

## Syllabus: Botany, Bio 34500, Spring 2008

**Course:** BIO 34500

**Course title:** Botany (Lecture/Laboratory/Field trips)

**Designation:** Elective

**Lecture:** Thursday, 10:00–11:40 p.m., Room J-820

**Laboratory:** Thursday, 2:00–6:00 p.m., Room J-820 (this course will also include field trips)

**Hours/Credits:** 6 hours per week, 4 credits; 2 hours lecture, 4 hours lab or field

### Catalog Description:

Survey of the structure, physiology, diversity, and ecology of photosynthetic plants and fungi

**Prerequisites:** Bio 10200 (Biological Foundations II), Chemistry 10301 (General Chemistry I)

**Instructor:** Dr. Amy Berkov, Assistant Professor, CCNY

Office: J-815 Marshak Science Building; Telephone: 212-650-8570

Office hours: Monday, 3:00–6:00 p.m. (J-811 or J-815)

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After completing this course, students should be able to:

### Dept. outcome letters

- |  |                        |
|--|------------------------|
| 1. Recognize and describe plant structures   | D1                     |
| 2. Understand the differences between major groups of plants                               | D1                     |
| 3. Understand how anatomical adaptations enable plants to thrive in different environments | E1                     |
| 4. Interpret plant interactions with abiotic components of the environment                 | A4, C4                 |
| 5. Recognize factors that influence plant reproductive success                             | A4, C4                 |
| 6. Describe patterns of abundance and species richness                                     | A4                     |
| 7. Describe modes of plant speciation  | A4                     |
| 8. Describe plant interactions with biotic components of the environment                   | A4, C4, D3             |
| 9. Understand how plant distributions change over time                                     | A4                     |
| 10. Recognize dominant plants in the native NYC flora                                      | A4                     |
| 11. Prepare an oral presentation on a medicinal plant                                      | C1, D4, E1             |
| 12. Plan and execute a research project, including data analysis                           | A1, A4, C1, C2, C3, C4 |
| 13. Present research results in the format of a scientific paper                           | A4, A7, D1, D2, D3, E1 |

**Textbook, optional:** Gurevitch J, Scheiner SM, and Fox GA. 2006. *The Ecology of Plants*, 2nd edition. Sinauer Associates, Sunderland, MA. This text is also available in the library.

**Field:** The following field guide is recommended for field trips: Edward Sibley Barnard. 2002. *New York City Trees: A Field Guide for the Metropolitan Area*. Columbia University Press, New York, NY.

**Handouts:** Handouts for lab exercises and class discussions will be provided or available to download via Blackboard.

**Support Facilities:** The Departmental Resource Center is in Room J-502.

**Assessment tools and grading:**

Exams (Midterm and Final Exam)

Quizzes (5-7, with the lowest score dropped, administered promptly at the beginning of lecture)

Presentations: (1 five minute presentation on a medicinal plant)

Lab Practicals (2)

Research Project Report (1)

Class participation

Grades will be assigned based on the lecture (60 %) and laboratory (40 %). Make-up exams will be allowed only for *documented excused* absences (e.g., death in the family, extreme sickness). Make-up quizzes will *not be given* if you are late to class. The final grade will be calculated:

Lecture, based on:	
2 Exams (Midterm, Final)	40 %
5-7 Quizzes (lowest score dropped)	15 %
Presentation: Medicinal Plants	5 %
Laboratory, based on:	
2 Lab Practicals	20 %
Research Project Report	10 %
Class Participation	10 %

*Lecture:* There will be a midterm and a final exam. Each exam will cover material presented in lecture and handouts. Lecture Powerpoint presentations will be available to download via Blackboard. Lecture will usually begin with a quiz (the lowest score will be dropped). Each student will also give a 5 minute oral presentation on a medicinal plant.

*Laboratory:* There will be two lab practical exams. These will assess students' abilities to write and use dichotomous keys, recognize the plant characteristics used to identify plants, and identify dominant plants native to the NYC region. Students will also work in groups to design and complete an independent research project. These projects may be either lab or field based, and will include a literature search, data collection, and data analysis. ***Each student in the group will write an independent report of the project.***

*Grammar, spelling, and composition:* Because scientists express themselves in written prose, students must use proper spelling, grammar (including punctuation), and composition. Illegible answers will be given no credit. Unintelligible sentences will be given no credit. Minor spelling and grammatical errors will result in reduced credit. Paragraphs must be composed of organized, coherent. The Research Report must be typed.

**Attendance Policy:** Attendance is required. If you miss more than two lectures, laboratory periods, or field trips, you will be dropped from the course for excessive absences (WU). Lectures and laboratories begin promptly, and you must be on time. Please finish the assigned readings before class.

