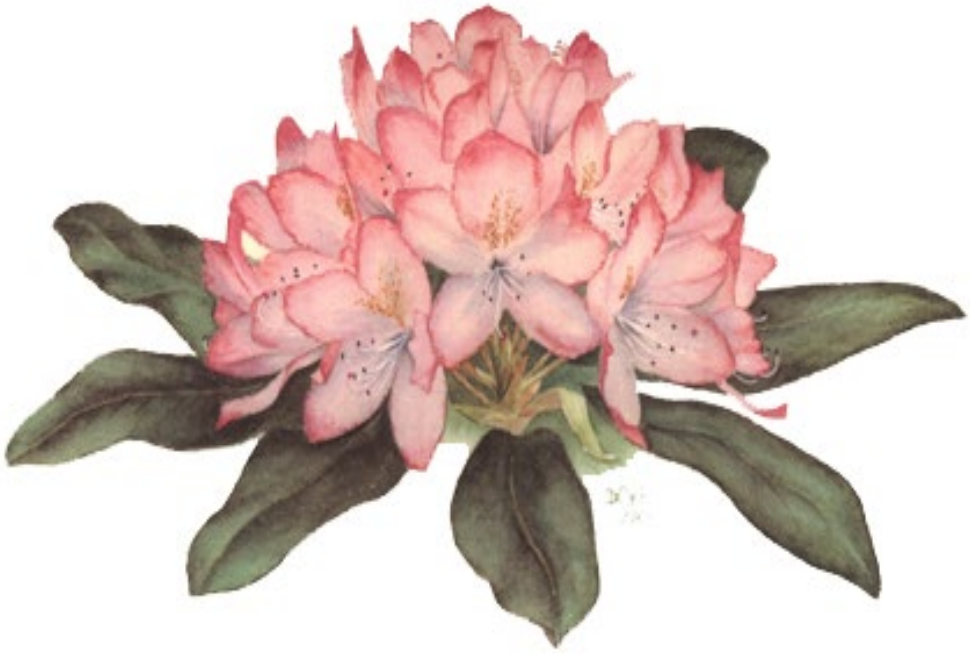
NORTH CAROLINA
BOTANICAL
GARDEN

CERTIFICATE IN BOTANICAL ART & ILLUSTRATION

HANDBOOK

Fall 2022 - Spring 2023



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FOREWORD

The North Carolina Botanical Garden (NCBG) is pleased to offer a Certificate in Botanical Art and Illustration that enables students to explore the relationship of nature and art. The Garden's mission:

> ***To inspire understanding, appreciation, and conservation of plants and to advance a sustainable relationship between people and nature.***

The Certificate in Botanical Art and Illustration program's goal:

> ***To provide a well-balanced curriculum of scientific and art theory and practice that enables students to explore the relationship of plants and visual art with botanical proficiency and appreciation of the plant world.***

WATERCOLOR, KATHY SCHERMER-GRAMM

The NCBG Certificate in Botanical Art and Illustration program began in 2001, and we are grateful for the contributions of Dot Wilbur-Brooks and Karen Wiley-Eberle in making it a reality. This handbook is a collaborative effort by members of the NCBG Certificate in Botanical Art and Illustration Advisory Committee and includes contributions from Sue Aldworth, Nancy Easterling, Joanne Lott, Patricia Savage, Susan Turbak, and Kay Wyche. Most illustrations are the work of past and present instructors, including Linda Koffenberger, Kate Lagaly, Patricia Savage, Kathy Schermer-Gramm, and Dot Wilbur-Brooks, as well as a few from graduates of the program.

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1. INTRODUCTION

The North Carolina Botanical Garden is a university-affiliated botanical garden with an outstanding reputation for integrating a conservation ethic into all its programs. We are the region's most comprehensive center of knowledge about 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 science-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 Certificate in Botanical Art and Illustration program helps the Garden realize that vision.

1.1 Guidelines for Botanical Art and Illustration

The constant interplay between art and science appeals to many students in the NCBG Certificate in Botanical Art and Illustration program. Since the 1980s, there has been a worldwide resurgence of interest in original botanical illustrations and botanical art, not only for private and public collections but also for use in the wider marketplace, such as for home décor and select stationery lines. Renderings of plants are grouped into three main genres: botanical illustration, botanical art, and floral art. The first two can be said to exist along a continuum rather than in separate camps, because both botanical illustrators and botanical artists are challenged with trying to integrate the utilitarian, scientific function of an image (identification, education, information) with aesthetic and visual considerations. For this program, botanical *art* and *illustration* have been teased apart to help clarify the differences between the two. Most works created by botanical artists and illustrators include some aspects of each.

BOTANICAL ILLUSTRATION

Scientific botanical illustrations are usually created to accompany descriptive texts such as journal articles, textbooks, field guides, and popular magazines, where the image functions primarily to provide information and educate the viewer. Accuracy of form, color, and size is imperative, because both professionals and novices need to be able to identify the plant or plant parts from the illustration. The plant is traditionally drawn to scale so that all the parts correctly relate to one another in size. The most conventional scientific botanical illustrations generally appear on white backgrounds to favor true color representation for identification purposes, but some illustrations include plant habitat details or colored backgrounds. A typical botanical plate produced for journal publishing usually depicts a single plant specimen, but the scope of an illustration can range from showing one leaf to including various cross-sections, flowering and fruiting bodies, leaves, bark, roots, seasonal variations (such as autumn colors), and even more than one species.

Although a botanist or horticulturist often dictates which parts of the plant will be illustrated, the illustrator must make careful visual choices to determine how those parts will be rendered and composed on the page. An uncolored line drawing (in graphite or pen and ink) provides the most clarity and detail and is still the best way to describe newly discovered species, but botanical illustrations may also be done in color (water media or colored pencil). The illustrator usually has access to live plants, pressed herbarium specimens, and a microscope for viewing small parts such as reproductive structures, capsule chambers, or leaf pubescence.

BOTANICAL ART

In botanical art, more emphasis may be placed on aesthetic considerations, and the artist has more freedom to make personal visual choices, to draw the viewer in and evoke an emotional response. Although the plant parts in the image may be arranged more pleasingly for compositional reasons, the draftsmanship and final artistic representation must remain true to the character and growth habit of the plant. In botanical art the plant is still drawn to scale, and a botanical professional examining the image should be able to identify the species and find no anatomical inaccuracies.

FLORAL ART

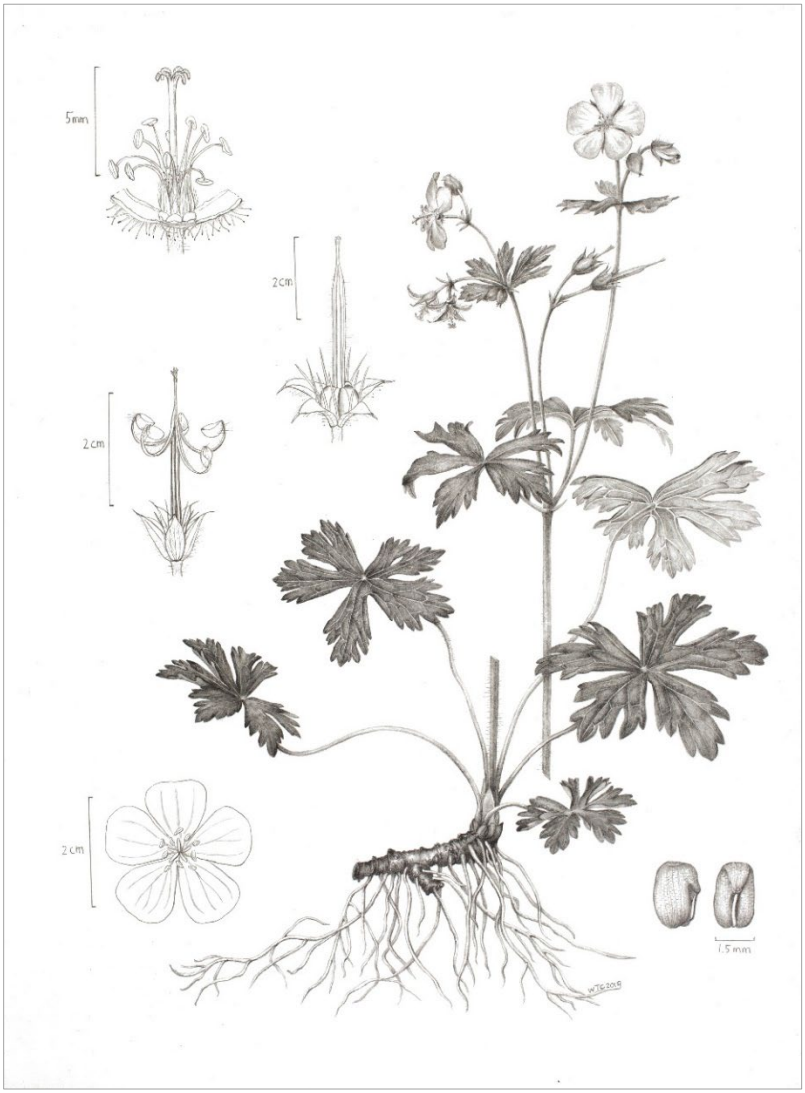
In the third genre, floral art (also known as flower painting), the image is created primarily for visual impact and is based on the artist's personal interpretation of the plant, without consideration for accuracy in color, form, size, or other scientific characteristics. This genre, which may include still life and abstract painting, therefore falls beyond the scope of the core courses of the Certificate in Botanical Art and Illustration program.

1.2 Differentiation of Botanical Illustration and Botanical Art

BOTANICAL ILLUSTRATION

- Plants must be botanically accurate.
- Plants are presented against a plain, white background or pale flat wash.
- Plants are floating, with no means of support depicted.
- Plants are not cropped.
- Plants are evenly lit from the upper left.
- No cast shadows.
- No part of the plant can go out-of-focus.
- Distant or peripheral structures of the plant can be "faded out" to direct the viewer's eye to the focal point or important botanical structures.
- Plants are usually depicted as a full habit (a full stem or branch of the plant).
- Details are shown as callouts arranged around the habit, at a variety of magnifications that best show off the structures depicted, with scale bars for reference.
- Plants can be "edited" by removing leaves or other structures in the interest of clarifying the illustration, if the fact of the editing is made apparent in the piece (i.e.: by leaving leaf scars, showing cuts, etc.).
- Painterly qualities such as brushstrokes, tidemarks, spatters etc. are discouraged since these could be interpreted as a plant part.
- Plants are usually painted from live specimens, to allow for maximum study of structures.
- When used, the placement of scientific name should be planned with the composition.
- Student's signature should be planned with the composition.
- The composition holds together better if one or two species are used. They can use disparate subjects but should have a common theme. For example, a common theme could be pinecones, orchids, variegated foliage, or different types of thorns.
- The attachment points of leaves, flowers, and other plant parts needs to be illustrated. For example, this would include the back and front of a flower.
- Roots, buds, seeds, fruit, dissection, and microscopic view may be included. Generally, but not always, they are arranged to reflect how the plant grows. Roots can be at bottom, seeds at top.

- The Garden highly recommends that plants native of Southeastern USA be depicted.
- Under no circumstances will exotic invasive species be allowed in class or for final project subjects. See https://ncbg.unc.edu/plants/resources-for-gardeners/ (*Invasive plants to avoid*) for more detail.



GRAPHITE BOTANICAL ILLUSTRATION, WEI-TING CHI

BOTANICAL ART

- Plants must be botanically accurate.
- Plants can be shown against a white or colored background, or in the context of a habitat or landscape.
- Plants can be cropped in any way, cutting off some or much of the botanical context.
- Sections of the plant can go out of focus.
- Plants can be lit from any direction, cast shadows are allowed, and these shadows can obscure the viewer's ability to make out portions of the plant. The edges of the subject and shadow may be softened and appear to merge making it difficult to make out.
- Distant or peripheral structures of the plant can be "faded out" to direct the viewer's eye to the focal point or important botanical structures.
- Artistic effect takes precedent over a simple botanical depiction of a plant.

- Painterly qualities such as brushstrokes, tidemarks, textures, spatters etc. are allowed, and these painterly qualities sometimes constitute the focal point of the piece.
- Colors and values can be exaggerated, overly saturated, or underplayed for artistic effect.
- Either live plants or photos can be used as reference for the paintings.
- The Garden highly recommends that plants native of Southeastern USA be depicted.
- Under no circumstances will exotic invasive species be allowed in class or final projects. See https://ncbg.unc.edu/plants/resources-for-gardeners/ (*Invasive plants to avoid*) for more detail.

