



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

<http://www.smith.edu/garden/Academics/curricularenhancement.html>

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

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

### **Program Goal**

The intent of the Curricular Enhancement Program is to show that botany has links to the liberal arts across all disciplines. The specific goal is to encourage teaching that helps students connect with the botanic garden environment and thereby explore the complex relationships between natural, constructed, and cultural worlds. Faculty in all disciplines are invited to apply for funds to incorporate the resources of the Smith College Botanic Garden in their teaching.

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. Several awards are made on a competitive basis each year.

### **Procedures for Applying**

Upcoming deadlines are **October 31, 2011**, and **April 2, 2012**, for courses to run in any of the three semesters following the application. Applicants must meet with the Curricular Enhancement Program Consultant (see below) 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. It is required 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 three scales: full semester (\$3000), half-semester (\$2000), or substantial component of 3-4 sessions (\$1000). Stipends are accompanied by supplemental course funds up to \$500 (full semester) or \$400 (half-semester or

substantial component). Supplemental course funds may be used for field trips, outside speakers, a stipend for a community partner, and the like.

***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 \$3000/\$500, half-semester \$2000/\$400, or substantial component \$1000/\$400)

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 Botanic Garden classrooms or 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.

Applications should be emailed to Nancy Rich, Curricular Enhancement Program Consultant, at [bgcourse@smith.edu](mailto:bgcourse@smith.edu) . For further information, please contact Nancy Rich at [bgcourse@smith.edu](mailto:bgcourse@smith.edu) or 585-2742.

## **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 three weeks prior to the start of the course. Stipends will be paid upon receipt of this plan.

Each grant recipient must submit a brief report within 30 days of the conclusion of the course, describing:

- the activities conducted under the grant,
- the contributions of these activities to the students' and the professor's learning, and
- suggestions or reflections on what went well and/or what might be improved or done differently.

## 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 different 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 [www.smith.edu/garden/Gardens/gardens/html](http://www.smith.edu/garden/Gardens/gardens/html). 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* – [www.smith.edu/garden](http://www.smith.edu/garden). 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.
- *Audio Tour* – available in the Lyman Plant House lobby; free with a Smith ID.
- *Plant Database and Plant Images Database* - [www.smith.edu/garden/collections/collections.html](http://www.smith.edu/garden/collections/collections.html).
- *Plant Locator Kiosk* – available in the Lyman Plant House lobby.
- *Plant Labels* – located on many of the trees, shrubs and plants outdoors and indoors
- *Guides to the Collection* - available from staff on such topics as economically valuable plants, plants of the ancient Roman world, medicinal plants, ferns, campus trees, Biblical plants, and more.

### *Facilities*

Space and schedule permitting, faculty may occasionally use Lyman Plant House classrooms, which seat 25 students each. Low magnification dissecting microscopes are available, as are facilities for potting and propagating plants. Visits to the greenhouses are best for a maximum of 10-12 students at a time (classes can be split into two groups if necessary). An exhibition corridor is available for class use for a small exhibition, schedule permitting.

### *Related campus resources*

Visits to other campus resources may be included in course plans; for example:

- *Sophia Smith Collection* – archives on women and their lives; includes women who were agriculturalists, landscape architects, and others. ([www.smith.edu/libraries/libs/ssc/](http://www.smith.edu/libraries/libs/ssc/)).
- *Smith College Archives* - documents on the history of the Botanic Garden, the Botany Department, and the campus landscape; for example, on the women who taught botany at Smith and Smith students who helped in local Victory Gardens during World War II ([www.smith.edu/libraries/libs/archives/](http://www.smith.edu/libraries/libs/archives/)).
- *Smith College Museum of Art* - includes paintings, drawings and prints related to plants and landscapes ([www.smith.edu/artmuseum](http://www.smith.edu/artmuseum)).
- *Mortimer Rare Book Room* – includes an outstanding collection of early herbals and other rare and important botanical books from Renaissance through contemporary periods ([www.smith.edu/libraries/libs/rarebook/](http://www.smith.edu/libraries/libs/rarebook/)).

### ***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
- Growing plants in planter boxes (requires advance notice to acquire seeds and seedlings)
- Collecting data on trees and plants in the conservatory
- Looking at plants under a microscope
- Conducting experiments on plants
- 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
- Presenting a small exhibition in the exhibition corridor (requires advance notice)

### ***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 Nancy Rich, Curricular Enhancement Consultant, at [bgcourse@smith.edu](mailto:bgcourse@smith.edu) or leave a message at (413) 585-2

# Botanic Garden of Smith College Curricular Enhancement Program Support

## Course Descriptions

**Art History 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 introduced students to key plants of ancient Mediterranean culture found in the Lyman Plant House. Students then planted and maintained Pompeian gardens in planter boxes and learned about the culinary, medicinal, and ornamental uses of these plants. These gardens became 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 contributed to planting and exhibition expenses. (See <http://www.smith.edu/garden/Newsletter/newsfall07.pdf> for further information.)

**Studio 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 made sketches and drawings in the Conservatory, which became the basis for their lithographs and monotypes. They studied mum flower anatomy, dissecting flowers under the microscope, and learned how to make hybrid crosses. They also researched 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.

**Studio 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.** 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 explored the Lyman Plant House and outdoor collections to understand key factors in biogeography.

**Biological Sciences 371, Microbial Diversity (Lab). Judith Wopereis. Spring 2010.** 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 are 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, site-specific 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.** 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.** 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 pursued an understanding of inquiry-based teaching and learning contexts for young children. Students engaged 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. Botanic Garden staff provided an introductory tour. Course funds were 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 learned 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 returned 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 downloaded and analyzed 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 were 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.** A unit on plants of the Bible centered 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 learned 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 included 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 planted and tended examples of these species. The unit culminated 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 included the language of flowers, the transplantation of the seeds and fruits of Empire, and the fascination with processes of decomposition. Readings included 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 visited the President's Garden, the Lyman Conservatory, and Smith's composting operation at Fort Hill. Talks were given by botanist C. John Burk and Botanic Garden staff. Writing assignments were 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 158, Reading the Earth. Sharon Seelig. Fall 2008, Fall 2010.** 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.** This writing-intensive seminar will deal 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 will 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 will involve using microscopes to observe the structures within the plant associated with fragrance; students will also have the opportunity to make a scented lip balm or oil. Students will 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.

**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 will be taught in Portuguese, though some materials will be presented in English. Botanic Garden staff will give an introductory tour of plants native to Brazil or that have featured highly as Brazil's economic crops; Rob Nicholson, Conservatory Manager, will give a lecture on plants of the Amazon rainforest and ecological issues. Prof. Harrison will give tours of the Lyman Plant House (in Portuguese) on the history of Brazilwood and other tropical woods, deforestation, sustainable forestry, and indigenous rights; and historical background to Brazil's economic crops (sugar, coffee, rubber, cacao). Supplemental course funds will be 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 will 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.**

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 will be available to the public at the conclusion of the course. The class will also visit the Smith College Art Library and the Mortimer Rare Book Room for the study of Aztec and Mayan codices and herbals.