



## **Curricular Enhancement Program Smith College Botanic Garden**

<https://garden.smith.edu/education/educators/smith-faculty>

### ***Application Information and Guidelines***

These faculty grants are funded through the Louise de Bevers Spetnagel Endowment Fund.

#### **Program Goal**

The intent of the Curricular Enhancement Program is to assist faculty in making meaningful connections between their courses and the many resources of the Botanic Garden. Faculty (and teams of faculty) in any discipline are invited to submit proposals for the development of new courses or the significant modification of existing courses.

The specific goal of the program is to encourage teaching that helps students connect with the botanic garden environment and explore the complex relationships between natural, constructed, and cultural worlds.

The Curricular Enhancement Program provides stipends and supplemental course funds to support the development of new or revised courses or portions of courses utilizing the Botanic Garden and its resources.

#### **Procedures for Applying**

Deadlines are November 5 and March 25 (or the first business day following, if these dates fall on a holiday or weekend) for courses to run in any of the three semesters following the application. Applicants must meet with the Sarah Loomis, Manager of Education, or Nancy Rich, Curriculum Specialist, prior to submitting an application to learn more about the Botanic Garden resources and to discuss preliminary ideas.

#### ***Eligibility***

Faculty in any discipline may apply. Faculty who currently use the Botanic Garden for their courses without Curricular Enhancement Program support are eligible, provided their proposal is for a new or substantially revised course. We ask that the proposed course or additions to an existing course would not be possible without the assistance of the Botanic Garden staff expertise and without the use of the botanical collections. Proposals already receiving other course development funding are not eligible. Teaching may revolve around collections in the Lyman Conservatory as well as the Campus Arboretum and outdoor gardens.

#### ***Types of Funding and Support***

Faculty stipends are offered at two scales: full semester (\$1000) and half-semester (\$500). Stipends are accompanied by supplemental course funds up to \$500. Supplemental course funds may be used for field trips, outside speakers, a stipend for a community partner, or the purchase of supplies.

***Information requested on your application:***

Name

Department

Position

Email, campus address, phone

Course number and title

Anticipated number of students

When do you anticipate offering it? (semester, days/times)

Level of support requested (full-semester \$1000, half-semester \$500)

One to two-page description of your course addressing: how the Botanic Garden portion will support your course goals, how the Botanic Garden's resources may be involved (e.g. types of plants needed, physical spaces such as bench space, assistance from Botanic Garden staff through tours or lectures, proposed teaching activities, etc.), and proposed uses of supplemental course funds. It is understood that plans will be tentative at this point.

For questions or further information, please contact Sarah at [sloomis@smith.edu](mailto:sloomis@smith.edu) or 585-2743. Applications should be emailed to Sarah Loomis, Manager of Education: [sloomis@smith.edu](mailto:sloomis@smith.edu).

**Reporting Requirements**

Faculty who are awarded a CEP grant must submit a syllabus or course plan for the Botanic Garden portion of the course at least four weeks prior to the start of the course. Stipends will be submitted for payment upon receipt of this plan. This stipend is evenly distributed in paychecks through the semester.

# Resources for Teaching at the Botanic Garden

## ***The Collection***

Course plans may involve the Lyman Plant House and Conservatory, the Campus Arboretum, and/or specialty gardens around campus. The Lyman Plant House is open weekdays and weekends 8:30 a.m. to 4 p.m. Faculty may bring their classes, and students are welcome to come on their own. Outdoor areas are, of course, available any time.

The plant collection has developed around the teaching of horticulture and plant science, aesthetics, preservation of rare species, representation of different biomes and various plant uses (economic, medicinal, culinary, aesthetic), and research. In the conservatory, the plants come from Asia, Australia and New Zealand, Africa, Latin America, and North America, and in certain areas are grouped biogeographically. Desert, tropical, and warm and cool temperate biomes are represented.

Outdoors, the Campus Arboretum features a living museum of woody plants in specialty gardens and plantings around campus buildings. These are described at <https://garden.smith.edu/plants/outdoor-gardens>. The shores of Paradise Pond and the Mill River are also home to many trees and plants native to Western Massachusetts.