WATERCOLOR BOTANICAL ART, KATE LAGALY

1.3 Media Used in Botanical Art and Illustration

GRAPHITE

Graphite is another word for the pencil you use every day and is the first medium needed in the production of a botanical illustration. The illustrator prepares a graphite sketch of the specimen before beginning to translate it into pen and ink, watercolor, or colored pencil. Graphite is easy to use, easy to alter, and a great choice for the beginning stages of creating a work of art. Using graphite and an eraser, the artist establishes a basic outline of the plant specimen, determines the shadows and color zones, and resolves the final composition.

PEN AND INK

Pen and ink are the most used media, as well as the first, for creating scientific botanical illustrations. A drawing rendered in ink is clear, easy to read, and easy to reproduce in printed herbals and field guides. For this reason, it is important that all botanical illustrators master a variety of pen styles and techniques.

There are two basic types of traditional pen-and-ink botanical illustrations: the weighted line drawing and the stippled drawing. A weighted line drawing uses a crow quill pen (the type you dip into a bottle of ink) to produce a variety of line thicknesses. The thickness or thinness of each line helps describe the variations in texture of the plant, the way light falls on the specimen, and how near or far each part of the plant is from the viewer's eye. A stippled drawing, on the other hand, uses hundreds, if not thousands, of tiny dots drawn with a technical pen. The relative density of these dots shows the plant's color, shadow, texture, and distance from the viewer.

WATERCOLOR

Watercolor is the medium of choice for many professional botanical illustrators and botanical artists. The qualities of fluidity and transparency make watercolor paints ideal for rendering thin, delicate plant tissue as well as smooth botanical forms. To create effective, realistic botanical watercolor paintings, the artist often applies paint in layers over areas where the paper has first been "primed" (moistened) with clean water. This technique is called wet-in-wet painting and is used to create smooth, graded washes for depicting the form of the plant subject. Final additions of texture, prickles, hairs, and other small details are often applied using a "dry-brush" technique. Available watercolor papers, paints, and brushes vary widely in quality. The materials selected to create a painting have a pronounced effect on the finished piece.

COLORED PENCIL

Unlike graphite, pen and ink, and watercolor, which have been available since the Renaissance or earlier, the use of colored pencils in fine art is barely 75 years old. This medium is rapidly gaining acceptance in botanical illustration and botanical art because of its versatility, color intensity, and potential for fine detail.

Colored pencils are made like standard graphite pencils with a core and an outer wooden shell, usually of California cedar. The composition of the core, however, differs greatly from a standard pencil. Instead of graphite, the core consists of fine art pigments blended with clay to achieve a desired hardness and then impregnated with a binder, usually wax. The wax holds the pigments in place on the drawing surface. The pigments are highly transparent and can be layered and blended to achieve fine color gradations for naturalistic botanical representation. Because of the high transparency, excellent color matching can be achieved with just red, blue, yellow, white, and black. Several brands of colored pencils comply with standards for lightfastness and, when used on acid-free paper, will maintain true color for decades.

Basic pencil strokes are like those used when drawing with graphite, and colored pencils can yield finely rendered drawings. Or, by varying the technique and paper surface, the illustrator can create artwork similar in appearance to watercolor, pastel, or finely glazed oil.

GOUACHE

A painting technique of great antiquity, gouache goes back to the time of the Egyptians. In the Middle Ages, it appeared on illuminated manuscripts. In 18th-century Europe, gouache became popular with artists seeking its pearly, pastel tones (it was a popular medium with Rococo artists). Gouache was used in more recent history in Graphic Design and Illustration.

Gouache paint has the same gum Arabic binder as watercolor but is modified to make it an opaque painting medium. Gouache differs from watercolor in that the particles are larger, the ratio of pigment to water is much

higher, and an additional, inert, white pigment such as chalk is also often present. This makes gouache heavier and opaquer. Gouache can be re-wet after it dries, is easier to lift than watercolor, and lends itself to more direct painting techniques than watercolor.

ACRYLIC

Acrylic paint is a fast-drying, non-re-wetting paint containing pigment suspended in an acrylic polymer emulsion. It was developed in the late 1940s, so it has only a brief history compared to other art media. Acrylic originally entered the market as house paint, but its many benefits brought it to the attention of artists. Artists found that the synthetic paint was very versatile and possessed much potential. Over time manufacturers have improved the formulation of artistic acrylic paints with richer pigments.

Acrylic is very versatile. It can be used on a wide variety of surfaces and can resemble a watercolor painting, an oil painting, or have its own unique characteristics not attainable with other media. It can also be used to build thick layers that are literally sculptural. Acrylic painters can change the appearance, hardness, flexibility, texture, and other characteristics of the paint or surface using a variety of acrylic media or by simply adding water. The range of acrylic media is great and includes gels, mediums, grounds, additives, varnishes, and pastes.

1.4 Botanical Art and Illustration Foundations

PAINTING FOUNDATIONS: COMPOSITION AND COLOR THEORY

Composition and color theory together provide a skeleton, or framework, from which a painting emerges. A painting begins with the germ of an image. It might be about the drape and fall of a passionflower vine, or a magnolia's bright red berries against a tan seedpod. The idea begins taking shape as rough pencil and color sketches. Nurtured and developed in black-and-white thumbnail sketches, these compositional "roughs" explore the arrangements and interactions of shapes and spaces. Besides creating a realistic picture, the formal elements of a painting help to capture the characteristics of the plant and direct the viewer's eye.

Paintings ultimately tell a plant's story: how it grows, what insects feed on it, or what color its leaves turn in the fall. This requires careful attention to color, even as the composition emerges. Preliminary color sketches help to find the palette of pigments that portray the correct hues of the subject. These pigments, evolving with the composition, begin interacting with each other, creating lively sparks of color or peaceful harmonies. Careful placement of color directs the viewer's eye and emotionally charges the painting. Color and composition interact with each other and with the compositional spaces they fill.

2. PROGRAM INFORMATION

The Certificate in Botanical Art and Illustration is designed to provide comprehensive courses in botanical art and illustration to new art students or those who wish to improve their skills in drawing and painting plants, with a focus on southeastern native plants, in an accurate and technically detailed manner. Studies leading to the certificate will enhance the experience of both the professional and the dedicated amateur botanical artist in producing artistic and scientific images. The program is designed to give students a well-balanced curriculum combining basic scientific background, visual arts theory, and practical experience using various media. Classes are taught by art and botany professionals as well as NCBG staff using southeastern native plants as subjects. Successful completion of the program requires passing grades in 14 core courses and three elective courses as well as submission of an Independent Final Project. Course offerings and scheduling are designed for graduation within a three-to-five-year period. The certificate is a valuable addition to the resumes of students in pursuit of professional work in botanical or scientific illustration. The Certificate in Botanical Art and Illustration is aligned with another NCBG certificate program, the Certificate and Advanced Certificate in Native Plants, with which it shares some courses.

2.1 Contact Information

NCBG Registrar & Program Coordinator
David Michaud
919-962-4882; ncbgregistrar@unc.edu

Director of Education
Joanna Massey Lelekacs
919-962-9460; jlelekacs@unc.edu

North Carolina Botanical Garden
919-962-0522; https://ncbg.unc.edu/learn/adult-programs/

Learning Stream (Online Registration System)

- Upcoming Botanical Art & Illustration Courses (List)
- All Upcoming Classes and Events (List)
- Transcript Access (Login)
- Enroll in the Botanical Art & Illustration Program (Registration page)

2.2 Program Policy

The NCBG reserves the right to change the course schedule or fees, withdraw or modify a course, substitute instructors, or revise any other part of this handbook as necessary for the efficient administration of the NCBG Certificate in Botanical Art & Illustration program. To earn the certificate, participants shall meet the required prerequisites and shall take all core classes and the required number of electives for credit. Participants shall also complete independent projects.

2.3 Program Registration

BENEFITS OF PROGRAM REGISTRATION

Participants registered for the Certificate program will receive the following benefits:

a. Advanced access to class registration sent by email,
b. End of class instructor critique for which this opportunity applies,
c. Invitation to submit artwork for consideration in the annual BAI calendar (Intermediate levels and above),
d. Exclusive access to master courses,
e. Early access to visiting artist workshops, and
f. Qualified to enter juried BAI student and alumni shows at NCBG (open to registered students and alumni).

ENROLLING IN THE PROGRAM

Students must be at least eighteen years of age to register for the program. A non-refundable enrollment fee of $100 supports program administrative costs for a five-year period. After five years in the program, an additional $25 annual administrative fee will be charged in October to continue enrollment in the certificate program through September of the following year. (This fee does not apply after graduation or upon withdrawal from the program.) *Enroll here*.

REGISTERING FOR COURSES

Online registration for courses is on a first-come, first-served basis. It is recommended that students register at least three weeks prior to the start of a course.

Maximum enrollment for most courses is 12. Minimum enrollment is five (5) for core courses and seven (7) for elective courses. If a course is full, additional registrants will be placed on a waitlist. Prior to the start of each course, students will be notified of any supportive materials to be purchased. *Register for BAI classes here*.

2.4 Cancellation Policy

If a course doesn't reach the minimum enrollment (five students for a core course or seven for an elective), the course may be cancelled, and students will be notified by email and refunded in full. A decision about the cancellation of a class due to insufficient enrollment will be made four business days prior to the start of the class.

In case of inclement weather, students will be notified by email if a class is cancelled, and a make-up date will be set if not already scheduled. For classes with inclement weather make-up dates set in advance (typically classes in January and February), it is the student's responsibility to ensure that they are available for that day; no refunds will be given for a student who is unable to attend an inclement weather make-up date. Instructors are responsible for informing students of class cancellations and rescheduling due to illness, after having obtained permission from the director of education.

During an adverse weather event, visit the Alert Carolina information page: https://alertcarolina.unc.edu. The following are the operations and scheduled event policies of the North Carolina Botanical Garden given certain UNC-defined Condition levels posted on the Alert Carolina website.

- Under **Condition 1**, the Garden is closed to the public *at the discretion of the Director*. If a decision is made to close the Garden, a statement will be added to our website (ncbg.unc.edu) and all scheduled events will be cancelled.

- Under **Condition 2** and **Condition 3**, the Garden is closed to the public and all scheduled events are cancelled.

2.5 Refund Policy

If a class is cancelled due to insufficient enrollment or has been filled prior to receipt of your payment, you will be notified, and your payment will be refunded in full. Students who cancel seven or more days in advance of the start of a course will receive an 80% credit card refund. After that, the registration fee is forfeited. If there are extenuating circumstances, allowances can be made at the discretion of the director of education. Students wishing to receive a refund to Learning Stream (credit to be used towards future courses) must contact the NCBG education department at ncbgregistrar@unc.edu.

2.6 Credit for Previous Classes

With an official transcript or other supportive documentation and permission from the director of education, a student can receive credit for one core course and one elective course taken at another institution or university. In rare cases, a student can receive credit for one additional elective course taken at another institution or university, but only with a positive review of the student's portfolio by core instructors. Before seeking credit, be aware that our instructors bring to each course a style, technique, and theory that likely differs from any class taken elsewhere. Every NCBG course that you complete is a valuable learning experience. It is highly recommended that all students, even those who have taken previous coursework in botanical art or illustration, take the full set of certificate core courses due to the unique scientific illustration approach of this program.

2.7 Attendance Policy

To obtain credit for a course, students may be absent for no more than one class session and must complete the homework assignments for the missed class. If extenuating circumstances require additional absences, allowances can be made at the discretion of the director of education in consultation with the course instructor.

2.8 Transcript

Transcripts are maintained through the Learning Stream registration system. You can view your transcript online at any time to see your progress through the certificate program. Please note: the system tracks credits toward the certificate only and does not track grades.

To view your transcript, follow this link and click the tab for "Continuing Education":

http://go.unc.edu/NCBG-Registrant-Login

For questions regarding your transcript, please contact:

North Carolina Botanical Garden registrar

919-962-4882, or ncbgregistrar@unc.edu

3. CURRICULUM

Successful completion of the program requires the following:

- rating of "Credit" in each of 14 core courses and 3 elective courses,
- completion of Independent Final Projects of three different plant subjects, and
- participation in the NCBG certificate graduation exhibit.

