connection with life. Therapeutic horticulture has been used to support:

- **MENTAL HEALTH GOALS** such as reducing stress and tension, diminishing anger, improving mood, developing coping skills, enhancing personal responsibility, fostering hope, learning to work independently;
- **SOCIAL GOALS** such as improving the ability to work with others, improving communication skills, reducing social anxiety, reducing irritability and aggressiveness;
- **COGNITIVE GOALS** such as learning new skills, regaining lost skills, improving memory, improving ability to initiate tasks, improving attention to detail; and
- **PHYSICAL GOALS** such as improving coordination, retraining muscles, improving balance, improving strength.

Therapeutic horticulture is practiced in varied settings including rehabilitation programs, psychiatric and mental health facilities, hospitals, correctional facilities, schools, nursing homes and senior centers, and community and botanic gardens. People who benefit from therapeutic horticulture include adults and children with physical, psychological, and developmental disabilities, those recovering from illness or injury, people wishing to improve their quality of life in hospice or nursing home settings, persons who have experienced abuse and their abusers, public offenders, and recovering addicts.

2. GENERAL PROGRAM INFORMATION

Successful completion of the program requires attendance of 22 of 24 classes, passing a final take-home exam, and completion of a 40-hour internship. Course scheduling is designed for graduation within a 16-month period.

Contact

Horticultural Therapy Program Manager, Sally Haskett, haskett@email.unc.edu
Director of Education

ncbg.unc.edu/certificate-programs/

Phone (General): (919) 962-0522

Fax: (919) 962-3531

2.1 PROGRAM POLICY

NCBG reserves the right to adjust the course schedule or substitute faculty. Policy and procedure will be revised annually.

2.2 COURSE CALENDAR

September 22, 2018 - July 20, 2019

*See section 4.2

Courses will be listed on the NCBG website under “Certificate in Therapeutic Horticulture”: ncbg.unc.edu/certificate-programs/. They are also listed on pages 14 and 15 of this handbook.

2.3 PROGRAM REGISTRATION

Students must be at least eighteen years of age and meet requirements detailed in Section 1.1 “Who Should Apply?” of this Handbook.

Online registration is on a first-come first-serve basis. Maximum enrollment is 18. Upon reaching 18 enrolled students, a waitlist will be created. Registration will open on April 2, 2018 at 12 noon. The link to register will be available on the NCBG website under “Certificate in Therapeutic Horticulture”: ncbg.unc.edu/certificate-programs/

2.4 PAYMENT OPTIONS

Registration:

Total registration: \$950

Registration is April 2, 2018 through June 30, 2018. Upon registration, a 50% deposit - \$475 - is required, or a student may choose to pay in full. The total balance must be paid by July 1, 2018, or the student will be dropped from the program.

Late Registration:

After July 1, 2018 the cost of the program is \$1,200.00 and must be paid in full upon registration. Registration closes on September 14, 2018.

2.5 REFUND POLICY

Prior to June 1, 2018, students who cancel registration will be refunded their deposit minus a \$150 administrative fee. After June 1 and prior to August 1, 2018, students who cancel registration will be refunded their deposit minus a \$600 administrative fee.

After August 1, 2018 no refunds will be given. Extenuating circumstances will be considered at the discretion of the Director of Education.

2.6 SCHOLARSHIPS

CTH will grant 3 need-based partial-scholarships. These scholarships will cover 50% of the program costs, requiring scholarship-recipients to pay a total of \$475.00 for the program. Submission of the application does not guarantee that a student will receive the scholarship.

The scholarship application will be posted on the NCBG website (ncbg.unc.edu/certificate-programs/) on March 2, 2018. Students must submit the application before 12 noon on March 14, 2018. Applications will be submitted by email to Sally Haskett (haskett@email.unc.edu). Applications received after 12pm on March 14, 2018 will not be considered.

2.7 ENROLLMENT CONFIRMATION

Confirmation of program registration will be sent via email upon completion of online registration and payment receipt.

2.8 CANCELLATION POLICY

In case of inclement weather, it is the student's responsibility to phone the NCBG for updates on closures. If a class is cancelled due to inclement weather or unsafe driving conditions, a make-up class will be scheduled for July 20 or 21, 2019. Students should mark this weekend on their calendar for any make-up classes that may need to be scheduled.

2.9 CREDIT FOR PREVIOUS CLASSES

If a student has previously taken a CTH required class at NCBG, the student may receive transfer credit. Before seeking credit, be aware that every course a student takes is a valuable learning experience and information may vary from previously attended classes. Transfer credit will not be accepted for any non-NCBG classes. If a student previously has attended the annual workshop "Therapeutic Horticulture: An Introductory Workshop", please contact Sally Haskett, Horticultural Therapy Program Manager at haskett@email.unc.edu

2.10 ATTENDANCE POLICY

In order to graduate and receive a certificate, students are permitted two class absences, or a total of 6 hours. If a student is absent for more than two classes (6 hours), they may continue in the program attending classes; however, they will not receive a certificate.

If extenuating circumstances require additional absences, allowances will be considered at the discretion of the Director of Education in consultation with the course instructor.

2.11 SUPPORTIVE MATERIAL

While outside reference material is not required for purchase in order to enroll in or complete the certificate program, we strongly advise that you acquire the recommended texts. These provide foundational information for therapeutic horticulture, and they will be useful references as you integrate therapeutic horticulture into your practice.

1. *Horticulture as Therapy, Principles and Practices*, by Simson and Straus
2. *Horticultural Therapy Methods: Making Connections in Health Care, Human Services, and Community Programs*, by Haller and Kramer

An extensive bibliography of useful reference material will be presented during the first class. Individual teachers may recommend other reference materials.

3. Program Completion

3.1 GRADUATION REQUIREMENTS

To receive a Certificate upon completion of the program, students must attend 22 of 24 classes, pass the final take-home exam, and complete a 40-hour Internship by December 1, 2019.

3.2 INTERNSHIP EXPERIENCE

An Internship is a requirement for those wishing to receive a Certificate in Therapeutic Horticulture (CTH). The intent is to provide students with a service learning opportunity that is directly related to the mission of the CTH and applies the knowledge gained in the coursework. A minimum of 40 hours of direct service learning is required. In addition, students who are currently employed may be able to complete a project related to their CTH studies at their place of employment (i.e., design an accessible garden; implement TH activities; complete a case study).