## ***Websites and databases***

*Botanic Garden Website* – <https://garden.smith.edu/>. Maps, descriptions and history of the Botanic Garden, a Plant Database, descriptions of research projects and efforts to preserve biodiversity and manage invasive species, stories of specific plants and trees, cultivation issues, public events and exhibitions.

- *Plant Database and Plant Images Database*  
<https://garden.smith.edu/plant-search>
- *Plant Locator Kiosk* – available in the Lyman Plant House lobby.
- *Plant Labels* – located on many of the trees, shrubs and plants outdoors and indoors

## ***Sample topics and teaching activities***

The Botanic Garden presents many opportunities for the teaching of the arts, humanities, social sciences, and sciences, including:

- Plants as indicators of politics, cultural survival, migration patterns, trade, colonialism
- Economic uses of plants as artists' materials, construction materials, chemicals, fiber, food, medicine (e.g., bamboo, papyrus, rice, sugar, quinine, cotton, rubber, spices)
- Plant symbolism in art, religion, culture, literature; plant growth as metaphor
- Botanical, horticultural, and biological topics; plants as indicators of soils and hydrology
- Gardens as expressions of culture, memorialization, community
- Conservation and biodiversity issues (e.g., the Botanic Garden's seed exchange program)
- Educational, marketing, and behavioral issues (e.g., visitor responses)
- The greenhouses as physical spaces requiring heat, light, ventilation

***Teaching activities might involve:***

- Drawing, photography, writing
- Collecting data on trees and plants in the conservatory
- Looking at plants under a microscope
- Developing online materials, self-guided tours, or narrative plant labels for the public
- Observing plant growth over the course of the semester
- Tour, lecture or self-guided activity developed by Botanic Garden staff

***Assistance from Botanic Garden Staff***

The staff of the Botanic Garden are available as needed to assist in making use of the collections, connecting with botanical or other expertise, structuring assignments, and suggesting links with related collections and resources. Please contact Sarah Loomis, Manager of Education, at [sloomis@smith.edu](mailto:sloomis@smith.edu) or leave a message at (413) 585-2743.

# Botanic Garden of Smith College Curricular Enhancement Program Support

## Some Past Course Descriptions

**Anthropology 226, Archaeology of Food, Spring 2013; and Anthropology 347, Prehistory of Food, Spring 2014. Elizabeth Klarich.** Through the Botanic Garden assignment in each of these courses, students add to their repertoire and understanding of archaeological methods by learning to use observation of live plants as well as research on plants to study the archaeology of food. Working in small groups, students complete a portfolio demonstrating archaeological knowledge related to an economic crop such as avocado, banana, cacao, coffee, olive, pomegranate, rice, sugar cane, or tea. After a tour and lecture by Nancy Rich, students draw or photograph their plant and research and present findings in written and oral form regarding the cultivation and harvesting requirements of the plant, the types of physical remains that might be found in the archaeological record, the parts of the plant used for food, and how the plants were processed, including the types of vessels, tools or physical activities that might be found or pictured in archaeological records.

**Art 285, Great Cities: Pompeii. Barbara Kellum. Fall 2007.** This course explores many different aspects of life—entertainment, worship, work, shopping, dining—in the ancient city of Pompeii, destroyed in an eruption of Vesuvius in 79 C.E. In all of these activities, plant forms played a fundamentally important role. A “treasure hunt” and paper assignment introduce students to key plants of ancient Mediterranean culture found in the Lyman Plant House. Students then plant and maintain Pompeian gardens in planter boxes and learn about the culinary, medicinal, and ornamental uses of these plants. These gardens become part of an exhibition curated by Victoria I, entitled “Pompeian Gardens: Illustrations from *A Pompeian Herbal*,” December 1-7, 2007, in the Jannotta Gallery in Hillyer Art Building. Course funds contribute to planting and exhibition expenses. (See <http://www.smith.edu/garden/Newsletter/newsfall07.pdf> for further information.)

**Art 269, Offset Printmaking I. Dwight Pogue. Fall 2007.** This course provides students with the opportunity to create prints based on following the development of chrysanthemums in the Lyman Conservatory from the beginning of the semester in September through the Chrysanthemum Show in November. Students make sketches and drawings in the Conservatory, which become the basis for their lithographs and monotypes. They study mum flower anatomy, dissect flowers under the microscope, and learn how to make hybrid chrysanthemum crosses. They also research chrysanthemums and their use in literature, poetry, music, science, and art. A selection of the students’ prints was exhibited at the Lyman Conservatory as *Chrysanthemums: Lithographs and Monotypes*, January 23-March 23, 2008.