The curriculum is structured so that higher-level courses build upon lower-level ones. This allows a student to acquire the knowledge and skill level necessary to advance to the next level with proficiency. For this reason, some of the core and elective courses have prerequisites. The certificate program has two complimentary watercolor tracks of instruction, one emphasizing techniques for the high detail and accuracy needed for illustrations and the other for techniques for a looser, expressive art while still emphasizing drawing accuracy.

Of the 14 required core courses, eleven are art courses, two are plant science courses, and one is a combination of art and science (Botany for the Artist). The art courses provide instruction in achieving both finely detailed and highly accurate botanical illustrations and artistic renderings in both black-and-white and color media. The plant science courses instruct the student in plant morphology and identification and provide exposure to the local native flora. The core courses and their instructional hour requirements are listed below. Elective courses offer opportunities for further development of the skills acquired in the core courses. Most classes are 14 hours in length, typically spread over four classes (3.5 hours each). In 2020, we will begin exploring online options for some courses.

3.1 Course Requirements

Course	Category	Prerequisite(s)	Semester*
Beginning Drawing	Core	None	Both
Composition: The Bones of the Painting	Core	None	Spring
Botany	Core	None	Both
One Local Flora: Spring, Summer, Fall, or Winter	Core	None	Both
Beginning Watercolor	Core	**Beginning Drawing**	Both
Beginning Colored Pencil	Core	**Beginning Drawing**	Spring
Botany for the Artist	Core	**Botany, Beginning Drawing**	Fall
Intermediate Drawing	Core	**Beginning Drawing**	Both
Pen and Ink	Core	**Intermediate Drawing**	Fall
Intermediate Traditional Watercolor or Intermediate Expressive Watercolor	Core	**Beginning Watercolor, Intermediate Drawing**	Both
Intermediate Colored Pencil	Core	**Beginning Colored Pencil, Intermediate Drawing**	Fall
Integrating Composition and Color Theory	Core	**Composition, Intermediate Watercolor**	Spring
Advanced Traditional Watercolor or Advanced Expressive Watercolor	Core	**Intermediate Watercolor, Intermediate Drawing**	Both
Advanced Drawing: Botanical Plates	Core	**Intermediate Drawing, Composition**	Spring

*These dates represent recent schedules but are subject to change.

Acrylic	Elective	**Beginning Drawing**	Spring (Alternates)
Advanced Colored Pencil	Elective	**Integrating Composition and Color Theory, Intermediate Colored Pencil**	Spring
Drawing and Painting NC Fauna	Elective	None	Fall
Field Sketching	Elective	None	Fall
Further Explorations in Ink	Elective	**Pen and Ink**	Alternates
Gouache	Elective	**Beginning Drawing, Beginning Watercolor**	Spring (Alternates)
Light on Form	Elective	**Intermediate Watercolor**	Fall
Mixed Media: Botanicals in Watercolor, Colored Pencil and Pen & Ink	Elective	**Pen & Ink, Beginning Colored Pencil, Intermediate Watercolor**	Fall
Plant Taxonomy	Elective	**Botany**	Both
Scratchboard: The Knife and the Quill	Elective	None	Fall
Graduation Preparation: What You Need to Know	Non-Credit	None	Fall

3.2 Sample Course Sequence

FALL	**SPRING**
Year 1	
Beginning Drawing (Core) Beginning Watercolor (Core) Botany (Core)	Composition (Core) Intermediate Drawing (Core) Botany for the Artist (Core)
Year 2	
Fall Flora (Core) Intermediate Traditional Watercolor (Core) Pen and Ink (Core)	Beginning Colored Pencil (Core) Gouache (Elective) Integrating Composition and Color Theory (Core)
Year 3	
Intermediate Colored Pencil (Core) Advanced Traditional Watercolor (Core) Light on Form (Elective) Graduation Preparation (Non-Credit)	Advanced Drawing: Botanical Plates (Core) Advanced Colored Pencil (Elective) Further Explorations in Ink (Elective)

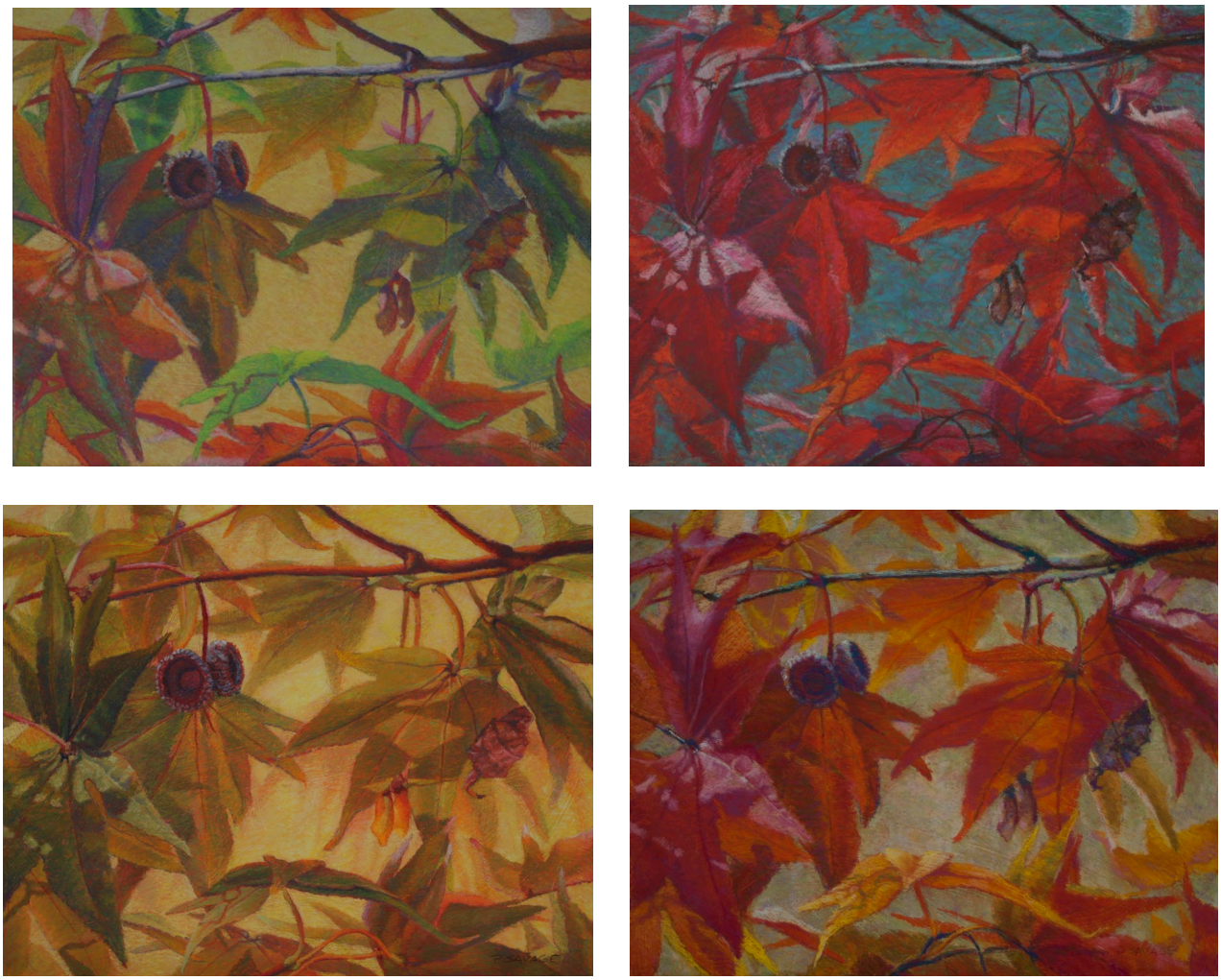
3.3 Homework Assignments

Beginning with their first class, students might find it helpful**, but are not required,** to place all art course materials in a three-ring binder. A section for each core course should be created, with additional divisions for electives and workshops. The appropriate order would be: Beginning Drawing, Composition, Beginning Watercolor, Beginning Colored Pencil, Intermediate Drawing, Pen and Ink, Intermediate Watercolor, Integrating Composition and Color Theory, Advanced Watercolor, Elective 1, Elective 2, and Elective 3. Students should keep track of their course sequencing and schedule. By doing so, students will be able to keep track of when classes were taken and completed.

The amount of time required of students to spend on homework assignments varies and usually ranges from five to 15 hours per week for each course. Actual practice time in class is limited, so additional hours spent at home are both necessary and beneficial. Time invested in homework will result in personal artistic growth, and satisfactory achievement in any course requires both time and commitment.

Instructors may assign homework extending past the fourth-class session of a course. All homework must be completed and submitted to the instructor four weeks after the last class unless an extension is agreed upon. Homework not received by that time will result in a grade of Incomplete. To receive course credit, all incomplete homework must be finished as instructed by a date assigned by the instructor. Students will be given sufficient time to submit missed assignments to ensure success in completing the course.

At the time of completion of a course, each homework and class assignment must be labeled on the back, in pencil, with the following information: name of artist, name of instructor, course name, course week number, and date of completion. Where applicable, the botanical specimen must be labeled with both the scientific and common names. This information will help students keep track of completed assignments.



PASTEL, PATRICIA SAVAGE

3.4 Standards for Grades

All art class assignments and homework will be graded on these three criteria:

- **Accuracy**—the accurate identification and depiction of botanical structures and plant habits.
- **Draftsmanship**—the depiction of fine detail and the illusion of three-dimensionality created through accurate and effective use of line, color, value (in both black-and-white and color work), competent media application, as well as aerial and linear perspective.
- **Artistic Sensitivity**—the development and implementation of basic visual arts concepts as applied to botanical illustration. Students will be evaluated on the development of their own personal creative style and their ability to convey the character and personality of a plant artistically through sensitive compositional choices, textural rendering, and color temperature.

Students may not miss more than one class per course. For each course completed, a student will receive a rating of Credit, Incomplete, or No Credit from the instructor. A student receiving an Incomplete will not be assigned a rating in their certificate transcript and cannot progress until required assignments are completed. If assigned a No Credit, the student cannot progress to a higher-level course (and may wish to retake the course) until they have achieved a satisfactory level of proficiency. Final grades are issued within 30 days of the last day of class.

3.5 Non-Credit Courses

Additional not-for-credit short courses are offered as preparatory and complimentary classes that supplement core and elective courses. Non-credit master courses are offered to provide a mastery of botanical art and illustration, building on the foundation of learned technique. Master courses generally require prerequisite course work.

See a list of (and register for) non-credit courses.

3.6 Open Studio

The North Carolina Circle of the American Society of Botanical Artists partners with the North Carolina Botanical Garden to hold regular open studios at the Garden (or online via Zoom when warranted). Students of the Certificate program, beginners especially, are encouraged to connect with the Circle and attend open studios. Regular open studio sessions, open to current BAI students and graduates, are scheduled for students interested in getting together with other botanical artists working in a specific area to learn new techniques and obtain in-depth critiques of their work. Sessions are announced at the beginning of each year, and the schedule is posted in the classrooms (C106 and C107). Circle membership is not required to attend open studio. To connect, go to the North Carolina Circle blog (http://ncbotanicalartists.blogspot.com/) and sign up to follow the Circle blog by email.

4. COURSE DESCRIPTIONS

4. 1 Course Formats

HYBRID

Courses taught in a hybrid or blended format may vary from instructor to instructor. In this format, some components of the class are delivered virtually through handouts, videos, photographs, and/or other media. In addition to reviewing materials at home, classes will meet in person for additional instruction. Since some material will be distributed online, less time will be spent in person for face-to-face instruction. Students can expect the same amount of homework assignments as fully in person and fully virtual programs.

IN PERSON

Courses taught in person will have most all components of the course delivered on site, including demonstrations, handouts, and critiques of works in progress. Some class communications may take place via email, including the submission of final projects. Critiques for final projects are often delivered via email within a few weeks of the course end date.

VIRTUAL

Courses taught virtually will take place over Zoom. All class sessions will be recorded and distributed to registrants within 48 hours of each session. These recordings are available to view for four weeks. Pre-recorded demonstrations and other instructional materials may be shared ahead of Zoom sessions, but this varies from class to class. Course materials may be made available on Google Drive or Padlet, which are both free to use. Instructions for uploading homework and projects will be provided by course instructors. To engage with the class, participants should have reliable internet access and a device with a webcam, microphone, and speakers or headphones.