One month prior to beginning an internship, students must submit for pre-approval a brief proposal outlining the proposed location and scope of their internship. The proposal shall include a description of the service, site, and how it relates to the CTH. Upon completion, students will provide: documentation of the hours served verified by supervisor / administrator (a form will be provided); a summary report (2-4 pages) of the experience to include how the knowledge gained from CTH coursework was applied to the internship / special project; and any relevant documents that support the experience. Internships may begin after class #16, the weekend of March 16th, 2019. Internship hours must be completed with all documents submitted by December 1, 2019.

a. List of Potential Internship Options

1. Botanical Gardens
2. Long Term Care Facilities (Assisted Living, Nursing Homes, Continuing Care Retirement Communities)
3. Mental Health Facilities (Community Clinics, In-patient Facilities)
4. Children's Programs / Schools
5. Community Gardens
6. Hospice / Palliative Care Programs
7. Acute Care / Rehab Settings
8. Prisons
9. Adult Day Care Programs / Dementia Care
10. Halfway Houses / Day Treatment Programs

3.3 GRADUATION DEADLINES

Students must have all program requirements completed and submitted for review by December 1, 2019. Certificates will be mailed to graduates by January 15, 2020.

4. CURRICULUM

4.1 COURSE LISTING

The curriculum provides instruction in achieving academic proficiency and understanding of the concepts and practice of therapeutic horticulture. Students must attend at minimum 22 classes to graduate.

1. Introduction to Therapeutic Horticulture
 2. The Art of Connecting with People
 3. Field Trip- Transplanting Traditions
 4. Botany for Gardeners
 5. Fall Nature Studies
 6. Native Plant Propagation
 7. Native Plant Gardening
 8. Nature Journaling
 9. Plant Metaphors in Health and Wellness
 10. Activity Analysis and Setting Goals
 11. Activity Adaptations -Neuro Degenerative (physical, cognitive)
 12. Field Trip – Carol Woods, Continuing Care Retirement Community
 13. Activity Adaptations - Developmental Disabilities
 14. Get Ready for Spring Gardening
 15. Adaptive Tools and Garden Design
 16. Soil is Everything
 17. Herbs, Annuals, Houseplants
 18. Managing Insects, Diseases, and Weeds in the Garden
 19. Activity Adaptations – Mental Illness and Trauma
 20. Field Trip - Farm at Penny Lane
 21. Activity Adaptations—Non-Neuro Degenerative (physical)
 22. Native Plant Propagation
 23. Marketing and Funding your Program
 24. The Art Prescription - Art and Nature Journaling for Self-Care
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4.2 CONSOLIDATED SCHEDULE

Date	#	Class Title	Instructor	Time	Hours
Sept 22, 2018 (4 th Sat)	1	Introduction to Therapeutic Horticulture	Sally Haskett , HTR, MLA, NCBG Horticultural Therapy Program Manager Christene Tashjian , MPA, HTA	9-12	3
Sept 22, 2018 (4 th Sat)	2	The Art of Connecting with People	Vickie Field , BA, Certified Corporate Coach	1-4	3
Sept 23, 2018 (4 th Sunday)	3	Field Trip— Transplanting Traditions	Nicole Accordino , HTR, Horticultural Therapist	9-12	3
Sept 23, 2018 (4 th Sunday)	4	Botany for Gardeners	Olivia Lenahan , PhD Horticultural Sciences	1-4	3
Oct 20, 2018	5	Fall Nature Studies	Stefan Bloodworth , Curator, Blomquist Garden of Native Plants, Sarah P. Duke Gardens; Owner, Pine Hollow Landscapes	9-12	3
Oct 20, 2018	6	Native Seed Propagation	Heather Summer , NCBG Seed Program Coordinator	1-4:30	3
Nov 17, 2018	7	Native Plant Gardening	Alan Johnson , Owner, Alan Johnson Landscape Services	9-12	3
Nov 17, 2018	8	Nature Journaling	Jane Eckenrode , BFA, Artist	1-4	3
Dec 15, 2018	9	Plant Metaphors in Health and Wellness	Christene Tashjian , MPA, HTA Jane Saiers , PhD, HTR, AAS	9-12	3
Dec 15, 2018	10	Activity Analysis and Setting Goals	Amy Brightwood , Certificate in HT, Horticultural Therapist Sally Haskett , HTR, NCBG Horticultural Therapy Program Manager	1-4	3
Jan 19, 2019	11	Activity Adaptation— Neuro Degenerative (physical, cognitive)	Beth Schultz , MS, OTR Robin Holmes , Private Duty Gardener, Carol Woods Retirement Community	9-12	3
Jan 19, 2019	12	Field Trip— Carol Woods Continuing Care Retirement Community	Beth Schultz , MS, OTR Robin Holmes , Private Duty Gardener, Carol Woods Retirement Community	1-4	3

Feb 17, 2019 (Sunday)	13	Activity Adaptations — Developmental Disabilities	JoAnn Yates , MBA, HTR, Horticultural Therapist Amy Brightwood , Certificate in HT from HTI, Horticultural Therapist	9-12	3
Feb 17, 2019 (Sunday)	14	Get Ready for Spring Gardening	Greta Lee , PhD, Certified Permaculture Teacher Claire Lorch , MSW, CCCG Garden Manager	1-3	2
Mar 17, 2019 (Sunday)	15	Adaptive Tools and Garden Design	Catherine Alguire , MLA, BSOT	9-12	3
Mar 17, 2019 (Sunday)	16	Soil is Everything	Greta Lee , PhD, Certified Permaculture Teacher Claire Lorch , MSW, CCCG Garden Manager	1-3	2
April 27, 2019 (4 th Sat)	17	Herbs, Annuals, Houseplants	Beth Schultz , MS, OTR Hannah Popish , MSW, Owner, poppysol	9-12	3
April 27, 2019 (4 th Sat)	18	Managing Insects, Diseases, and Weeds	Jane Saiers , PhD, HTR, AAS	1-4	3
May 18, 2019	19	Activity Adaptations— Mental Illness, Trauma	Christene Tashjian , MPA, HTA Beth Schultz , MS, OTR	9-12	3
May 18, 2019	20	Field Trip — Farm at Penny Lane	Sally Haskett , HTR, NCBG Horticultural Therapy Program Manager	1-4	3
June 8, 2019	21	Activity Adaptations— Non- Neuro Degenerative (physical)	Beth Schultz , MS, OTR	9-12	3
June 8, 2019	22	Native Plant Propagation	Matt Gocke , MF, NCBG Nursery and Greenhouse Manager	1-4	3
June 9, 2019 (Sunday)	23	Marketing and Funding Program	Brie Arthur , Author, Horticulturist	9-12	3
June 9, 2019 (Sunday)	24	The Art Prescription	Beverly Dyer , MSN, RN, Certified Botanical Illustrator	1-4	3
July 20, 2019	25	MAKE-UP DATE	TBD	9-12	3
July 20, 2019	26	MAKE-UP DATE	TBD	1-4	3
July 21, 2019	27	MAKE-UP DATE	TBD	1-4	3

4.3 HOMEWORK ASSIGNMENTS

Students will not be assigned homework. If absent from a class, a student is responsible for obtaining class materials to ensure successful program completion. To receive credit for participation students must participate during in-class assignments and complete in-class surveys.