**Art 285 Intro to Architecture: Language and Craft. James Middlebrook. Spring 2011.** The Botanic Garden portion of this course relates form and function in architecture and biology by using plants as inspiration for assignments. The components of the Botanic Garden project include photography or sketching to visually observe a plant; abstraction in two and three dimensions; constructing a spatial composition within limits; examination of skin/surface and structure by drawing, computer modeling, or physical modeling; and production of abstract diagrams to analyze formal systems and show organizational principles, enclosure, structure, and solids/voids. These steps lead to the design of a Flower Pavilion (hypothetically sited on the Smith College campus) that requires development of spatial language derived from the Flower Analysis. Class exercises are supplemented by a bus trip to the Brooklyn Botanic Garden, an exhibit of students projects in the Lyman Plant House, and two lectures from Botanic Garden director Michael Marcotrigiano on the relationship of form and function in plants.

**Biological Sciences 263, Plant Biology (Lab). Carolyn Wetzel. Fall 2009.** This lab component offers students hands-on experience with plants. Students meet at the Plant House, take several field trips, and use the indoor and outdoor plant collections for observations and experiments. Course funds are used to develop revised methods for surveying comparative anatomy and morphology of plant groups. Instead of relying on prepared slides and published plant atlases, students learn to make their own slides

and digital plant atlases using plants from the indoor and outdoor collections, thereby learning basic skills in plant biology and having the experience of physically handling and preparing their own materials.

**Biological Sciences 264-265, Plant Diversity and Ecology. Jesse Bellemare, Spring 2012, Spring 2013.** This course, formerly titled Plant Systematics, has been remade from the ground up with new lectures and lab exercises. The class is taught at the Lyman Plant House and makes extensive use of the greenhouse collections on a weekly basis and the outdoor systematics beds later in the spring. The course presents a wide-ranging survey of plant diversity from Embryophytes to Gymnosperm and Angiosperm families. Supplemental course funds are used for field guides, an honorarium for a botanical illustrator, and field trips to local wetlands and forests.

**Biological Sciences 366, Biogeography. Paulette Peckol. Spring 2009.** Biogeography is the study of distributions of species (biodiversity) over time and place. In the Botanic Garden portion of the course, students explore the Lyman Plant House and outdoor collections to understand key factors in biogeography.

**Biological Sciences 371, Microbial Diversity (Lab). Judith Wopereis. Spring 2010, Spring 2012.** This

lab course exposes students to the beauty and diversity of microbial eukaryotes using a variety of techniques in the fields of microbiology and molecular biology. Emphasis is on completion of an independent project. Students learn techniques for collecting, culturing, identifying, analyzing, and photographing microbes. Samples are taken from the rich and diverse microbial life associated with different plants and environmental gradients in the Lyman Plant House. For example, students may collect microbial eukaryotes from environments associated with plants such as the “tanks” of pitcher plants, the moist stems of bromeliads, or the surfaces of roots or leaves. Supplemental course funds were used to mount a small exhibit in the Lyman Plant House of student-created photographs of organisms and accompanying texts describing species, morphology, trapping method and sampling location in the Lyman Plant House.

**Dance 209/309, Site-specific Dance Composition. Susan Waltner. Spring 2010.** In this course, sitespecific choreography is developed as a collaborative project between students and teacher. The course focuses on developing work for Capen Garden on the Smith campus. Students work as much as possible in the Garden, paying close attention to changes in the Garden as the spring advances. The course culminates in public performances. Course funds are used for supplies and for a student artist to make drawings of Capen Garden during the prior spring that become part of the choreographic resource.

**East Asian Languages and Literature 231, The Culture of the Lyric in Traditional China: Plants and Poetry. Sujane Wu. Fall 2009, Fall 2010, Fall 2011, Fall 2012.** The definition of lyric in the Chinese tradition is the natural, direct expression and reflection of one’s inner spirit as a result of a unique encounter with the external world. Through close, careful readings of folk songs, lyric poems, prose, and excerpts from a novel and a drama, students inquire into how the spiritual, philosophical and political concerns dominating the poets’ milieu shaped the lyric language through the ages. Students focus on the historical development of images and symbolism of the chrysanthemum, lotus and bamboo in Chinese literature. Students select poems to display with plants in the Chrysanthemum Show and present a public reading of these poems. Course funds help support a lecture by Prof. Xiaofen Tian on the lotus in Chinese literature. (See <http://www.smith.edu/garden/Newsletter/newsfall09.pdf> for further information.)