- We define reliable internet connection as a minimum download speed of 20 Mbps and upload speed of 2 Mbps. Check your internet speed at https://speedtest.net
- Learn more about Padlet: https://www.youtube.com/watch?v=KmJY4j_F8Xc

4.2 Core Courses

BEGINNING DRAWING

Prerequisite: None

Hours: 14 (3½ hours x 4 sessions); also offered online periodically.

An introductory level course of drawing for beginners and those wishing to refresh their skills. Includes using a sketchbook for line drawing exercises on seeing to draw, quick sketching, mapping for accuracy, and other basic principles of drawing. Prerequisite for Intermediate Drawing, Beginning Watercolor, and Beginning Colored Pencil.

Upon completion of this course, students will have knowledge/skill of the following:

- Graphite pencils, tools for measuring, and other drawing materials;
- How to sketch and draw botanicals with accuracy; and
- Different approaches to drawing.

COMPOSITION: THE BONES OF A PAINTING

Prerequisite: None

Hours: 14 (3½ hours x 4 sessions); also offered online periodically.

This course is a broad study in the elements that formulate a good composition. Students learn how to make visual choices and determine how parts of a plant are arranged on the page to balance botanical accuracy and artistic sensitivity.

Upon completion of this course, students will have knowledge/skill of the following:

- How to create a good composition using elements of the artistic process (lines, space, forms, texture, color and value);
- How to draw the viewer's eye to the point of interest;
- Importance of proportions, repetition, contrast, balance, and harmony; and
- Components of a successful critique.

BOTANY

Prerequisite: None

Hours: 12 (3 hours x 4 sessions)

This course is introductory in nature and is designed for a broad audience. It is a fundamental core course for students enrolled in either of the NCBG public certificate programs. It covers basic principles of botany including taxonomy, anatomy, morphology, and physiology. Class time is divided between lectures and examining/dissecting samples. There are also opportunities for making observations of examples in the Garden.

Upon completion of this course, students will understand the following:

- General anatomy and morphology of plants and the main tissue types and organs;
- Characteristics of monocots and dicots, primary and secondary growth in flowering plants, and plant reproduction; and
- Diversity in and classification of the plant kingdom including an introduction to basic taxonomy.

BOTANY FOR THE ARTIST

Prerequisites: Botany, Beginning Drawing

Hours: 14 (3½ hours x 4 sessions)

Traditional botanical illustration was relied on to record and share the identification of plants through accurate representation. Botany for the Artist is a practical course which hopes to encourage the inquisitive artist to understand, interpret and improve their botanical knowledge by reinforcing terminology, observing and notating plant structure and practicing identification with the taxonomic keys. The four lessons—Habitat, Flower Parts, Leaf

Comparison, and Fruit Structure—will culminate with the students drawing a graphite work representing a specimen identified at the NCBG.

Upon completion of this course, students will have knowledge/skill of the following:

- Making a connection between visual and scientific knowledge;
- Accurate labeling of morphological features of vascular plants;
- Analysis of leaf structure, fruits, and flowers, as well as dissections in the artistic process;
- Use of hand lenses in the artistic process;
- Incorporation of scale bars in artwork;
- Use of a dichotomous key to identify plants.

LOCAL FLORA: SPRING, SUMMER, FALL, AND WINTER

Prerequisite: None

Hours: 9 (3 hours x 3 sessions)

There are four separate courses developed to teach students about the common southeastern native plants that are prominent during the respective season. These courses are designed for a broad audience as well as for students who are enrolled in either of the NCBG public certificate programs. Field trips and exercises provide experience in the use of identification keys and recognition of plants in a natural setting.

Upon completion of this course, students will understand 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.

BEGINNING WATERCOLOR

Prerequisite: Beginning Drawing

Hours: 14 (3½ hours x 4 sessions); also offered online periodically.

In this class, students are introduced to watercolor and learn basics techniques such as flat and graded washes. Students learn to paint simple shapes (spheres and cylinders) and a small botanical subject.

Upon completion of this course, students will have knowledge/skill of the following:

- Watercolor, paints brushes and papers;
- Flat and graded washes; and
- Use of light and shadow to create shapes.

BEGINNING COLORED PENCIL

Prerequisite: Beginning Drawing

Hours: 14 (3½ hours x 4 sessions); Online option anticipated late 2020

Colored pencil is a next step in advancing from drawing to painting. This course is a hands-on introduction to commonly used materials and colored pencil techniques such as layering, blending, and tonal gradations. This course will cover limited palette warm/cool color mixing, values, correcting mistakes, and working on a variety of surfaces.

Upon completion of this course, students will have knowledge/skill of the following:

- Materials commonly used by colored pencil artists;
- Various colored pencil layering and blending techniques;
- Basic color mixing using a limited warm/cool palette;

- Pigment light fastness;
- Colored pencil techniques for working on gray drawing paper starting with a light and dark value under drawing;
- Colored pencil techniques for working on a medium dark work surface starting with a light value under drawing; and
- Colored pencil techniques for working on white paper with a limited palette.

INTERMEDIATE DRAWING

Prerequisite: Beginning Drawing

Hours: 14 (3½ hours x 4 sessions); also offered online periodically.

In this class, students continue their journey to learn the skills needed to produce accurate tonal graphite pencil drawings. Specifics of the course include measuring, perspective, cross-contour line drawing, light on form, and differing tonal techniques.

Upon completion of this course, students will have a knowledge/skill of the following:

- Perspective fundamentals;
- Ability to create even application of tone in both crosshatching and gradation techniques;
- How to use cross-contour line drawings; and
- How to depict fine details and textures.

PEN AND INK

Prerequisite: Intermediate Drawing

Hours: 14 (3½ hours x 4 sessions)

In this class, students learn to draw pen and ink using standard techniques and conventions. Students work with both "old-fashioned" dip pens and modern technical pens to create accurate botanical drawings.

Upon completion of this course, students will have a knowledge/skill of the following:

- Control of crow-quill dip and modern technical pens;
- Use of varied line weight to depict near and far, light and shadow;
- Pen & ink conventions, including broken lines, line weight, and snodgrassing;
- Stippling and the creation of even gradients using stipples;
- Textural marks, including hatching, scribbling, and parallel lines;
- Correction techniques; and
- Care and cleaning of pens.

INTERMEDIATE TRADITIONAL WATERCOLOR

Prerequisites: Beginning Watercolor, Intermediate Drawing

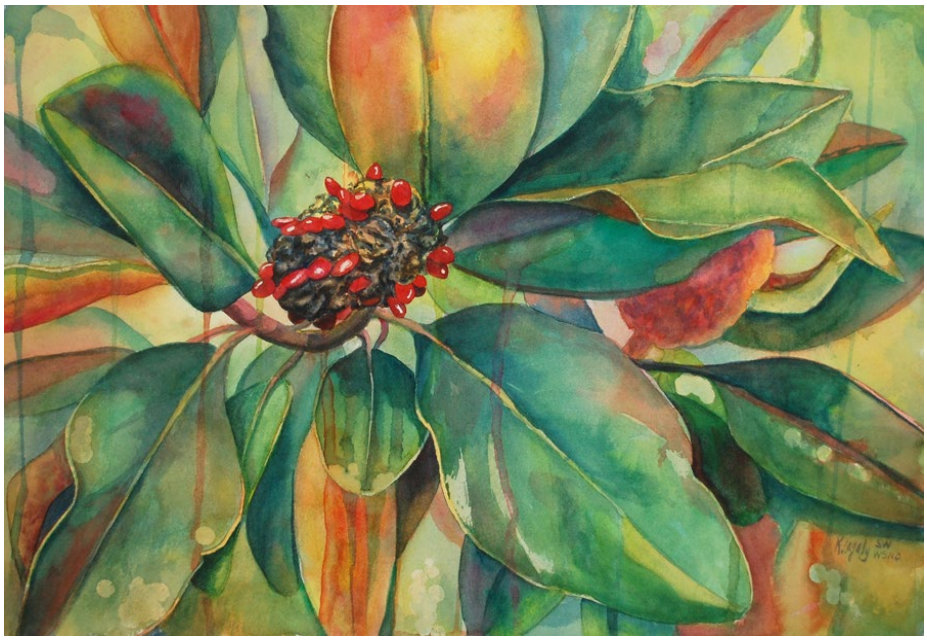
Hours: 14 (3½ hours x 4 sessions); Online option available fall 2020

This course builds upon the knowledge and skills of Beginning Watercolor. Using live botanical specimens, students apply basic drawing and watercolor skills to create detailed, realistic watercolor studies of individual plant structures such as stems, twigs, leaves, petals, flowers, pods, and fruit. Classes cover such topics as creating the illusion of depth and volume and portraying shape, color, and textural details accurately. Formerly known as "Intermediate Watercolor for Illustrators."

Upon completion of this course, students will have knowledge/skill of the following:

- Layering and color mixing;

- Detailed, realistic watercolor studies of individual plant structures;
- Botanical accuracy and artistic sensitivity;
- Recognizing common mistakes and how to correct them; and
- The process of creating a painting.



WATERCOLOR, KATE LAGALY

INTERMEDIATE EXPRESSIVE WATERCOLOR

Prerequisites: Beginning Watercolor, Intermediate Drawing

Hours: 14 (3½ hours x 4 sessions)

This class introduces students to fluid watercolor techniques such as wet-on-wet. Students will learn to work with more water in the beginning and middle of the painting process and then rely on the skills learned in Beginning Watercolor to refine and add detail towards the end of the process. Students will create textures for backgrounds, work on color mixing using a limited palette, and learn to use glazing and masking fluid. Techniques for correcting mistakes in watercolor will also be covered.

Upon completion of this course, students will have knowledge/skill of the following:

- Working with various amounts of water and watercolor paint;
- Working wet-on-wet;
- Working with masking fluid;
- Making a variety of watercolor textures such as salt, plastic wrap, etc.;
- Glazing;
- Working with a limited palette; and
- Color mixing.

INTERMEDIATE COLORED PENCIL

Prerequisites: Beginning Colored Pencil, Intermediate Drawing

Hours: 14 (3½ hours x 4 sessions)

This course makes use of the techniques and information covered in Beginning Colored Pencil. Students will continue to hone skills in color mixing, layering, and tonal gradations. This class will help students develop a more advanced skill level in colored pencil and expose them to additional colored pencil techniques and work surfaces.

Upon completion of this course, students will have knowledge/skill of the following:

- Various colored pencil layering and blending techniques;
- Color mixing using a limited palette;
- The colored pencil techniques for working on translucent polyester double-sided matte film;
- The colored pencil techniques for working with solvents; and
- The colored pencil techniques for working on sanded pastel paper.

INTEGRATING COMPOSITION AND COLOR THEORY

Prerequisites: Composition, Intermediate Watercolor

Hours: 14 (3½ hours x 4 sessions)

In this class students learn the basics of color and the techniques for properly mixing pigments to match a specific color. Concepts of the color wheel and analogous/complementary colors are explored through instruction and numerous exercises. The three attributes of color – hue, value and intensity are also covered. Formerly known simply as "Color Theory."

Upon completion of this course, students will have knowledge/skill of the following:

- Concepts of a color wheel;
- Accurately matching colors; and
- Applying color theory to strengthen composition.

ADVANCED DRAWING: BOTANICAL PLATES

Prerequisites: Intermediate Drawing, Composition

Hours: 14 (3½ hours x 4 sessions)

Students work towards refining drawing skills in creating a plant portrait. Specifics to this class will be to render a tonal botanical plate, work with live plants, study plant anatomy, use microscopes, as well as mapping and cross-contour drawing for accuracy.

Upon completion of this course, students will have knowledge/skill of the following:

- Developing a full botanical plate project using compositional elements;
- Working with magnification and microscopes;
- Dissecting flowers and plant details;
- Techniques to render accurately through tonal and contour line drawing;
- Writing a botanical paper on plant project;
- Light on form fundamentals;
- Compiling all steps in a project book; and
- Preparing for a formal critique.

ADVANCED TRADITIONAL WATERCOLOR

Prerequisites: Intermediate Traditional Watercolor, Integrating Composition and Color Theory

Hours: 14 (3½ hours x 4 sessions); Online option anticipated late 2020 or early 2021

This course builds upon Intermediate Watercolor for Illustrators. Students independently select a native plant of their choice and design and complete a watercolor painting displaying different aspects of that plant. Instructor is available for consultation and problem solving, as well as in-class critiques. Students prepare a written analysis of

their work, explaining their design choices, as well as report describing the botanical details of their selected plant. Formerly known as "Advanced Watercolor for Illustrators."