4.4 STANDARDS FOR GRADES

All measures of program completion will be done on a pass/fail basis. No grades will be assigned.

4.5 CLASS DESCRIPTIONS AND OBJECTIVES

1. Introduction to Therapeutic Horticulture

Instructor:

Sally Haskett, HTR, NCBG Horticultural Therapy Program Manager

Class Description:

This is the first class in the Certificate in Therapeutic Horticulture class series, intended as a foundation for practitioners and students in allied health professions to learn about this therapeutic modality. Participants gain an overview of the history, theory and practice of therapeutic horticulture. Research findings will be described. The broad range of populations and locations that have been served historically and currently will be discussed. Benefits to health and well-being, including physical, social, emotional, and cognitive health, will be outlined. Participants learn about reference material and other resources to further their study in this program and beyond.

Class Objectives:

Upon completion of this course, participants are able to:

- Describe the foundational theory for the use of therapeutic horticulture;
- Describe historical uses of therapeutic horticulture;
- Identify populations and settings served;
- Outline potential benefits for participants, including broad categories and specific benefits;
- Explain the difference between horticultural therapy and therapeutic horticulture; and
- Identify references and resources for further study.

2. The Art of Connecting with People

Instructor:

Vicki Field, BA, Certified Corporate Coach

Class Description:

This course guides students in developing and strengthening a set of coaching skills that generate positive connections and leads to positive outcomes for your clients. Students examine the process of building inclusion, trust, and connection with a client. Additionally they explore specific skills to apply during each step of the process. These skills include: discovery questioning, attending, committing to the moment, information-giving, interpretation, concreteness, using metaphors to boost your message, and ending each session on a positive note. The format of this class combines lecture with time for self-reflection, small and large group discussion, and skill practice.

Class Objectives:

Upon completion of this course, students have an understanding of the following:

- The benefits of using the model of “Inclusion—Trust—Connection” with HT clients;
- Using a “guide by the side” vs. “sage on the stage” approach with HT clients;
- Utilizing a set of specific coaching skills to effectively build inclusion, trust, and connection;
- How to apply these coaching skills in specific HT situations.

3. Field Trip- Transplanting Traditions

Instructor:

Nicole Accordino, HTR, Horticultural Therapist

Class Description:

During this 1.5-hour field trip students learn the history, programming practices, and value system behind Transplanting Traditions Community Farm. Students explore the farm infrastructure including pack shed, greenhouse, hoop houses and irrigation system. Additionally, participants gain insight in the power of a community driven project with a strong values system rooted in community participatory decision making and learn the psychosocial impacts of the farm on participants.

Class Objectives:

Upon completion of this course, students have an understanding of the following:

- Wellness based horticultural therapy in a community farm setting;
- History of project and process of building a program with community participatory input;
- Multifaceted goals of:
 1. Income generation/ small agricultural business development;
 2. Food access and increased access to cultural significant food; and
 3. Support of community space and programming for entire family.

4. Botany for Gardeners

Instructor:

Olivia Lenahan, PhD Horticultural Sciences

Class Description:

This class is introductory in nature. Discussion and hands-on activities cover the structure and ecology of flowers, fruits, seeds, and the science behind gardening practices.

Class Objectives:

Upon completion of this course, students have an understanding of the following:

- Form and structure of plant parts - flowers, fruit, and seeds;
- Overview of botanical science as seen in a growing season; and
- Introduction to basic botanical vocabulary common in horticultural reference materials.

5. Fall Nature Studies

Instructor: Stefan Bloodworth, Curator, Blomquist Garden of Native Plants, Sarah P. Duke Gardens; Owner, Pine Hollow Landscapes

Class Description:

Discover the local flora of the North Carolina Piedmont in fall. Classroom time along with a short hike on the Piedmont Nature Trails at NCBG provide experience in the use of identification keys and recognition of plants in a natural setting.

Class Objectives:

Upon completion of this course, students will have an understanding of the following:

- Basic plant morphology;
- Naming conventions for plants and the history of scientific naming;
- How to identify the prominent plants of the season using a dichotomous key and field characteristics; and
- Other information specific to the season.

6. Native Seed Propagation

Instructor:

Heather Summer, NCBG Seed Program Coordinator

Class Description:

Students learn seed propagation techniques for native perennials and woody plants. Topics include seed collection methods, post-collection handling, cleaning equipment and techniques, seed storage, seed sowing techniques, sowing media, cultural requirements of seedlings, and dormancy requirements.

Class Objectives:

Upon completion of this course, students have an understanding of the following:

- Basic seed collection methods; and
- Basic seed propagation techniques.

7. Native Plant Gardening

Instructor:

Alan Johnson, Owner, Alan Johnson Landscape Services

Class Description:

This class will focus on basic gardening principles of site analysis, soil improvement, landscape design and the use of native plants. With the loss of natural areas due to a growing population and other negative impacts on native plant communities makes the building of wildlife habitat into our landscapes a critical issue. A native plant list for use in creating a pollinator garden will be provided.

Class Objectives:

Upon completion of this course, students have an understanding of the following:

- How to do a site analysis of your garden location;
- Soil amendments and how to improve your soil;
- Choosing the right plant;
- Planting;
- Maintaining a garden; and
- Importance of using native plants.

8. Nature Journaling

Instructor:

Jane Eckenrode, BFA, Artist

Class Description:

At its core, Nature Journaling is simply the practice of becoming a good observer. Whether you are just getting started, want to add visual notes to your writing, or simply enjoy nature, you can build confidence by practicing skills that quickly establish a framework for a diagram, drawing, or description. Students experiment with portable drawing and painting media, discuss strategies to organize your journal, then venture out to the Garden to make observations. Come dressed for the weather! Refer to the provided materials list, or bring your favorite journal and tools.

Class Objectives:

Upon completion of this course, students have an understanding of the following:

- Benefits of journaling to foster a connection to nature;
- Materials and practices that work outdoors; and
- Techniques to practice that build confidence.

9. Plant Metaphors in Health and Wellness

Instructors:

Jane Saiers PhD, HTR, AAS

Christene Tashjian, MPA, HTA

Class Description:

People are “rooted” and “transplanted”; they “blossom” and “wilt.” Plant metaphors express our oneness with nature and alignment with its rhythms. Using these metaphors during work with plants can enliven the senses, reawaken the sense of connection with the natural world, and lead to revelations and self-insights. In this class, we explore plant metaphors as a therapeutic tool. Participants learn about the use of plant metaphors in therapeutic horticulture to enhance health and facilitate healing and apply plant metaphors in a hands-on project.