**Education and Child Study 231, Foundations and Issues of Early Childhood Education. Susan**

**Etheredge. Spring 2009, Spring 2010, Spring 2012, Spring 2013 (taught by Shannon AudleyPiotrowsky), Spring 2014.** In this course, students explore how young children think and learn. They also examine the teaching/learning relationship in the early childhood classroom. Using the Lyman Plant House as the site of a semester-long investigation of leaves and bulbs, students pursue an understanding of inquiry-based teaching and learning contexts for young children. Students engage kindergarteners of the Campus School in this collaborative inquiry through observing, collecting data,

sketching, photographing, generating metaphoric language and learning scientific language to describe the leaves, reading and writing poetry, keeping journals and notebooks, and contributing to a small exhibition at the Plant House on their inquiry and study. Gaby Immerman, lab instructor, provides a talk “Leaves 101”—basic information about the growth and functions of leaves. Course funds are used for books and supplies.

**Engineering 315, Ecohydrology. Andrew J. Guswa. Spring 2008, Fall 2009.** The Botanic Garden portion of this course serves as a laboratory/field component on the measurement and modeling of hydrologic processes and their interplay with ecosystems. Students learn about plant adaptations to water and light availability through a self-guided activity at the Plant House; a lecture by Botanic Garden Director Michael Marcotrigiano, and a tour and demonstration by Conservatory Manager Rob Nicholson on root structures. Students return to the Plant House a second time to observe plants from water-limited ecosystems and water-rich environment, and to visit the Stove House and frog pond to learn about wetland vegetation. Students also download and analyze data from a sap flux sensor (developed in a prior study by Katie Travis '08 and installed on an olive tree in the Plant House). The sensor is designed to investigate plant uptake of water based on the science of heat transfer to infer the velocity of water in the xylem. Supplemental course funds are used to purchase supplies related to the measurement of sap flux.

**English 270, The King James Bible and Its Literary Heritage. Patricia L. Skarda. Spring 2008, Spring 2012.** In this course, a unit on plants of the Bible centers on understanding the symbolic valence of trees, plants, and flowers found in Scripture. Through individual research and class tours of the Lyman Plant House, the Bulb Show, and outdoor gardens, students learn about uses of key plants in Biblical times for food, fragrance, and medicine, and how these uses contributed to symbolic meanings and religious traditions found in Scripture. Key species include fig, olive, pomegranate, etrog (citron), myrrh, frankincense, bulrushes, cypress, palm, cedar, and willow. To aid in understanding cultivation issues that contributed to the meaning of such plants in Scripture, students plant and tend examples of these species. The unit culminates in a research and writing assignment on selected plants of the Bible.

**English 299, Green Victoria. Cornelia Pearsall. Spring 2009.** Drawing on the resources of the Smith Botanic Garden and library collections, this course explores a variety of landscapes Victorians created or imagined, designed or desired. Topics includes the language of flowers, the transplantation of the seeds and fruits of Empire, and the fascination with processes of decomposition. Readings include theoretical writings of Charles Darwin and John Ruskin, as well as literary and visual representations of botanical longing or dislocation by such authors and artists as Lewis Carroll, Charles Dickens, Frances Hodgson Burnett, Christina Rossetti, Dante Gabriel Rossetti, Vanessa Bell, and Virginia Woolf. The class visits the President’s Garden, the Lyman Conservatory, and Smith’s composting operation at Fort Hill. Talks are given by botanist C. John Burk and Botanic Garden staff. Writing assignments are based on observation of people and plants in the Plant House, as well as on Victorian-era notebooks of Smith botany students and faculty, and floriographic texts in the Rare Book Room.