Upon completion of this course, students will have knowledge/skill of the following:

- Full complex botanical illustration in watercolor using compositional elements;
- Working independently;
- Writing of a scientific report;
- Preparing a formal critique; and
- Compiling all steps in a project book.

ADVANCED EXPRESSIVE WATERCOLOR

Prerequisites: Intermediate Expressive Watercolor, Integrating Composition and Color Theory

Hours: 14 (3½ hours x 4 sessions)

This course will help students develop a more advanced skill level in expressive watercolor techniques learned in Intermediate Expressive Watercolor and expose them to additional techniques and work surfaces including watercolor pouring, painting upright wet-on-dry, working on Yupo paper, and working with watercolor grounds.

Upon completion of this course, students will have knowledge/skill of the following:

- Watercolor pouring;
- Working upright and wet-on-dry;
- Techniques for working on Yupo paper; and
- Techniques for and knowledge of working with watercolor grounds.

4.3 Electives

ACRYLIC

Prerequisite: Beginning Drawing

Hours: 14 (3 ½ hours x 4 sessions)

Acrylic is a versatile and correctible painting medium. In this class students will learn a variety of approaches when working in acrylic. They will learn how to make various background textures and to work on paper, a white canvas surface and a black canvas surface. They will learn to mix colors using a limited warm/cool color palette and to glaze.

ADVANCED COLORED PENCIL

Prerequisites: Integrating Composition and Color Theory, Intermediate Colored Pencil

Hours: 14 (3½ hours x 4 sessions)

This course makes use of the techniques and information covered in Beginning and Intermediate Colored Pencil courses. Two new colored pencil techniques will be presented. Students will work with watercolor pencils, and they will work on a prepared surface. Students will also work on an independent-colored pencil botanical art or illustration project of their choice. They will choose from the various techniques and surfaces presented during the

series of classes. This class is designed to help students become more knowledgeable, confident, and independent in the use of colored pencils.

DRAWING AND PAINTING NC FAUNA

Prerequisite: None

Hours: 14 (3½ hours x 4 sessions); also offered online periodically.

NC hosts quite a diverse range of species ranging from amphibians to mammals, many which are used in conjunction with botanical art. The fauna subjects students will explore include amphibians, reptiles, bugs and beetles, butterflies and moths, birds, and small mammals. Fauna subjects will rotate and will be offered once every third year.

FIELD SKETCHING

Prerequisite: None

Hours: 14 (3½ hours x 4 sessions)

Take your sketchbook outdoors and reconnect with plants in their natural environment. In this course, students are encouraged to shed old habits and try new techniques as they travel to a variety of gardens and habitats. Through a combination of guided exercises and free experimentation, students discover new ways of seeing plants, new problem-solving skills, and a refreshing way of thinking about layout and color. Several media are used, from ballpoint pen to watercolor to pencil.

FURTHER EXPLORATIONS IN INK

Prerequisites: Pen and Ink

Hours: 14 (3½ hours x 4 sessions)

This is an in-depth exploration into botanical drawing using various inks, brushes, pens, methods of applications, as well as experimenting with new surfaces. Techniques include tinting ink, ink wash, working on toned paper, scratchboard, and drafting vellum.

GOUACHE

Prerequisites: Prerequisite: Beginning Drawing, Beginning Watercolor

Hours: 14 (3½ hours x 4 sessions)

Gouache is opaque watercolor. In this class students will learn to work with gouache over watercolor backgrounds. They will learn how to make dark backgrounds and textured backgrounds using watercolor and the techniques for adding the plant subjects using gouache and watercolor. Students will learn to mix colors using a limited warm/cool color palette and to glaze over gouache with watercolor.

GOUACHE, KATE LAGALY

LIGHT ON FORM

Prerequisites: Intermediate Watercolor

Hours: 14 (3½ hours x 4 sessions)

Light shining on a subject gives it mass, volume, and form, providing the viewer with information about where the light is coming from. Without light, your artwork cannot create the illusion of three dimensions. This class concentrates on how to create this illusion by learning how to draw and paint how light affects flowers and leaves.

MIXED MEDIA: BOTANICALS IN WATERCOLOR, COLORED PENCIL AND PEN & INK

Prerequisites: Pen & Ink, Beginning Colored Pencil, Intermediate Watercolor

Hours: 14 (3½ hours x 4 sessions)

Mixed Media explores how to combine the various media to create expressive botanical art and illustrations. The course draws on the student's knowledge of graphite, pen & ink, colored pencil and watercolor and offers guidelines for using these in various combinations that highlight the advantages of each.

PLANT TAXOMONY

Prerequisite: Botany

Hours: 12 (3 hours x 4 sessions)

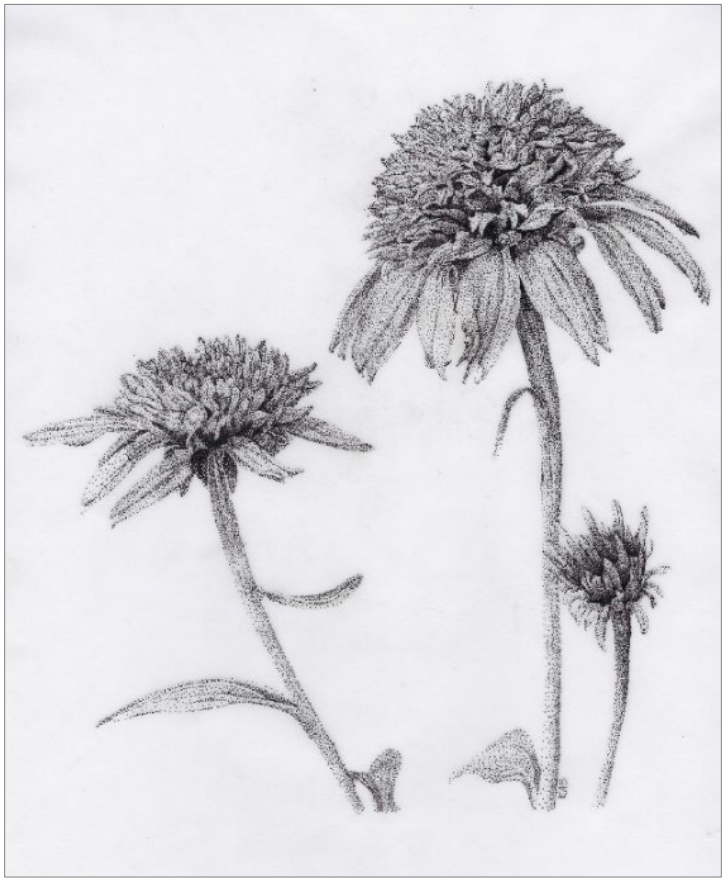
This course builds on the fundamentals taught in Botany and prepares students for supplementary material covered in Flowering Plant Families. It is a core course for students enrolled in either of the NCBG public certificate programs. Students learn the basic concepts of the taxonomy of vascular plants and how to identify plant families by making observations of selected characteristics. The use of taxonomic keys is introduced. Interesting examples are studied to illustrate current issues in plant taxonomy and nomenclature.

SCRATCHBOARD: THE KNIFE AND THE QUILL

Prerequisite: None

Hours: 14 (3½ hours x 4 sessions)

Scratchboard is the process of removing ink with a knife blade to create a black and white illustration. Using different angles of a blade can produce the look of fine lace or a traditional woodcut with strong, bold lines. Using both an angled knife blade and a flexible ink quill, students will explore the wonderful variety of textures achievable using two very simple instruments.



PEN AND INK, KARIN SAPIR

5. PROGRAM COMPLETION

5.1. Graduation Requirements

It is the responsibility of students to inform the director of education when they are ready to graduate by submitting a Statement of Intent to Graduate when they have completed the required coursework and are ready to begin work on their Independent Final Project. This should be done in January, before the intended graduation. The Statement of Intent to Graduate can be submitted by email (include "**Intent to Graduate – BAI**" as the subject line) and should include the common and scientific names and photographs of the three different plant subjects the student plans to depict in their Independent Final Projects.

5.2 Graduation Deadlines

Students will be notified of specific dates.

1.) **January, before intended graduation.**
Submit Statement of Intent to Graduate to the director of education by email. Include common and scientific names plus photographs of the three different plant subjects you propose to illustrate.

2.) **Digital Submission** (See Section 5.4)
Upload digital images, written statements, and support materials to director of education through the online submission portal (instructions will be sent via email). Email director of education once upload is complete. The core instructors will then use these digital submissions to begin evaluating the work. This typically takes place a week or two before the in-person submissions.

3.) **In-Person Submission of Independent Projects and Ancillary Material** (See Section 5.5)
Submit Independent Final Projects, support materials, and written statements (printed) in person at the Garden. Work may be picked up by students two weeks after submission, following the review by core instructors.

4.) **Prior to graduation, two weeks following submission of Independent Projects**
Independent Final Projects returned
Begin framing pieces for student exhibit
Begin working with fellow students on graduation and the exhibition.

5.) **Participate in student graduation and exhibition**
The graduation ceremony takes place on a to-be-determined Sunday afternoon in the fall.

5.3 Independent Final Projects

The Independent Final Projects must be submitted to the director of education on a to-be-determined date (typically in April or May). The NCBG Certificate in Botanical Art and Illustration program instructors will evaluate the materials over a two-week period. Evaluation criteria are the same as those for coursework: accuracy, draftsmanship, and artistic sensitivity (see *3.4 Standards for Grades*). The instructors will return the Independent Final Project with comments before the exhibit begins.

The Independent Final Projects consist of three pieces of botanical artwork completed without supervision from any of the instructors. Pieces should represent southeastern native plant species. No exotic invasive species will be

allowed. (See https://ncbg.unc.edu/plants/resources-for-gardeners/ (*Invasive plants to avoid*) for more details.) Students may work in graphite, pen & ink, watercolor, colored pencil, acrylic, gouache, or any mixed media combination, if the student has taken classes through the Garden or American Society of Botanical Artists certified workshop in that media.

The size of the work can be no smaller than 108 square inches or larger than 154 square inches in any dimension. Projects shall be no smaller than 9 inches in length on the smallest size.

Each Independent Final Project must be labeled with the title of the piece, Latin name of the subject (genus, species, cultivar where applicable), common name of the subject, size, and medium. The artist should sign all pieces unobtrusively on the front.

When presented to the garden for evaluation, each piece should be matted, with a 3" minimum border, and taped to a backing board. They can then be placed in a binder or slipped between protective sheets of cardboard. Please ensure that all pieces can easily be separated from one another.

All support material should be neatly organized and placed chronologically in a protective portfolio or binder, separate from their Independent Projects. For the ease of instructors, please find a binder or portfolio with removable pages.

Students have the option of working anywhere on the spectrum between the more traditional style (botanical illustration) and non-traditional style (botanical art) for each independent study piece. (See *1.2 Differentiation of Botanical Illustration and Botanical Art*.) Rather than a hard-and-fast line between the two styles, there is a spectrum of choices as to which conventions the artist chooses to adhere to.

Each piece should show the student's mastery of:

- Drawing details
- Focal point
- Light on form
- Direction of a light source
- Perspective
- Atmospheric perspective
- Color theory
- Composition
- Media application
- A full tonal or color range so that the piece looks convincingly three-dimensional

Work on the Independent Final Project will be viewed as representing a student's highest capability in each medium. Students are encouraged to reread their handouts for Composition and Integrating Composition and Color Theory and to study the compositions of professional botanical artists and illustrators for ideas.

Each Independent Final Project shall be a complex botanical drawing or painting composition consisting of a subject depicting a minimum of three different major plant structures. These differing structures or plant forms may consist of any combination of the following plant details: leaves and the structure they are attached to, bare twigs, root or food storage system, flowers/flower heads (bud, mature flower, spent flower, reproduction dissection), seeds/seedpods, or fruit. These plant forms may or may not be attached to each other. Botanical Illustrations may include separate dissections and other descriptive enlargements used in keying plants. Adding text and associative insects are allowed but considered supplementary to the artwork and not a major pictorial element as the above listed plant forms.

Examples of unacceptable simple botanical compositions (in parenthesis is an alternative acceptable complex composition):

- Single fruit (combine with leafy branch in bloom or attach to branch with leaves and add flower detail separately).
- Single coneflower on plant stem (add buds, seed heads, and leaves on other stems).
- Complex branch with multiple leaves (add flowers and seed heads).
- Cropped enlarged bloom with a single leaf (add 2 or 3 other plants structures).