Class Objectives:

Upon completion of this course, participants are able to

- Define and describe plant metaphors;
- Describe how plant metaphors have been used to support health and facilitate healing in wellness programs and therapeutic horticulture; and
- Outline a therapeutic program based on the use of plant metaphors.

10. Activity Analysis and Setting Goals

Instructors:

Sally Haskett, HTR, NCBG Horticultural Therapy Program Manager
Amy Brightwood, Certificate in HT, Horticultural Therapist

Class Description:

Students learn the use of the Activity Analysis tool for developing, evaluating, and modifying therapeutic horticulture activities. Each step in the process of the Activity Analysis is explained, with emphasis on setting goals for the activity. The relevance of each step in maximizing benefits is examined. Examples of existing Activity Analyses employed at NCBG and elsewhere are presented and discussed. We explore ways to use the tool to evaluate outcomes and modify the activity. Students develop an activity analysis for a population for which they are working, or for whom they are considering working.

Class Objectives:

Upon completion of this course, participants are able to:

- Describe the purpose of the Activity Analysis tool;
- Identify the benefits of using the tool;
- Explain the steps in the process;
- Explain how the tool can be used in evaluation and modification of an activity; and
- Create an Activity Analysis for a population.

11. Activity Adaptations -NeuroDegenerative (physical, cognitive)

Instructors:

Robin Holmes, Private Duty Gardener, Carol Woods Retirement Community
Beth Schultz, MS, OTR

Class Description:

Students are given an overview of dementia. The course includes a morning lecture and an afternoon field trip. Both provide information on communicating with and adapting activities for individuals living with dementia.

Class Objectives:

Upon completion of this course, students have an understanding of the following:

- What is dementia;
- What are the brain and sensory changes associated with dementia;
- How best to communicate with individuals living with dementia; and
- How to adapt TH activities for this population.

12. Field Trip – Carol Woods: Continuing Care Retirement Community

Instructors:

Robin Holmes, Private Duty Gardener, Carol Woods Retirement Community
Beth Schultz, MS, OTR

Class Description:

Students have the opportunity to participate in a “Growing Spirit” TH activity, speak with staff who provide services to residents living with dementia, and learn about the planning, design and implementation of the therapeutic garden space outside of the Nursing Care building.

Class Objectives:

Upon completion of this field trip, students have an understanding of the following:

- What is meant by the term “dementia inclusive community”;
- The importance of outdoor living areas / gardens for older individuals and those with cognitive challenges; and
- How to provide a TH activity within a dementia inclusive setting.

13. Activity Adaptations - Developmental Disabilities

Instructor:

Amy Brightwood, Certificate in HT, Horticultural Therapist
JoAnn Yates, MBA, HTR, Horticultural Therapist

Class Description:

This course focuses on specific ways therapeutic horticulture can be used to adapt activities to meet client’s needs. Using a hands-on approach, participants engage in activities that encourage the participation of the client and develop skills that will assist them in meeting their therapeutic goals.

Class Objectives:

Upon completion of this course, students have:

- An understanding of possible challenges people with developmental disabilities encounter;
- Appropriate treatment goals and objectives for this population based on best practices of therapeutic horticulture;
- An opportunity to develop adaptations for a therapeutic horticulture activity using knowledge learned in course; and
- An opportunity to role play as the therapist, participant and observer during a therapeutic horticulture activity designed for individuals with developmental disabilities.

14. Getting Ready for Spring Gardening

Instructors:

Greta Lee, PhD, Certified Permaculture Teacher

Claire Lorch, MSW, Carolina Campus Community Garden Manager

Class Description:

This workshop covers how to grow spring vegetables including what and when to plant; tips for growing each variety; growing your own seedlings; tips on protecting plants from freezing; and how to get a large harvest from a small space. Following the workshop, students tour the Carolina Campus Community Garden located nearby.

Class Objectives:

Upon completion of this course, students have an understanding of the following:

- What spring vegetables to grow and specifics on how to grow them;
- How to grow your own seedlings;
- Season extension; and
- Vegetables that are easy to grow and nearly foolproof.

15. Adaptive Tools and Garden Design

Instructor:

Catherine Alguire, MLA, BSOT, Disability and Universal Design Specialist

Class Description:

This presentation discusses the essentialness of good environmental and product design in optimizing task participation and skills in people with diverse abilities. It discusses Universal Design concepts as applied to a horticultural therapy/ therapeutic horticulture garden design, gardening tasks and tools, including variations in physical abilities, sensory processing, cognition and social participation. This class provides an analytical approach to problem solving in garden design development, task organization and tool choices. Students then break into small groups for an activity that provides an opportunity to implement these principles.

Class Objectives:

Upon completion of this class and review of related resources, students have an understanding of the following:

- The characteristics of a basic garden design and the unique features of a horticultural therapy garden design;
- Principles of Universal Design as applied to HT/TH garden design;
- A process for analyzing and setting up a multiple step gardening task;
- A method for supporting a person's ability to participate in a specific task; and
- An awareness of garden tool design, variation and adaptations.

16. Soil is Everything

Instructors:

Greta Lee, PhD, Certified Permaculture Teacher

Claire Lorch, MSW, Carolina Campus Community Garden Manager

Class Description:

This class covers soil testing and sampling, different soil types, building your soil, pros and cons of raised beds with and without edges, effects of tillage on soils, soil amendments, and more. Students are shown how to turn heavy clay into good garden soil. There are some hands-on activities and a trip to the Carolina Campus Community Garden.

Class Objectives:

Upon completion of this course, students have an understanding of the following:

- Importance of soil testing and how to take a soil sample;
- What constitutes good soil and how to build it; and
- Best practices for maintaining good soil health.

17. Herbs, Annuals, Houseplants

Instructors:

Hannah Popish, MSW, Owner, poppysol

Beth Schultz, M.S., OTR

Class Description:

Students are given an overview of the basic skills needed to successfully grow indoor plants, grow and harvest herbs, and grow flowering annuals. In addition, students learn the healing properties of selected plant species.

Class Objectives:

Upon completion of this course, students have an understanding of the following:

- The cultivation and harvesting of medicinal and culinary herbs focusing on those that can be incorporated into therapeutic horticulture activities;
- The selection, cultivation and harvesting of flowering annuals focusing on those that can be incorporated into therapeutic horticulture activities;
- Indoor plant care and maintenance including light, temperature, humidity, soil, water, container, pruning and fertilization needs as well as pest control; and
- The importance of insuring sustainability when installing herb and / or cutting gardens and when using indoor plants in institutional settings.

18. Managing Insects, Diseases, and Weeds in the Garden

Instructor:

Jane Saiers, PhD, HTR, AAS

Class Description:

This course introduces students to the theory and practice of integrated pest management. Participants learn about the role of fostering healthy soil in managing garden pests. They become familiar with: insect, weed, and disease life cycles; plants commonly affected by these pests; and cultural, physical, biological, and chemical methods for managing diseases, insects, and weeds in the garden. Strategies for incorporating integrated pest management into therapeutic horticulture programs are explored.