**First Year Seminar 122, Eden and Other Gardens. Nancy Bradbury. Fall 2014.** The intellectual framework for this course is cultural studies: students use methods of close analysis once reserved for canonical literature to “read” gardens, broadly defined, as well as representations of gardens in fiction, poetry, film, popular songs, and nonfiction. By engaging students academically with the Smith campus in their very first semester, this course provides an introduction not only to college but also to Smith in particular. Through a self-designed research project, each student “reads” a chosen campus or local garden. Students see and photograph their chosen garden, and research why it is there, who designed it and for whom, who frequents it and who cares for it, how its meaning has changed over time, and what connections they can make with the readings. Information sources may include College Archives, Botanic Garden publications, and interviews with present and former caretakers of campus and other gardens.

**First Year Seminar 158, Reading the Earth. Sharon Seelig. Fall 2008, Fall 2010, Fall 2012.** This course focuses on natural observation, practiced on the Smith campus and in the Connecticut River Valley. Students kept journals of their observations, wrote these up in a variety of forms, and discussed related written texts. Botanic Garden visits included guided walks along the Mill River and campus gardens; discussion of how people have approached questions of description and identification;

instruction and practice in use of a plant identification key; and a tour of the Plant House and its systems of classification and the different experiences in each area. Students also visited related collections at the Mortimer Rare Book Room and Smith College Museum of Art and Smith College Archives. Course funds provided an honorarium for naturalist Elizabeth Farnham to lead the Mill River walk. (See <http://www.smith.edu/garden/Academics/fys158-journal.pdf> for the Group Journal created by the class.)

**First Year Seminar 161, Nature's Scents. Lale Burk. Spring 2011, Fall 2011, Fall 2012.** This writing-intensive seminar deals with fragrant plants, focusing on their science (chemistry, botany, physiology of detection), their history, including past and present use across cultures, their economic significance, and their depiction in art and in literature. Students write a long research paper on a fragrant plant of their choice, based on regular observations of their plant during the course of the semester and visits to the Rare Book Room to become acquainted with herbals and their plant's early history. One session in the Plant House involves using microscopes to observe the structures within the plant associated with fragrance; students also have the opportunity to make a scented lip balm or oil. Students propagate scented geraniums from cuttings and monitor their growth, and observe and record life cycles of bulbs from the dormant or embryonic stage to flowering, the development of fragrance, eventual loss of fragrance and return to dormancy.

**History 299, Ecology in Africa. Sarah Hardin. Spring 2012.** This colloquium introduces students to the use of alternative methods—archaeology, historical linguistics, and ecology—in historical research and analysis. Using these methods, students consider both Western and African views of the African environment and gain historical, economic, and political contexts for better understanding environmental challenges in Africa today. In the Botanic Garden portion of the course, students examine African plants in the greenhouses such as rubber, rice, clove, tropical woods, cacao, banana, coffee, and cotton. Students observe and research the physical properties of these plants—their growth habits and cultivation needs, the physical issues inherent in processing them for human use—and consider how those properties may be related to the plant's economic, social and political history in Africa. Working in small groups, students report their findings to each other as a tour covering each of these plant.

**ITL 235 Intermediate Italian Conversation. Spring 2017.** Designed to support intermediate Italian students to help them improve their conversational skills, this course offers intensive practice in pronunciation, vocabulary, oral comprehension and conversation. GREENITALIAN offers a new twist on one of the courses regularly offered as part of the Italian Studies curriculum. This course allows students to become familiar with the geography of Italy and with environmental issues relevant to Italy in the 21st century. Classes meet in the classroom at the Botanic Garden enabling the class to use the plant collection, microscopes, and other Botanic Garden resources. Students acquire specific Italian vocabulary on botany and use new terms actively during class to describe plants, flowers, and landscape

**Landscape Studies 250, Landscape and Narrative. Reid Bertone-Johnson. Spring 2013.** This landscape design studio asks students to consider the landscape as a location of evolving cultural and ecological patterns, processes and histories. Using the landscape and vegetation at Smith's Ada & Archibald MacLeish Field Station, students work through a series of site-specific projects that engage with the narrative potential of landscape and critically consider the environment as socially and culturally constructed. In particular, the students use the trees to help "tell the story" of the land at the field station, using the Botanic Garden and the Arboretum as a model for their work. Students consult with Botanic Garden staff around topics of database development and management, tree and shrub care, interpretation and outreach, and the manufacture of tree labels. Students also use the labeled trees in the Botanic Garden's Arboretum to assist in learning to identify tree species found at the field station. Course funds are used for field trips such as to the Fischer Museum at the Harvard Forest in Petersham, MA, and the Arnold Arboretum in Boston.