Since students work independently (without instructor supervision), they are encouraged to interact with each other and alumni of the certificate program for comments and critiques.

Students may also choose to submit one additional work with their three Independent Projects that they feel represents their mastery in botanical art and illustration.

Students who do not meet the criteria for graduation will receive a letter from the director of education informing them of improvements that they need to make, based on instructor comments. Students will be responsible for independently acting on the comments about the Independent Projects and implementing the suggestions before framing their works for the graduation exhibit. Those unable to complete suggested improvements before graduation will need to resubmit their Independent Projects the following year.

5.4 Digital Images

On a to-be-determined date (typically in April or May), students must submit digital images of their independent projects and a photograph of the selected plants (for positive identification) along with their written statement and other support materials to the director of education. Guidance for organizing and labeling digital submissions is included as Appendix 9.1.

All images must be submitted as JPEG files. Images submitted as PDFs will be returned. Any text files must be submitted as PDF files.

- Images can either be scanned or taken with a camera. For images taken with a camera, please note that the image needs to be evenly lit with either sunlight correct bulbs or placed outside in either direct sun, under overcast cloud cover, or in complete shade.
- Artwork should be taped to a flat surface and camera placed parallel to the painting's surface. Position the camera as close to the image as possible. Double check that you have included the crop lines around the painting.
- Each digital image of the Independent Project needs to be 1-3 MB in size. Save as a high-resolution JPEG at 300 dpi. All support material may be saved between 600 KB and 1 MB.
- Before photo-editing your artwork, make sure to resave and rename the original digital image with the "Save As" function.
- Digitally crop your image to delete any background incursions, i.e. fingers, tablecloth. Double check that the mat edge is visible or crop image to size and placement of mat.
- Edit all images for correct rotation for online viewing.
- Rename each image and appropriately indicate with a corresponding number with your Last Name-#-[common plant name]. It should look like: Doe-1-Mayapple.

There are many online sites and books that can help you learn how to photograph and digitally edit your paintings.

5.5 Written Statements and Support Material

In the **written statement** (PDF) submitted with the digital images and support materials, students should include in this order:

- Project Details:
  - Student name
  - Independent Final Project number. *This number should correspond with digital images and all other information submitted.*
  - Title
  - Scientific and common name of the subject
  - Size
  - Medium
  - Substrate
  - Photographer name or website for all digital images

- Project Description:
  - If the work leans toward botanical art or botanical illustration and why*
  - The intent (or storyline) of the work
  - What attracted you to the plant(s)
  - Where the focal point is
  - What direction the light is coming from

*This is a brief statement explaining where on the Illustration-to-Art spectrum you think each of your Independent Final Projects lies and what design choices you have made in relation to this placement on the spectrum. Assessment by the review committee of the works' compositional and media application choices will be based on your self-declared style on the science/art spectrum.

Support Materials must include:

- The digital images of your work
- Source photographs of the subject
- Sketches including
  - Rough sketches (in color or black and white)
  - Thumbnail sketches to work out the composition
- Black and white tonal studies
- (Color swatches)
- Rough color sketch

5.6 Exhibit Guidelines

Students should contact fellow graduates and the North Carolina Botanical Garden communications & exhibits coordinator (Emily Oglesby, emily_oglesby@unc.edu) well in advance of the graduation date to begin planning for the student graduation exhibition.

Graduating students will hang pieces of choice in a student graduation exhibit at the NCBG. **Pieces should represent southeastern native plant species, whenever possible. No exotic invasive species will be allowed.** (See https://ncbg.unc.edu/plants/resources-for-gardeners/ (*Invasive plants to avoid*) for more details). Usually, each student's three final pieces are hung in the exhibit, although students are free to decide which artwork they wish to hang. Depending on the size of the graduating class, the student may need to frame additional homework assignments or pieces done outside of the program for the student graduation exhibition. If this is necessary, students will be notified during the first meeting with the communications and exhibits coordinator.

Students may also wish to exhibit a portfolio reflecting some of the work from classes the program. Details of how to put together a portfolio can be found in Section 6.3 below.

It is the responsibility of the artist or group to hang the exhibit. All the artworks must be original (no prints or photocopies). All entries must be identified on the back upper right-hand corner of the frame (this is the standard way art is labeled) with the artist's name, address, and phone number; title of the piece; medium; date; price (or NFS); and insurance value. Students will receive an exhibition contract that they must sign at least four weeks before the hang date.

Exhibitors must provide a price list for insurance purposes two weeks before the opening of the exhibit. They cannot hang work without this information. The price list should contain each student's name, address, and contact information; title of each piece to be hung; size (original and framed); medium; price or NFS (not for sale); and insurance value (even if the piece is not for sale). Insurance will be covered by the North Carolina Botanical Garden (The University of North Carolina at Chapel Hill) from the time hanging begins until the show is taken down.

The artists will provide individual foam board labels to attach to the wall identifying each piece. Each label should include the name of the artist, title of the piece, and medium. Labels should be attached to the wall using adhesive putty.

The exhibiting artists must provide compiled and photocopied price sheets for viewers to take with them. The price sheets should include the name of each artist, contact information, title of each piece, and price or NFS.

The exhibit will be open in the DeBerry Gallery for Botanical Art and Illustration. The Garden's hours are 9:00 a.m. to 5:00 p.m. Tuesday through Saturday, and 1:00 p.m. to 5:00 p.m. Sunday. The Garden is closed on Mondays, University holidays, and University defined inclement weather days.

Sales take place in the NCBG Garden Shop. No works may be removed before the end of the exhibit. Should an artist's work be purchased, the Garden will provide a W9 form and direct deposit form for the artist to complete to receive payment. The Garden retains 30% of the sale price of works from the DeBerry Gallery. It is the responsibility of the artist to remit tax to the State of North Carolina.

6. BECOMING A PROFESSIONAL

6.1 Framing Your Work

Each piece for the exhibit can be no smaller than 108 square inches or larger than 154 square inches in any dimension. Projects shall be no smaller than 9 inches in length on the smallest size. Bearing in mind the cost of custom framing, students may choose to size their piece to fit standard premade frames.

All entries for the student exhibition must be matted, framed (under Plexiglas), wired, and ready to hang. No sawtooth hangers are allowed. Mats must not draw attention from the artwork and therefore should be colored neutral white, ivory, or light gray. All frames should be simple wood without excessive molding. Students may not use metal frames. Frames premade or cut to the required dimensions can be ordered from discount stores, art supply stores, or catalogs. Plan to allow ample time for framers to frame the work. Consult the instructors for further advice.

6.2 Pricing Your Work

Most artists price their work using their own criteria, and there are many ways to decide on price. One way is to total all costs associated with the piece (materials, framing, marketing, general business overhead, and gallery commission fee) and then add an amount as profit. Because most botanical artists spend a great deal of time on their works, it is usually not feasible to base price on the amount of time spent creating a piece.

Another way of pricing art is to calculate the area of the work (in square inches) and multiply by a dollar amount based on the aforementioned factors. Once the price per square inch for one piece is determined, use this value as a standard to price all your work. That way art will be priced consistently based on size. The artist can always charge slightly more for favorite pieces.

Most professional artists price each painting as if it were going into a gallery. Gallery commission charges can range from 40 to 100 percent. Most galleries charge 50 percent. It is inadvisable to price work lower than the gallery charges. Keep prices consistent so that buyers and galleries know what to expect.

It can be helpful to survey local galleries and exhibitions to determine the range of prices charged by established artists working on similar subjects with equivalent media and techniques. Talk to peers about how much they charge and how they price their work, join affiliated artists' groups, and enter and attend shows.

6.3 Portfolio

GENERAL

Portfolios are an option for students at the Graduation Exhibition. Presentation portfolios (also called presentation books) can be purchased at office supply or art stores. They are typically plastic notebooks with page protectors bound within and are available in various sizes. Students may need more than one to contain all their portfolio items.

CONTENT

Portfolios may contain the following items:

- Pieces representing best work, including the Independent Final Projects
- Bonus material: Additional pieces created independently that display the student's mastery of botanical art and illustration but that are not among the three pieces the student has chosen for the final project. These should be clearly labeled as "bonus material."
- Artworks in the portfolio should be originals, not photocopies or prints (the one exception to this rule is that students who have taken Field Sketching may submit four photocopied pages of their sketchbook in lieu of handing in their entire sketchbook)

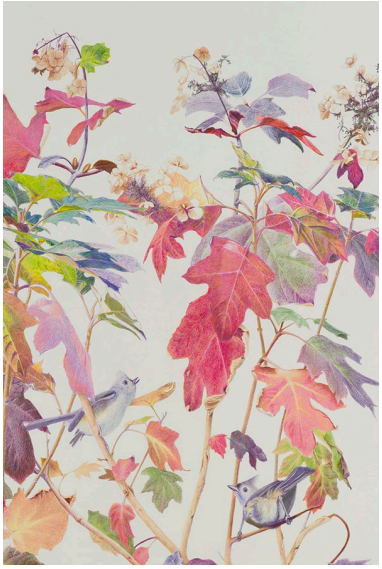
LABELING AND ORGANIZATION

Portfolios should be neatly and cleanly assembled. All artwork in the portfolio should be clearly labeled with the following information:

- Course name
- Instructor name
- Course week number
- Date of completion
- Scientific and common name of botanical specimen (where applicable)

Students do not need to write on their artwork. Instead, labels should be typed or written on small pieces of paper and attached to each page of the portfolio where the instructors can see it. The student's name must appear clearly on the outside cover of each portfolio.

It is suggested that all portfolios be arranged in the following order: Beginning Drawing, Composition, Beginning Watercolor, Beginning Colored Pencil, Intermediate Drawing, Pen and Ink, Intermediate Watercolor for Illustrators or Intermediate Watercolor Techniques, Color Theory, Advanced Watercolor for Illustrators or Advanced Watercolor Techniques, Elective 1, Elective 2, Elective 3, and if desired, any optional Bonus Material (additional pieces created outside of class).



COLORED PENCIL, LINDA KOFFENBERGER

7. INSTRUCTORS

JENNIFER LANDIN

Dr. Jennifer Landin is an Associate Teaching Professor in the Department of Biological Sciences at North Carolina State University. She teaches Biological Illustration, an interdisciplinary course that emphasizes an appreciation of nature through visual arts. Jennifer uses art to promote an understanding of biodiversity and environmental issues.

OLIVIA LENAHAN

Olivia Lenahan has a Ph.D. in horticultural science from Iowa State University, where she studied the cold hardiness and genetic diversity of a threatened population of *Styrax americanus* (American snowbell). Prior to that, Olivia worked at the Irrigated Agriculture Research and Extension Center with Washington State University. Her Master's work focused on crop load management of dwarfing sweet cherry trees. During this experience, she really enjoyed living in the heart of sweet cherry and wine country. But of all the Plant Hardiness Zones Olivia has experienced, she especially loves gardening in North Carolina.

EUGENIE (GIGI) McDONALD

Eugenie McDonald (Gigi) is a local freelance artist, currently working on commissions and exhibition entries. She has been painting and creating art since childhood, entering various craft shows with her batiks and studying AP art and AP photography in High School. She graduated from Duke University with a double major in Art History and Design and went on to become the graphic artist for a subsidiary of the News & Observer Newspaper, as well as the Mall Advocate magazine. She then continued freelancing with her own business GIGI Graphics. After moving back to Chapel Hill in 2012, she looked to rekindle, advance, and refine her painting skills and focus on watercolor and her love of nature. The NCBG Certificate program was a natural choice. After earning the NCBG Botanical Art Certificate in 2017, she went on to enroll in the Society of Botanical Art Distance Learning Program in London, England and graduated with Distinction in 2020. Currently she has a watercolor painting showing in the 2020 SBA Spring Exhibition. She looks forward to sharing her experiences and skills learned in both programs with her fellow artists.

GEOFFREY NEAL

Geoffrey Neal has been working with plants for the past 25 years. He has worked in private gardens, residential landscapes, and independent garden centers. He is currently serving as assistant curator at the Coker Arboretum, a 5-acre ornamental and teaching garden begun in 1903 on the UNC Chapel Hill campus and a part of NCBG since 1982. He is an ISA certified arborist and a part-time graduate student in ecology at UNC.