Class Objectives:

Upon completion of this course, participants are able to:

- Describe principles and practices of integrated disease, insect, and weed management;
- Identify common garden pests in our region;
- Outline strategies for managing common insects, diseases, and weeds that impact ornamental and vegetable crops in our region; and
- Use online resources as tools in pest management efforts.

19. Activity Adaptations – Mental Illness and Trauma

Instructors:

Beth Schultz, MS, OTR

Christene A. Tashjian, MPA, HTA

Class Description:

Students are given an overview of the following mental health issues: trauma (PTSD); anxiety disorders; concomitant disorders; acute and chronic mental illness; eating disorders; and what therapeutic horticulture offers as a unique treatment modality.

Class Objectives:

Upon completion of this course, Students have an understanding of the following:

- Mental health major diagnostic categories;
- Benefits of therapeutic horticulture as a treatment modality for this population;
- Activity adaptations that may be needed for this population; and
- Implementation of a metaphorical TH activity and exposure to rituals that may be associated with TH activities.

20. Field Trip - Farm at Penny Lane

Instructor:

Sally Haskett, HTR, NCBG Horticultural Therapy Program Manager

Class Description:

Students travel to Chatham County to see the Farm at Penny Lane, an inclusive working organic farm which serves people with serious and persistent mental illness. Students learn about the Farm's mission, the many programs it encompasses, and the people it serves. The Horticultural Therapy Program at the Farm is featured including therapeutic programming techniques and research components. Farm staff and participants are available for discussion and insight. Students may participate in a farm project.

Class Objectives:

Upon completion of this field trip, students have learned the following:

- Practical programming techniques for conducting therapeutic horticulture in a farm or garden setting;
- How therapeutic horticulture functions as a complementary therapy in a multi-service setting;
- Practical gardening/farming techniques for small or large scale use;
- The significance of vision and determination in developing a therapeutic horticulture project; and
- The role of collaboration and partnership in actualizing a vision.

21. Activity Adaptations—Non-Neuro Degenerative (physical)

Instructor:

Beth Schultz, MS, OTR

Class Description:

Students are given an overview of non-neurodegenerative conditions and the adaptations that may facilitate an individual's success as they engage in therapeutic horticulture activities.

Class Objectives:

Upon completion of this course, students have a basic understanding of the following:

- Non neuro degenerative illnesses;
- The physical and cognitive changes associated with these illnesses; and
- Adaptations of TH activities for this population, including adaptive tools and other techniques.

22. Native Plant Propagation

Instructor:

Matt Gocke, MF, NCBG Nursery and Greenhouse Manager

Class Description:

Students learn fundamentals of vegetative propagation and techniques for propagating southeastern native plants by means of stem and root cuttings. Class includes hands-on propagation and a tour of the vegetative propagation facilities of NCBG.

Class Objectives:

Upon completion of this course, students have an understanding of the following:

- Basic vegetative propagation techniques (stem cuttings, root cuttings, and division) for native plants.

23. Marketing and Funding your Program

Instructor:

Brie Arthur, Author, Horticulturist

Class Description:

This class covers strategies to market the educational skills gained from the Certificate in Therapeutic Horticulture. Employment opportunities, communication tactics and funding prospects are discussed. Additionally students gain insight on approaches to distinguish themselves within the field of therapeutic horticulture, including social media outreach.

Class Objectives:

Upon completion of this course, students have an understanding of the following:

- Identify employment opportunities: public school systems, hospitals, retirement communities, public gardens, etc.;
- Learn marketing strategies to promote themselves;
- Discuss alternative approaches to advancing their careers through freelance work;
- Develop a general communication plan; and
- Create career goals to work toward.

24. The Art Prescription: Art and Nature Journaling for Self Care

Instructor:

Beverly Dyer, MSN, RN, Certified Botanical Illustrator

Class Description:

Everyone is an artist, and there is a growing body of evidence to support the healing benefits of art. Art aids in stress reduction and can be beneficial in preventing illness or in managing symptoms such as anxiety, loss, and depression. The Art Prescription invites the participant to live a creative life with instructions, tools/supplies, and insightful directions on painting projects and collage in a journal to promote spontaneity, intuition, fun, and relaxation. This course includes time in the classroom and in the garden.

Class Objectives:

Upon completion of this course, students have an understanding of the following:

- The connection between artistic expression and wellness;
- How creativity benefits the body;
- Discuss ways to be in the moment, focusing on process versus end-product; and
- How to keep an art and nature journal.

5. FACULTY

Nicole Accordino, HTR, Transplanting Traditions Community Farm Programs Director

Nicole Accordino has served as Programs Director with Transplanting Traditions Community Farm since 2012. In addition to developing and teaching workshops to TTCF farmers, she coordinates community volunteers and interns, refugee youth programming and public outreach efforts for the project. Since 2007, she has worked with numerous community based food projects and public-school gardening programs throughout the state of North Carolina. She worked for four years with the Asheville City School system to develop hands-on garden based curriculum for public school teachers, gaining extensive significant experience with curriculum development focused on agriculture for a diverse audience. She is registered horticultural therapist.

Catherine Alguire, MLA, BSOT, Disability and Universal Design Specialist

Catherine Alguire enjoys specialization in the area of Universal Design, or how the environmental/product design influences participation and task abilities. As an occupational therapist, she has worked with people with a myriad of disabilities across the age span, in diverse settings. With an M.L.A. in landscape architecture, she has collaborated on local to international projects, including horticultural and therapeutic gardens, greenways, residential and public venues. She is certified in Permaculture and volunteers as an Audubon Ambassador, promoting sustainability and biodiversity. In both fields, she has worked independently, as well as appreciated collaborations through interdisciplinary teams, community partners and graduate students.

Brie Arthur, Author, Horticulturist

Originally from southeastern Michigan, Brie Arthur studied Landscape Design and Horticulture at Purdue University. With more than a decade of experience as a grower and propagator she now works in green industry communications. She appears as a correspondent on the PBS Television show “Growing A Greener World” and her debut book, *The Foodscape Revolution* has become a best seller on Amazon. Brie was honored as the first recipient of the The American Horticultural Society's Emerging Horticultural Professional Award and serves on the board of the NC Botanical Garden Foundation. As Vice President of Horticulture at Gardenuity, Brie is able to use her plant knowledge and extensive grower network to reach consumers nationally. Her second book, *Gardening with Grains* published by St Lynn's Press, will be available in winter 2019.

Stefan Bloodworth, Curator, Blomquist Garden of Native Plants, Sarah P. Duke Gardens; Owner, Pine Hollow Landscapes

Stefan is the Curator of the Blomquist Garden of Southeastern Native Plants at the Sarah P. Duke Gardens and the owner of Pine Hollow Landscapes, a design/build company specializing in the use of native plants.