**Spanish and Portuguese 221, Ecological Brazil: Key Environmental Issues. Marguerite Harrison. Spring 2011.** The course addresses current key environmental issues in Brazil and draws on a variety of texts, art, music and film. This course is taught in Portuguese, though some materials are presented in English. Botanic Garden staff give an introductory tour of plants native to Brazil or that have featured highly as Brazil's economic crops, and Rob Nicholson, Conservatory Manager, gives a lecture on plants of the Amazon rainforest and ecological issues. Prof. Harrison gives tours (in Portuguese) of the

Lyman Plant House, touching on the history of Brazilwood and other tropical woods, deforestation, sustainable forestry, and indigenous rights; and giving historical background to Brazil's economic crops (sugar, coffee, rubber, cacao). Supplemental course funds are used for outside speakers, including Cristina Cox Fernandes, Curator of Fishes at Massachusetts Natural History Collections in Amherst, on ecology and evolutionary diversity of neotropical freshwater fishes from the Amazon River basin; and Tracy Mann on women in Brazil and climate change. Course activities also include writing assignments on Botanic Garden visits, reading assignments (for example, by Amazon explorer and botanist Margaret Mee, and Brazilian poet Astrid Cabral), and individual interdisciplinary projects inspired by the visits to the Botanic Garden.

**Spanish and Portuguese 260, Survey of Latin American Literature I. Michelle Joffroy. Fall 2011,**

**Fall 2012.** This foundational course for the Spanish major as well as the major in Latin American and Latino/a Studies is framed from the critical perspectives of indigeneity, colonialism, neocolonialism and interculturalism through the shared theme of land and identity in Latin American cultural production from the pre-Columbian era to the early 20<sup>th</sup> century. One class meeting per week is dedicated to the study of plant/land relations in dialogue with the course texts. Botanic Garden activities include a tour of plants pertaining to the Americas, observation and sketching of plants and trees connected to the readings, a lecture and/or hands-on activity on plant hybridity, and a semester-long collaborative course project to produce a thematic survey map in Spanish and English on "Land, Plants and Cultural Identities in the Americas" as represented in the Lyman Plant House collections. This map or guide is available to the Botanic Garden at the conclusion of the course. The class also visits the Smith College Art Library and the Mortimer Rare Book Room for the study of Aztec and Mayan codices and herbals.

**Spanish and Portuguese 381, *Brasil Profundo: Landscape and the Environmental Imaginary in Brazilian Culture*. Malcolm McNee, Fall 2013.**

This seminar explores environmental history, diversity, and representation from the colonial period through the present, drawing upon a range of texts (poetry, visual art, essays, film, and digital multi-media) and disciplines (history, botanic and environmental sciences, social sciences, and cultural studies). Plants in particular become a central thread throughout the semester and are the focus of the students' collaborative research projects. Course components include a tour in English by Nancy Rich on plants native to Brazil or, if non-native, of cultural, historical or economic significance in Brazil; a follow-up tour on the same topic in Portuguese by Prof. McNee; a talk by Rob Nicholson, Conservatory Manager, on the botanical geography of Brazil, colonial plant exchange, and history of botanical expeditions to Brazil; and a talk by Nancy Rich on the mission of the Smith college Botanic Garden and "reading" a botanic garden as an expression of cultural values. Students plant varieties of coffee, soybeans and acai palm and interview staff (Dr. Ana Rosa de Oliveira) at the Research Institute of the Rio de Janeiro Botanic Gardens via Skype. Additional talks are given in Portuguese by Erotides Silva on her experience of coffee cultivation and subsistence food production on a small farm in the southern Brazilian state of Parana, and by Zoraia Barros of the University of Massachusetts School of Agriculture on the adaptation of Brazilian vegetable crops to New England growing conditions and the marketing of these crops to the Brazilian immigrant community in Massachusetts. Supplemental course funds provide honoraria for speakers. Course assignments include weekly journal entries, and collaborative bilingual labels for several Brazilian plants in the Botanic Garden's collection.