MILO PYNE

Milo Pyne works as the southeastern senior regional ecologist for NatureServe, an offshoot of The Nature Conservancy. He and others at the Durham office are engaged in the development of ecological classification systems and their use and application by conservation partners. A native of Durham and formerly a resident of middle Tennessee, Milo obtained a B.S. degree in botany from N.C. State University in 1991 and worked from 1993 to 1996 as a botanist for the Tennessee Division of Natural Heritage. His other interests include local land conservation issues; natural landscape gardening; ecology of glade-, barren-, and prairie-related vegetation in the Southeast; and taxonomic issues in *Physalis* and *Liatris*. He has been a board member of the Eno River Association since 1996.

PATRICIA SAVAGE

Patricia Savage has been a fine artist since 1989. She was awarded Best and Honorable Mention in Wildlife in the *Pastel Journal*'s Sixth Annual Pastel Top 100. She served as Artist-in-Residence in Denali National Park, Shoals Marine Laboratory, and expedition artist for *The 1899 Harriman Expedition Retraced*. Her work has appeared in *Botanical Art: Eden Re-imagined, The Best of Wildlife Art* 1 and 2, *Focus* (Italy), *U.S. Art, Wildlife Art,* and *Wildlife in North Carolina.* Patricia has exhibited her work at the Leigh Yawkey Woodson Art Museum, the Bell Museum of Natural History, the National Geographic Society, the U.S. Botanic Garden, and Walt Disney World's Animal Kingdom. She is a Signature member of the Pastel Society of America, the International Society of Scratchboard Artists, and the Society of Animal Artists. She also belongs to the Guild of Natural Science Illustrators and GNSI-Carolinas, and the Pastel Society of North Carolina. To see Patricia's paintings, go to psavageart.com/ and follow her on Facebook.

KATHY SCHERMER-GRAMM

Kathy is an artist with a long relationship with NCBG, involved in both the Native Plant Studies and Botanical Art & Illustration certificate programs as both student and instructor. Originally from Southern California, she graduated from California State University, Fullerton with a Masters in Illustration, where she taught illustration, drawing, and painting as well as at other colleges in the area before relocating to the Winston-Salem area over 20 years ago. Kathy has had the joy of being a nature educator and an elementary school art teacher before returning to her passion for creating highly realistic watercolor paintings with a focus on plants. Her previous editorial illustrations won awards in the Society of Illustrators Exhibitions. More recently, her paintings have been included in the American Society of Botanical Artists International Exhibitions, the Guild of Natural Science Illustrators Annual Exhibitions, and the prestigious Birds in Art 2018 Exhibition at the Leigh Yawkey Woodson Art Museum. To learn more about her and view her current work follow her on Facebook facebook.com/botanical.art.instructor, Instagram at @schermergramm.botanical.art or visit her website at www.kathyschermergramm-artist.com

SCOTT ZONA

Scott Zona holds a B.S. in horticulture and an M.S. in botany from the University of Florida. His Ph.D. in botany is from Rancho Santa Ana Botanic Garden and Claremont Graduate University, California. He has explored for plants in Florida, California, Mexico, Central America, the Caribbean, the Pacific islands, Indonesia, Malaysia, New Guinea and Madagascar. His interests are in the diversity and natural history of tropical plants, especially palms, salvias and bryophytes, and has published over 160 articles on these topics. Scott is co-editor of the International Palm Society's quarterly journal, PALMS. He now gardens in Hillsborough, North Carolina.

8. ADDENDUM

8.1 Brief List of Art Suppliers

- Cheap Joe's Art Stuff. Art stores in Boone, Asheville and Charlotte.
  800.227.2788
  Online catalog, www.cheapjoes.com/
- Crazy Alan's Emporium. Office and art supplies.
  1129 Weaver Dairy Rd., Chapel Hill, NC
  919.929-8595
- Dick Blick Art Materials
  800.828.4548
  Online catalog, www.dickblick.com
- Jerry's Artarama
  3060 Wake Forest Rd., Raleigh, N.C.
  919.876.6610
  Online catalog, www.jerrysartarama.com
- John Neal Bookseller. Pen and ink supplies.
  1833 Spring Garden St., Greensboro, NC
  800.369.9598
  Online catalog, www.johnnealbooks.com/

8.2 Additional Botanical Illustration Programs

- Brookside Gardens School of Botanical Art and Illustration. Montgomery County, Maryland
  www.montgomeryparks.org/brookside/botanical_art_school.shtm
- Chicago Botanic Garden Botanical Arts Program. Illinois.
  www.chicagobotanic.org/education
- Denver Botanic Gardens School of Botanical Art and Illustration. Colorado.
  www.botanicgardens.org/education/school-botanical-art-illustration
- Filoli Botanical Art Certificate Program. Woodside, California.
  filoli.org/classes/botanical-art-classes/
- Lewis Ginter Botanical Garden, Certificate in Botanical illustration. Richmond, Virginia.
  www.lewisginter.org/learn/adult-classes/
- Minnesota School of Botanical Art. Minneapolis, Minnesota.
  www.minnesotaschoolofbotanicalart.com/
- New York Botanical Garden Botanical Art and Illustration Certificate. Bronx, New York.
  www.nybg.org/adulted/

Distance Learning Certificate Programs

- Society of Botanical Artists (SBA). UK.
  https://www.soc-botanical-artists.org/education/distance-learning-diploma-course/
- RBGE Diploma in Botanical Illustration. Royal Botanical Garden, Edinburgh, Scotland.
  https://onlinecourses.rbge.ac.uk/index.php

8.3 Professional Associations

- American Society of Botanical Artists (ASBA). National: www.asba-art.org/
- American Society of Botanical Artists (ASBA) Circle. Local group meets at the Chapel Hill Library.
  Contact: Donna Worcester, 2worcesters@att.net
- Guild of Natural Science Illustrators (GNSI). National: www.gnsi.org

- Guild of Natural Science Illustrators – Carolinas (GNSI-C). Local chapter meets at NCBG. Contact: calderksmiller@gmail.com

8.4 Exhibitions and Collections

- ASBA Annual International Botanical Art Exhibition. New York. https://www.asba-art.org/exhibitions
- Filoli Annual Botanical Art Exhibition. Filoli, Woodside, CA. https://filoli.org/events/
- Harvard Museum of Natural History: Blaschka Glass models of Plants. Cambridge, Massachusetts. https://hmnh.harvard.edu/glass-flowers
- Hunt Institute of Botanical Documentation International Exhibition of Botanical Art and Illustration. Carnegie Mellon University, Pittsburgh, Pennsylvania. Occurs every three years. Permanent collections. http://www.huntbotanical.org/exhibitions/international/
- Royal Horticultural Society (RHS) Botanical Art Show. London, UK. https://www.rhs.org.uk/shows-events/rhs-london-shows
- Royal Botanic Gardens, Kew, UK. Permanent Collections in the Marianne North and Shirley Sherwood Galleries (historical and contemporary masters). https://www.kew.org/explore-our-collections/library-art-archives

8.5 Online Botanical Art and Illustration Resources

- Hunt Institute of Botanical Documentation. Large database of historical botanical illustrations. http://www.huntbotanical.org/
- Smithsonian National Museum of Natural History. Botany Department database of illustrations. https://collections.nmnh.si.edu/search/botany/

8.6 Brief History of Botanical Illustration

It is interesting to note that humans began to depict plants in earnest only after they had domesticated them. Although Paleolithic people drew images of humans and animals on cave walls, there was little attempt to render plant material. Plants appear in early Egyptian, Greek, and Roman art but mostly as decorations, supplementing art of the human figure. The Great Temple of Thutmose III at Karnak (1450 BC) contained probably the earliest collection of plant images (a "florilegium"), in which—although some were sophisticated drawings of identifiable plants—many of the pictures were highly stylized.

In the first century AD, the purpose of botanical illustration was purely to serve science, and physicians studied plants for their pharmacological properties. Physicians relied on books called herbals for descriptions of healing plants. The oldest known surviving illustrated botanical book, the *Codex Vindobonensis* (ca. AD 512), was presented to the Byzantine princess Juliana Anicia in Constantinople. An illustrated version of an herbal text originally written by the Greek physician Dioscorides in the first century AD and translated into Latin as *De Materia Medica*, it contained nearly 400 full-page paintings of plants, many done by the artist Krateus. It became one of the main resources for botanical illustration used throughout the Middle Ages. Because the Middle Ages (ca. AD 500 to 1300) brought a halt to cultural development in Western Europe, botanical illustration went into decline for 1,000 years. During that time, botanical drawings were badly copied and often stylized beyond recognition.

Around 1390 a new naturalism suddenly appeared simultaneously in art in Germany, Italy, France, and Flanders. Prayer books and books of hours were hand-painted for personal use by the wealthy aristocracy. Between 1410 and 1416, three Flemish miniaturists, the Limbourg brothers, painted a book of hours for the duc de Berry, brother of the king of France. This document, for which the Limbourgs carefully observed and painted nature, was done in the International Gothic style. It marked a new realism in painting, and its influence spread throughout Europe.

During the Renaissance (ca. 1300 to 1500), art and science had not yet become separate disciplines. Artists and scientists alike recorded the natural world. Innovative artists such as Leonardo da Vinci (1452– 1519) and his contemporary Albrecht Dürer (1471–1528) discarded the old formulas for depicting stylized and idealized plants and instead produced detailed and exact studies of nature.

As technology advanced, artists were able to reproduce and distribute their work. The printing press was developed in Germany soon after 1450, and illustrated herbals became widely available. Botany began to emerge as a separate discipline only in the late 1500s. In 1530 the herbal *Living Portraits of Plants,* by Otto Brunfels, was published. For it Hans Wieditz, a student of Dürer, created exquisitely detailed wood engravings of plants exactly as they appeared in nature, including natural blemishes. In an ambitious herbal called *De Historia Stirpium,* published by Leonhart Fuchs in 1542, more than 500 plants appeared life-sized, making Fuchs the first author to regard the image as equal to the text in importance.

In the 1560s an influx of new flowers from the Turkish Empire began, and crocuses, cyclamens, hyacinths, and tulips were subsequently bred and sold in Europe, providing a wealth of subject matter. During the Protestant Reformation in the early 1600s, religious paintings fell out of favor, and artists began to paint flowers and fruit instead of religious images. Still-life painting became popular in the Netherlands and was recognized for its subtle compositions, perfectly rendered objects, and interesting lighting effects.

During the Age of Exploration, which had begun in the 15th century, world trade expanded, and many voyages of discovery required scientific documentation. By the late 17th century, trade routes to the Americas were firmly established, as well as those around the southern tip of Africa. Some American plants had reached Europe as early as the Renaissance period, but the real surge of plants from the New World began in the 1620s.

Although entomology was still in its infancy in the 17th century, Maria Sibylla Merian (1647–1717) became one of the first artists to focus on painting insects with their host plants. At age 29, she published the first of three volumes of engravings showing European insects. She later spent two years in Surinam collecting and painting insects and flowers, and in 1705 she published *Metamorphosis of Surinam Insects*.

In the 18th century, Carl Linnaeus introduced a new system of scientific classification based on the sexual organs of plants, which changed the focus of botanical illustration away from the medicinal parts of plants to the flowers. During the middle part of that century, George Dionysius Ehret (1708–1770) dominated the botanical art scene because of his single-mindedness and dedication to his subject, and the prolific body of beautiful work he produced for published books. He translated Linnaeus's classification system into diagrams, which were published and widely distributed. A wealthy physician, Dr. Christoph Jakob Trew (1695–1769), became his lifelong friend and patron, and soon Ehret was giving botanical drawing lessons to members of the aristocracy and receiving painting commissions. He painted on vellum and preferred gouache (opaque watercolor) to transparent watercolor. Ehret produced his best works between the ages of 32 to 42, which pieces are now in the Victoria and Albert Museum in London. His later works are at Kew Gardens.

Pierre-Joseph Redouté (1759–1840) was probably the most popular of botanical artists. Empress Josephine (1763–1814), wife of Napoleon Bonaparte, hired him to be the artist at her estate of Malmaison. The famous volumes of *Les Liliacées* (1802–1816) and *Les Roses* (1817–1824) resulted from Josephine's patronage. Redouté pushed the

boundaries of his techniques and sometimes broke with tradition to try new methods. He used watercolor on vellum, which he sometimes touched up with gouache. What made Redouté great, author Wilfrid Blunt suggests, were good luck (which brought him royal patronage), tireless energy, and a team of talented stipple engravers and printers. Other important figures in Western botanical art history include Robert Thornton, Sir Joseph Hooker, Walter Hood Fitch, and the Bauer brothers, Francis and Ferdinand. The "grandmother" of contemporary botanical artists in America was Anne Ophelia Todd Dowden, best known for her intricate watercolors of flowers. Despite the challenges it brought, she always insisted on working from live plant specimens. Probably the next-most-recognized name in contemporary botanical art is that of Margaret Mee, who studied art in London and moved to Brazil in the early 1950s, where she made 15 solo trips into the Amazon rain forest to paint plants in their natural habitat.