Amy Brightwood, Certificate in HT from HTI, Horticultural Therapist

Amy has a B.A. in Psychology, a Masters in Theological Studies, focusing in Human Development and Spirituality, as well as a Certificate in Horticultural Therapy and is working toward being an HTR (registered horticultural therapist). Her previous work experiences include hospice, mindfulness-based stress reduction, research and more.

Beverly Dyer, MSN, RN, Certified Botanical Illustrator

Beverly Dyer studied art and healing while obtaining her master's degree in nursing. She's written articles on creativity and wellness published in assorted books and papers. Author of "Cats and Dogs of Chapel Hill," and illustrator of "Thoughts of a Golden Fox," Beverly's work reflects her love for the natural world. As a Certified Botanical Illustrator she developed "The Art Prescription Coloring Deck," and a line of note cards. She writes a blog "The Art Prescription: A daily dose of art and haiku" and when not in her studio, she can be found hiking and sketching in the woods or riding her horse, Finn.

Jane Eckenrode, BFA, Artist

Jane is a professional artist with 30 year's experience designing and building immersive natural science exhibits for the California Academy of Sciences, Taiwan National Museum of Natural Science, and North Carolina Museum of Natural Sciences. She holds a Bachelors of Fine Arts from the Tyler School of Art of Temple University and is a member of the Chatham Artists Guild. Jane has fused her art background with an interest in natural science and informal education to present nature journaling workshops for educators and the public at the North Carolina Museum of Natural Sciences, Walnut Creek Wetlands Center, Association of Science-Technology Centers, Cape Fear Botanical Garden, and the NC Outdoor Classroom Symposium.

Vicki Field, BA, Certified Corporate Coach

A certified corporate and life coach since 2000, Vicki Field has spent 30 years in the field of professional, leadership, career, and personal development, serving as Director of Learning and Development for several large organizations. She has consulted with over 400 organizations (including the NC Botanical Garden) in designing and delivering a wide range of organizational programs. She graduated from Wheeling Jesuit University with a BA in Psychology and has earned a number of leadership and organizational development certifications in specific areas of interest. Vicki is co-author of "Building the Bonds of Friendship at Midlife and Beyond" and has taught a class on the topic, along with others, at UNC's Friday Center over the past 8 years.

Matt Gocke, MF, NCBG Nursery and Greenhouse Manager

Matt Gocke is the Nursery and Greenhouse Manager at NCBG. His responsibilities at the Garden include seed and vegetative propagation of southeastern US native plants for use in the NCBG habitats and landscapes and for sale to the general public. Prior to working at the NCBG, Matt was a master's student and project manager at the NC State Department of Forestry. His research focus was rooted cutting techniques for native tree species including pine, sweetgum and several oak species. Matt is a resident of Durham, NC.

Sally Haskett, HTR, NCBG Horticultural Therapy Program Manager

Sally Haskett, Horticultural Therapist Registered, has worked as Horticultural Therapy Program Manager at NCBG for eight years. She has developed therapeutic horticulture programs in a range of settings from assisted living centers to working farms, and with persons living with developmental disabilities, mental illness, traumatic brain injury, dementia, and physical conditions. Her teaching experience includes yearly workshops for professionals, daily mentoring of interns, and national presentation forums. She has a Masters degree in Landscape Architecture that provides foundational knowledge of garden design. The opportunity to help people make connections to the earth, plants and nature has been her greatest reward.

Robin Holmes, Private Duty Gardener, Carol Woods Retirement Community

Robin Holmes had nearly 40 years of experience running a private landscape business before seeking employment at Carol Woods Continuing Care Retirement Community as the Private Duty Gardener. Robin quickly expanded this role to include residents in higher levels of support (Assisted Living and Nursing Care). In 2010, Carol Woods sponsored her attendance at the Therapeutic Horticulture: Inter-Disciplinary Concept and Practice semester long course taught by UNC's division of Occupational Science at NCBG. Robin then assisted in the development of "Growing Spirit," an interdepartmental initiative offering nature based / horticulture activities. As some residents become challenged with cognitive impairment, the joy of nature and gardens remains a bridge to meaningful experiences for them...and for her.

Alan Johnson, Owner, Alan Johnson Landscape Services

Alan Johnson , a native of North Carolina, obtained a degree in horticulture from Sandhills Community College Landscape Gardening Program. He began his career at Longwood Gardens and then worked at the North Carolina Botanical Gardens for 32 years in many roles such as Nursery Manager and Grounds supervisor. He started a design/ build landscape business 10 years ago in which he applies sustainable landscape principals while using as many native plants as possible.

Greta Lee, PhD, Certified Permaculture Teacher

Greta Lee has taught several workshops on gardening and permaculture. As a Master Gardener volunteer, Greta helped start and coordinate the Northside Community Garden. She currently acts as an advisor for the Carolina Campus Community Garden. She has grown vegetables organically for over 30 years.

Olivia Lenahan, PhD Horticultural Science

Olivia Lenahan is a horticulturist and scientific editor. She received her M.S. in horticultural science from Washington State University, studying crop load dynamics of sweet cherry trees. She holds a Ph.D. from Iowa State University and focused her research on the cold hardiness of *Styrax americanus* (American snowbell). Currently she edits and produces publications for a peer-reviewed journal based in the Forest Biomaterials department at North Carolina State University. She teaches courses in botany, plant family taxonomy, and native plants for shade and groundcovers.

Claire Lorch, MSW, Carolina Campus Community Garden Manager

Claire Lorch, a social worker by training spent twenty years working at UNC's medical school educating pediatric residents and medical students in child development, community resources and communication. Since January 2010, she has served as the garden manager/educator for the NCBG Carolina Campus Community Garden. This 14,000 square ft. garden provides 5,000 pounds of organic produce year-round to UNC's lowest waged workers through the shared efforts of students, staff, faculty and local residents. The Garden also serves as a learning community for developing gardening skills, healthy living and social responsibility.

Hannah Popish, MSW, Owner, poppysol

Hannah Popish, MSW, runs a small business (poppysolnc.com) dedicated to creating local, ethical and accessible herbal blends. She apprenticed locally with herbalist Suki Roth, is a graduate of Rosemary Gladstar's Science and Art of Herbalism and is currently a student in David Winston's Center for Herbal Studies. She is a farmer and herbalist in Chatham County with a winding career that led her to her happy place - being outside and sharing her love of the power of plants with others.