**Schedule of Lectures, Labs, and Field Trips:**

<b>Date</b> Q = Quiz	<b>Topic</b> <b>Readings</b>	<b>Lab or *Field Trip</b>
Thurs 7 Feb	Introduction to Plant Biology Chapter 1, Handouts	Plant Morphology; Dichotomous Keys
Thurs 14 Feb: Q	Plant Classification and Phylogeny Handouts	*NYBG Conservatory
Thurs 21 Feb: Q	Specialized Plant Cells and Tissues Chapters 2 & 3	Plant Cells; Anatomical Adaptations
Thurs 28 Feb: Q	Plant Nutrition, Soils, Interactions with Microbes Chapter 4	Soil Nutrient Tests; Seeds and Mycorrhizae
Thurs 6 Mar: Q	Plant Reproduction, Pollination and Seed Dispersers Chapter 7	Plant Pigment Lab Literature Search
Thurs 13 Mar	Population Growth and Decline Chapter 5	<b>Lab practical</b>
Thurs 20 Mar:	Evolutionary Processes, Life Histories Chapters 6 & 8	<b>Midterm</b> <b>Research Ideas DUE</b>
Thurs 27 Mar: Q	Communities and Competition Chapters 9 & 10	*Central Park <b>Research Protocol</b> <b>DUE</b>
Thurs 3 Apr	Predators and Pathogens Chapter 11	Antimicrobial Bioassays <b>Medicinal Plant</b> <b>Presentations</b>
Thurs 10 Apr: Q	Succession; Diversity and Local Abundance Chapters 12 & 13	*BBG Native Plants
<b>Sat 12 Apr</b>		<b>* Bronx River Gorge</b>
Thurs 17 Apr: Q	Communities in Landscapes, Landscape Ecology Chapters 15 & 16	*Van Cortlandt Park
<b>Thurs 24 Apr</b>	<b>Spring Recess</b>	
Thurs 1 May:	Regional and Global Diversity Chapter 19	*Palisades Park <b>Research Report DUE</b>
Thurs 8 May:	Paleoecology, Global Change, Plant Conservation Chapters 20 & 21	<b>Lab Practical</b>
Finals week (16–24 May)	<b>FINAL EXAM</b> , <i>date to be announced</i>	

*This schedule is subject to change at the instructor's discretion.*

**Topics covered:**

1. Morphology of Terrestrial Plants
2. Plant Diversity and Phylogeny
3. Specialized Cells and Tissues
4. Plant Nutrition
5. Reproduction, Pollination, Seed Dispersal
6. Population Growth and Decline
7. Evolutionary Processes

8. Communities and Landscape Ecology
9. Interactions with Competitors, Pathogens, and Predators
10. Regional and Global Diversity
11. Global Change and Plant Conservation

**Relationship of course to program outcomes:** The outcomes of this course contribute to the following departmental educational outcomes:

	<b>Course Objective Numbers</b>
A1. Use spreadsheets for data analysis	12
A4. Use maps or data arrays to reveal patterns	4–10; 12–13
A7. Detect faulty reasoning and suggest changes in protocol	13
C1. Use web-based search engines for literature search	11–12
C2. Formulate research question and testable hypothesis	12
C3. Design an experiment to test a hypothesis	12
C4. Compete experiment using lab equipment used in research	4, 5, 8, 12
D1. Use appropriate vocabulary to write coherent paragraph describing scientific process	1, 2, 13
D2. Write a lab report in the format of a scientific paper	13
D3. Display data in best format	8, 13
D4. Make oral presentation of a scientific topic	11

### **Academic Integrity**

The CUNY Policy on plagiarism says the following about plagiarism (the CUNY Policy can be found in Appendix B.3 of the CCNY Undergraduate Bulletin 2007 -2009):

“Plagiarism is the act of presenting another person’s ideas, research or writings as your own. The following are some examples of plagiarism, but by no means is it an exhaustive list:

1. Copying another person’s actual words without the use of quotation marks and footnotes attributing the words to their source.
2. Presenting another person’s ideas or theories in your own words without acknowledging the source.
3. Using information that is not common knowledge without acknowledging the source.
4. Failing to acknowledge collaborators on homework and laboratory assignments.
5. Internet plagiarism includes submitting downloaded term papers or parts of term papers, paraphrasing or copying information from the internet without citing the source, and “cutting and pasting” from various sources without proper attribution.

The City College Faculty Senate has approved a procedure for addressing violations of academic integrity, which can also be found in Appendix B.3 of the CCNY Undergraduate Bulletin.”

Be aware that if we suspect plagiarism **we will follow this procedure, no exceptions made**; i.e. we will report you to the Academic Integrity Official. Disciplinary sanctions range from failing the class to expulsion from the college

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