Many of the artists discussed above became well known because their work was reproduced and made available to a wide audience. Today, with digital printing, archival inks, and personal Web sites, botanical artists have revolutionized the way they approach their art, largely because their audience is now the global community. Working with the challenges presented each day by nature (their favorite subject matter) and art (their passion), they are fortunate to have an ever-expanding repository of historical and contemporary botanical artworks available to them for inspiration, education, and personal enrichment.

SOURCES

Blunt, Wilfrid. *The Art of Botanical Illustration: An Illustrated History.* Dover Publications, 1994.
Elliott, Brent. *Flora: An Illustrated History of the Garden Flower.* Royal Horticultural Society, Firefly Books, 2001.
Janson, H.W. *History of Art.* 3d ed. Thames and Hudson, 1986.
Kramer, Jack. *Women of Flowers: A Tribute to Victorian Women Illustrators.* Stewart, Tabori, and Chang, 1996.
Saunders, Gill. *Picturing Plants: An Analytical History of Botanical Illustration.* University of California Press, 1995.

> *Paint as you see nature yourself. If you don't see nature right, with an individual feeling, you will never be a painter and all the teaching cannot make you one. A painter must work out his own problems in his art as everyone must work out his own problems in life.*
>
> —Claude Monet

8.7 History and Mission of the North Carolina Botanical Garden

The North Carolina Botanical Garden 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 and to advance a sustainable relationship between people and nature.*

The concept of the conservation garden was developed at the North Carolina Botanical Garden 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 ensures that wild populations are not damaged by direct use and collecting from natural populations.
2. **Seed banking and reintroduction**: protecting germplasm reserves as a last resort against extinction in the wild and for use in the reintroduction of wild populations.

3. **The protection and restoration of natural areas**, which recognizes the importance of habitat conservation to the survival of biological diversity and establishes the importance of nature's own gardens, as well as human gardens.
4. **The elimination of invasive species** and replacement with non-invasive alternatives.
5. **Gardening in nature's context**, which seeks to promote plants that support native biodiversity, including pollinators and seed dispersers.
6. **Sustainable gardening**, which seeks to promote environmentally-friendly gardening.
7. **Education**: 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 physical and psychological health.

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

Please review more details about the North Carolina Botanical Garden history on our website at https://ncbg.unc.edu/about/a-conservation-garden/.

9. APPENDIX

9.1 Guidance for Digital Submission Materials for Independent Projects

Digital submissions of Independent Project materials will be requested through an online cloud-based framework, e.g. Google Drive. Students must organize digital submission materials the following manner. Information within brackets is to be replaced with student content.

Description of Labeling	Example of Labeling
Main Folder, which includes 3 independent project subfolders, label: [First Name].[Last Name]-Independent Projects-[YEAR]	**Main Folder** Jane.Doe–Independent Projects–2019
Individual Project Folder labels *(1 subfolder for each of 3 projects)*: [Last Name]-1-[common plant name] [Last Name]-2-[common plant name] [Last Name]-3-[common plant name]	**Individual Project Folder** Doe-1-Southern Sundrops
Subfolders within each Individual Project folder labels: **1.1-Artwork** *Description: photo or scan of artwork, based on criteria and labeling standard set forth in BAI handbook* **1.2-Statement** *Upload in pdf format* **1.3-Photos** *Description: Include zip file of all photos, or subfolders labeled as follows*: **A [name of what image represents]** **B [name of what image represents**] C ….. etc. **1.4-Rough Sketches** *Description: Include zip file of all sketches, or subfolders labeled as follows*: **A [name of what sketch is]** **B [name of what sketch is]** C ….. etc. **1.5-Thumb Sketches** *Description: Include zip file of all sketches, or subfolders labeled as follows*: **A [name of what sketch is]**	**Subfolders** 1.1-Artwork 1.2-Statement 1.3-Photos A – plant habit B – Bloom C – Leaf 1.4-Rough Sketches A – field studies B – Dissections C – leaf venation 1.5-Thumb Sketches A – field studies B – Dissections C – leaf venation 1.6-Prep drawings A – Transfer drawing B – Tonal study 1.7-Color A – color matching B – Bloom color study

See next page for more label descriptions. →

B [name of what sketch is] C ….. etc. **1.6-Prep drawings** *Description: Include contour line, transfer, or tonal drawings of full composition* **1.7-Color** *Description: Include color swatch)* **1.8-Additional Material** *Optional*	1.8-Additional Material

9.2 Reference Books

The following books have been recommended as reference books by core instructors for botanical art and illustration students. Those marked with (*) are highly recommended.

Botanical: Contemporary Art and Illustration

Glimn-Lacey, Janice and Peter B Kaufman. *Botany Illustrated*. Springer, 2006. McEwen, Rory. The Colours of Reality. Royal Botanical Gardens, Kew, 2013.

Peroni, Lauram. *Glorious Flowers*. Arch Cape Press, 1990.*

Marcus, Cora B. and Kyer, Libby. *Today's Botanical Artists*. Schiffer Publications, 2008. Sanders, Rosie. The Apple Book. Frances Lincoln Ltd., 2010.*

Sanders, Rosie. *Flowers, a Celebration of Botanical Art*. Batsford, 2016. Sherwood, Shirley. A Passion for Plants. London: Cassel and Co., 2001.

Sherwood, Shirley. *Contemporary Botanical Artists*. New York: Cross River Press, 1996. Showell, Billy. Watercolour Fruit and Vegetable Portraits. Search Press, 2009.

Stern, William T. *Botanical Masters*. Prentice Hall Editions, 1990.*

Stevens, Margaret. *The Art of Botanical Painting*. London: Harper Collins Publishers, 2005.

Botanical: Historical Art and Illustration

Adam, Hans Christian. *Karl Blossfeldt: The Complete Published Work (Photographer)*. Taschen, 2014.

Blunt, Wilfrid. *The Art of Botanical Illustration*. Dover Publications, 1994.

Burger, Thomas (ed.). Maria Sibylla Merian. *New Book of Flowers*. Prestel Publishing, facsimile edition. 1999.

Haeckel, Ernst. *Art Forms in Nature*. Dover, 1974.

Hendrix, Lee and Thea Vignau-Wilber. *Nature Illuminated - Flora and Fauna from the Court of the Emperor Rudolf II*. J. Paul Getty Museum, 1997.

Howell, Catherine Herbert. *Flora Mirabilis*. National Geographic Society, 2009.

Jonas, Patricia. *Drawing from Life: Maud Purdy and 90 years of Women Artists at Brooklyn Botanic Gardens*. NY: Brooklyn Botanic Gardens, 2007.

Mabberley, David and Arthur Harry Church. *The Anatomy of Flowers*. Merrell, 2000.

Magee, Judith. *The Art and Science of William Bartram*. Natural History Museum, London, 2007.

North, Marianne. *A Vision of Eden*. Holt, Rinehart, and Winston, 1980.

Redoute, Pierre-Joseph. *The Roses: The Complete Plates*. Taschen, 2007.

Rix, Martin. *The Art of Botanical Illustration*. Arch Cape Press, 1990.

Sherwood, Shirley. *A New Flowering: 1000 Years of Botanical Art*. Oxford: The Ashmolean, 2005.

Stiff, Ruth and Margaret Mee. *Return to the Amazon*. HMSO Books, 1997.
Swan, Claudia. *Clutius Botanical Watercolors*. Harry N. Abrams, 1998.

Botanical: Techniques

Brodie, Christina. *Drawing and Painting Plants*. Timber Press, 2006. Brown, Penny. Botanical Drawing. Search Press, 2018.
Hollender, Wendy. *Botanical Drawing in Color: A Basic Guide to Mastering Realistic Form and Naturalistic*. Watson Guptill Publications, 2010.
Humphrey, Sarah Jane. *Botanical Art with Scientific Illustration*. Crowood Press, 2018.
King, Bente Starcke. *Beautiful Botanicals: Painting and Drawing Flowers and Plants*. North Light Books, 2004.
King, Christabel. *The Kew Book of Botanical Illustration*. Search Press, 2015.
Martin, Rosie and Thurstan, Meriel. *Botanical Illustration Course with the Eden Project*. Batsford, 2006.
Martin, Rosie and Thurstan, Meriel. *Exotic Botanical Illustration with the Eden Project*. Batsford, 2012.
Martin, Rosie and Meriel Thurstan. *Contemporary Botanical Illustration: Challenging Colour and Texture*. Batsford, 2008.
Oxley, Valerie. *Botanical Illustration*. Crowood Press, 2008.
Pinhey, Sally. *The Botanical Illustrator's Handbook*. Crowood Press, 2014.
Sherlock, Siriol. *Botanical Illustration - Painting with Watercolours*. Chrysalis Books, 2004.
Showell, Billy. A-*Z of Flower Portraits: An Illustrated Guide to Painting 40 Beautiful Flowers in Watercolour*. Search Press, 2010.
Showell, Billy. *Botanical Painting in Watercolor*. Search Press, 2016.
Showell, Billy. *Watercolor Flower Portraits*. Search Press, 2006.
Stevens, Margaret. *The Art of Botanical Painting*. Harper Collins, 2005.
Stevens, Margaret. *The Botanical Palette*. Harper Collings, 2007.
West, Keith. *How to Draw Plants, the Techniques of Botanical Illustration*. Timber Press, 2005.
West, Keith. *Planting Plant Portraits*. Timber Press, 1991.
Wunderlicht, Eleanor. *Botanical Illustration in Watercolor*. Watson-Guptill, 1996.

Botany

Bebbington, Anne L D. *Understanding the Flowering Plants*. Crowood Press, 2014.
Chance, Teri Dunn. *Seeing Seeds*. Timber Press, 2015.
Harris, James G. and Harris, Melinda Woolf. *Plant Identification Terminology - an Illustrated Glossary*. Spring Lake Publications, 2001.
Hugo, Nancy Ross. *Seeing Trees*. Timber Press, 2011.
Leech, Lizabeth. *Botany for Artists*. Crowood Press Ltd., 2011.
Miller, James H. *Nonnative Invasive Plants of Southern Forests*. US Department of Agriculture, 2004.
Pell, Susan K. *A Botanist's Vocabulary*. Timber Press, 2016.
Simblet, Sarah. *Botany for the Artist*. Dorling Kindersley Ltd., 2010.
Zomlefer, Wendy B. *Guide to Flowering Plant Families*. The University of North Carolina Press, 1995.

Colored Pencil

Hutton-Jamieson, Ian. *Colored Pencil Drawing Techniques*. Quatro Publishing, 1986.
Swan, Ann. *Botanical Portraits with Colored Pencils*. New York: Barron's, 2010.

Design/Perspective

Design and Composition Secrets of Professional Artists. International Artist Publishing, 2001.

Konemann. *Drawing Perspective, Step by Step*. Loft Publications, 2013.*
Parkinson, Rita. *The Botanical Art Files, Composition*. The Botanical Press, 2015.*
Raynes, John. *The Complete Guide to Perspective*. North Light Books, 2005.

Drawing/Graphite

Barlowe, Dorothea and Barlowe, Sy. *Illustrating Nature: How to Paint and Draw Plants and Animals*. Dover Publications, 1997.
Edwards, Betty. *The New Drawing on the Right Side of the Brain: A Course in Enhancing Creativity and Artistic Confidence*. NY: Tarcher/Penguin, 1999.
Dodson, Bert. *Keys to Drawing*. Cincinnati: North Light, 1990.
Guptill, Arthur L. *Freehand Drawing Self Taught*. Watson-Guptill Publications, 1984 (1933).
Lee, Katie. *Fundamental Graphite Techniques.* Self-published: contact artist at www.katieleeartist.com, 2010.
Ruskin, John and Dunstin, Bernard. *The Elements of Drawing*. Herbert Press, 1991.
West, Keith. *How to Draw Plants*. Timber Press, 2001.

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