Jane Saiers, PhD, HTR, AAS, Owner RambleRill Farm

Jane Saiers (AAS, Sustainable Agriculture) started RambleRill Farm in 2010 in Hillsborough, NC with her husband Darin Knapp. She and Darin grow certified organic vegetables, fruits, and mushrooms without the use of organic or synthetic chemicals and keep laying hens and Nigerian Dwarf goats. They sell their produce and eggs at the farmers market, through the farm's order-by-email program, and at their farm store; and they offer on-farm educational programs and horticultural therapy. Jane and Darin believe that nearly everyone can be healthier by spending daily time, be it 15 minutes or 8 hours, with plants and the soil. www.RambleRillFarm.com, jane@RambleRillFarm.com

Beth Schultz, MS, OTR

Beth Schultz is a retired Occupational Therapist (UTMB, Galveston 1979) who believes in the therapeutic value of plants and horticulture. As a practicing therapist, she incorporated horticulture activities into her OT sessions with a variety of patient populations, volunteered with the HT program at NCBG, and mentored UNC Occupational Science students at the gardens. With colleagues, she has offered HT programs at Benevolence Farm and done HT workshops for survivors of trauma and sexual violence.

Heather Summer, NCBG Seed Program Coordinator

Heather Summer is the Seed Program Coordinator for NCBG. She has a B.S. in Biology (with a concentration in botany) from Florida State University and an M.S. in Ecology from the University of Georgia. Prior to joining the Garden, Heather worked as a regional vegetation ecologist and project manager for NatureServe in Durham and as a field biologist for the Florida Natural Areas Inventory in Tallahassee, FL and the J.W. Jones Ecological Research Center in Newton, GA.

Christene A. Tashjian, MPA, HTA

Christene discovered her passion for horticultural therapy in Fall 2002 when she began volunteering with the HT program at NCBG. She graduated from the Horticultural Therapy Institute in 2006 and started an HT support group at the Orange County Rape Crisis Center for female survivors of sexual assault. With colleagues, she continues to provide HT programs to Center staff and volunteers, and has co-facilitated local HT workshops for survivors of trauma and sexual violence. Christene is a member of the American Horticultural Therapy Association and has been active in the state's association/network since 2003.

JoAnn Yates, MBA, HTR, Horticultural Therapist

JoAnn has worked for the past nine years serving children with special needs within the Winston Salem/Forsyth County school system. As a horticultural therapist she is in charge of developing ability appropriate curriculum, leading horticultural therapy activities both outdoors and in the classroom, and designing and maintaining the school's therapeutic garden. JoAnn is an active member of the American Horticultural Therapy Association and is a frequent speaker on both the national and local levels on the topic of therapeutic gardening with children. JoAnn has a Masters degree in Business Administration, a Bachelor of Science degree in Foods and Nutrition, along with an Associate of Science degree in Horticulture. JoAnn is a registered horticultural therapist and a certified Healing Touch practitioner. Her passion is awakening curiosity and awe for nature in children of all ages.

6. ADDENDUM

6.1 MISSION AND HISTORY OF THE NORTH CAROLINA BOTANICAL GARDEN

NCBG is a unit of the University of North Carolina at Chapel Hill. We further the University's mission of teaching, research, and public service through our mission:

“To inspire understanding, appreciation, and conservation of plants in gardens and natural areas and to advance a sustainable relationship between people and nature.”

The concept of the conservation garden was developed at NCBG in the early 1990s to represent the many conservation-related activities that the NCBG is pursuing. The Garden has the following eight program themes within its mission.

1. Conservation through propagation of native plants, which ensures that wild populations are not damaged by direct use.
2. Seed banking and reintroduction, an ex-situ conservation program that protects germplasm reserves as a last resort against extinction in the wild and for use in reintroduction of wild populations.
3. The protection and restoration of natural areas.
4. The elimination of invasive species and replacement with noninvasive alternatives.
5. Gardening in nature's context, which seeks to promote plants that support native biodiversity.
6. Sustainable gardening, which seeks to promote environmentally friendly gardening practices.
7. Supplying critical information on conservation of the flora of the southeastern United States and on the Garden's conservation programs.
8. People-nature relations, which describes how important plant diversity and natural areas are to the physical and psychological health of all of us.

The history of NCBG is a history of the people and the botanical legacy of the University of North Carolina at Chapel Hill.

In 1903 William Chambers Coker, the University's first professor of botany, began planting a teaching collection of trees and shrubs on the central campus. This collection was to become the Coker Arboretum. Starting in the late 1920s, Coker and his student Henry Roland Totten proposed a more complete botanical garden south of the main campus. Although some plantings were done by the 1940s, it was in 1952 that the trustees dedicated 70 forested acres for botanical garden development. To this tract were added 103 acres of dramatic creek gorge and rhododendron bluffs donated by William Lanier Hunt, a horticulturalist and former student of Coker and Totten.

Hunt also helped to found the garden's membership support organization, the Botanical Garden Foundation, in 1966. In 1961 Dr. C. Ritchie Bell was appointed the Garden's first director. The Garden's first public offering was the Nature Trail, opened on Arbor Day in April 1966. The first state appropriation came five years later, when the first employee, J. Kenneth Moore, was hired.

Director Bell, a professor of botany and tireless promoter of the flora of North Carolina, enlisted the support of the Botanical Garden Foundation and the Garden Club of North Carolina to publish a book of photos by William S. Justice. *Wild Flowers of North Carolina* filled a need among wildflower lovers and students of natural history, and it brought valuable attention to the fledgling NCBG. Dr. Bell also enlisted many students to help at the Garden, even before he hired its first employee.

The Garden's formative period coincided with a surge of interest in plants and conservation fueled by Earth Day celebrations and the environmental movement. The Garden's early era was characterized by limited resources and unlimited idealism and energy. During the 1970s and 1980s, students, volunteers, and a growing staff under the leadership of superintendent Ken Moore constructed habitat gardens—displays representing the major plant communities of the state and illustrating the theme of botanist B.W. Wells' *The Natural Gardens of North Carolina* (published by the University of North Carolina Press in 1932 and revised in 2002). The Totten Center, named for UNC botanist Henry R. Totten and his wife, Addie, opened in 1976.

The 1960s saw the initiation of field research on a contiguous 367-acre tract of old farmland and native woodlands dedicated by the UNC trustees in 1984 as the Mason Farm Biological Reserve. Today the reserve provides research facilities (greenhouse, cultivation beds, and natural areas) for diverse projects in disciplines such as ecology, bird behavior, population biology, genetics, and developmental biology.

Encouraged by the North Carolina Wild Flower Preservation Society (now the North Carolina Native Plant Society), whose members had helped start the Garden, superintendent Moore promoted "conservation through propagation" as an alternative to the unethical collection of native plants from their natural habitats. He recruited a growing corps of volunteers who provided valuable assistance to staff in welcoming visitors, leading tours, conducting "plant rescues," propagating plants, and constructing the Mercer Reeves Hubbard Herb Garden. In partnership with the Botanical Garden Foundation, the Garden became a steward of natural areas near Chapel Hill and elsewhere in the state.

As the Garden matured and added staff with expertise in other areas, it developed programs and collections of national significance, such as the Southeastern Carnivorous Plant Collection. In 1984 NCBG became one of the founding members of the Center for Plant Conservation, a network of gardens and arboreta responsible for the collection of propagules and for research about and protection of our nation's rarest plants. Staff members and volunteers were motivated to undertake this work by a desire to practice conservation and demonstrate a high standard for all public gardens. The same year, in order to focus their efforts, staff members drafted a long-range plan for the Garden. In 1985 more than 15 years' work at the Garden was summarized in the book *Growing and Propagating Wild Flowers*, written and illustrated by NCBG staff and published by UNC Press.

Dr. Bell retired as director in 1986 and was succeeded by Peter White. Dr. White led a review of the 1984 long-range plan, resulting in the "Report on Mission, Goals, and Objectives" (1988). Next came the completion of a new master plan by the firm Jones and Jones, approved by the University trustees in 1990. In 1997 the North Carolina legislature granted funds for design of the Herbarium Botanical Library building, one of two new facilities described in the master plan. Then in 2000,

with support from a \$2.7 million bequest, the staff launched the design of the master plan's Education Center by Frank Harmon Architects, approved by the state in 2003. The Education Center, designed as a Platinum-level structure within the Green Building Council's LEED rating system, opened in November 2009.

In the years since its founding, the Garden has acquired responsibility for the four additional major units described below.

Coker Arboretum (part of the Garden since 1982)

Coker Arboretum, fondly known by many as a quiet haven in the middle of the busy University of North Carolina, lies at the heart of one of the most beautiful campuses in the nation. Managed by the NCBG, it is one of the Garden's oldest tracts.

In 1903 William Chambers Coker, the University's first professor of botany and the first chair of the University Buildings and Grounds Committee, began developing a five-acre boggy pasture into an outdoor classroom for the study of trees, shrubs, and vines native to North Carolina. Beginning in the 1920s and continuing through the 1940s, Dr. Coker added many East Asian trees and shrubs. These species, closely related counterparts to many North Carolina native plants, enhanced the beauty and education value of the arboretum. Today the collection consists of a wide variety of plantings including flowering trees and shrubs as well as bulb and perennial displays. The arboretum has something unique to offer during every season of the year.

In April 2003 the Coker Arboretum celebrated its 100th anniversary with exhibits and activities throughout the University's campus and Chapel Hill. Part of the celebration was the production of a book, *A Haven in the Heart of Chapel Hill: Artists Celebrate the Coker Arboretum*, that depicts scenes and specimens one might see on a walking tour of this special garden.

Mason Farm Biological Reserve (1984)

Mason Farm Biological Reserve (MFBR) protects natural areas, supports academic research and public education, and provides a place for contemplation and appreciation of the natural world. Mason Farm Biological Reserve and contiguous undeveloped tracts create an approximately 900-acre natural area that connects with the 41,000-acre New Hope Game Lands to the south. MFBR itself encompasses 367 acres and contains a combination of forests and old fields that support approximately 800 species of plants, 104 species of lichens, 216 species of birds, 29 species of mammals, 28 species of fish, 23 species of amphibians, and 67 species of butterflies. In fact, more different species of animals have been recorded at the reserve than in any other comparable-size area in the entire North Carolina Piedmont.

The University received the Mason Farm land in 1894 through the bequest of Mary Elizabeth Morgan Mason, one of the last descendants of the Morgan family who settled in the southeast corner of Orange County in the 1740s. Much of the area has reverted to woodlands, and some of its forests are at least 150 years old, with some trees exceeding 300 years in age.

During the 1960s and 1970s, several portions of this tract were set aside by the UNC Board of Trustees specifically for biological uses. The Mason Farm Biological Reserve was officially established in 1984, and today it is administered by NCBG as both a natural area and a biological field station.

Battle Park (already a well-loved natural area in the late 1800s and part of the Garden since 2004)

On July 1, 2004, at the request of UNC chancellor James Moeser, the Garden assumed responsibility for Battle Park, a distinctive wooded tract on the east side of the University campus and downhill from Coker Arboretum. The tract includes one of the most awe-inspiring legacies of the University and a symbol of the important connection between nature and art: the stone amphitheater known as Forest Theatre.

Although the tract is not a pristine forest, much of the 93-acre Battle Park consists of woodland that predates European settlement in the area ca.1740. The Garden has restored trails there with funding supplied by the University. The park is named for Kemp Plummer Battle, president of UNC from 1876 to 1891. Battle laid out the original trail system and spent many happy and contemplative hours within the forest.

University of North Carolina Herbarium (founded in 1908 and part of the Garden since 2000)

On June 18, 2000, the Southeast's premier herbarium, the UNC-Chapel Hill Herbarium, officially became part of NCBG. The facility, used by students, botanists, taxonomists, and other professionals from across the Southeast and the nation, currently contains more than 750,000 specimens of plants, algae, fungi, and fossils. Though some specimens in the collection date back to 1835, the herbarium was actually founded in 1908 by Dr. William Chambers Coker. It resided in Davie Hall from that year until 1957 and then moved to Coker Hall. In 2008, the herbarium celebrated its 100th birthday with a gala in Coker Hall.

An herbarium is a museum collection of plant specimens and associated label and research data. Herbaria constitute the fundamental documentation of plant diversity. The herbarium specimen is the unit of botanical knowledge. An herbarium is the only authentic source for identification of plants and their present and past distribution. It helps us understand the changing landscape and serves as the court of last resort for plant identification and distribution issues, including:

- new weeds and their spread;
- species poisonous to people, livestock, and pets;
- hay fever-inducing plants;
- blooming and fruiting times;
- medicinal plants and their availability;
- the historical distribution of endangered plants;
- wildflowers and trees; and
- plants of state parks, national parks, seashores, riverways, and wildlife refuges.

Such information is crucial for planning North Carolina's future as our state and region continue their fast-paced development.

The UNC Herbarium spearheads the identification and study of the distribution and history of plants in our diverse state and is the largest collection of its kind in the Southeast. The National Science Foundation has designated it one of 25 National Resource Centers and one of 105 National Resource Collections and has ranked it third among university collections. The herbarium holds the results of over 150 years of botanical observation and documents the work of hundreds of collectors and botanists. It is a rich archive of field notebooks, maps, photographs, and illustrations. The facility serves all 16 campuses of the University of North Carolina as well as a wide array of other institutions and users, and it has supported the education of hundreds of students at UNC and elsewhere.

Today the lands of the NCBG have grown to comprise some 1000 acres. The Garden is nationally known for its conservation initiatives, educational collections, and diverse programs, including native plant studies, botanical illustration, and horticultural therapy.