

BIO 121 Plants and Society (Laboratory) (SW)

1 credit, 2 hours

Pre-requisites: BIO 110, BIO 111

Pre/Co-requisite if taught in English, ENG 91 or ESL 91.

Offered in English and in Spanish. If taught in Spanish, SPA 222.

May be offered as a paired course with BIO 120.

HOSTOS COMMUNITY COLLEGE

City University of New York

MEETS:	
Email:	
Office:	
Phone:	
Contact Policy:	

Course description:

This course will provide students with knowledge of parts of the flower, to recognize the different types of fruits and how these are related to seed dispersal, and use microscopy to examine plant cells and tissues. Students examine economically important food plants such as the different varieties of legumes, grains, and starchy staples. Field trips to city parks are used to introduce students to plants in the urban environment. Students learn to recognize herbs and spices, prepare plant extracts and test them for antimicrobial activity, and practice making paper from plant fibers.

Course Objectives:

Students will:

1. Learn the morphological and anatomical structure of flowering plants

2. Understand the importance of plants for humanity

Learning Outcomes:

By the end of the semester students will be able to:

- Describe the structure and function of flowering plants.
- Explain the taxonomic breadth of the most common crop plants.
- Name the centers of origin of all of our major crop plants.
- Analyze how plants have influenced human civilizations and how these are used by different cultures.
- Explain the economic use of plants by humans for food, beverage, medicine, and industry.
- Explain the interactions of plants with other organisms and the physical and chemical components of the environment.

Required textbooks

LECTURE: Plants and Society. E. Levetin and K. McMahon, 6th Edition. McGraw-Hill. 2011. ISBN 978-0-07-352422-1

LABORATORY MANUAL: Plants and Society. F. Henderson (available for printing in Blackboard)

CUNY Grades:

The City University of New York awards letter grades to denote the level of achievement for each course. The grading system is as follows:

Grade		GPA VALUE
A	93 – 100%	4.0
A-	90 – 92%	3.7
B+	87 – 89%	3.3
B	83 – 86%	3.0
B-	80 – 82%	2.7
C+	77 – 79%	2.3
C	70 - 76%	2.0
D	60 - 69%	1.0
F	below 60%	0.0

Incomplete (**INC**) grade is given in regular courses upon request of the student for personal emergencies that are verifiable. **INC grades are given only to those students who are passing the course.** The student has the responsibility to take the initiative in completing the work, and is expected to make up the incomplete during the first semester in residence after receiving the grade of Incomplete. If the student does not make up the incomplete during the following semester after receiving it, an F grade may be given by the faculty member without further consultation with the student and will be computed in the student's GPA.

Academic integrity:

Hostos Community College believes that developing student's abilities to think through issues and problems by themselves is central to the educational process. Since the Hostos College degree signifies that the student knows the material s/he has studied and the practice of academic dishonesty results in grades or scores that do not reflect how much or how well the student has learned, understood, or mastered the material, the College will investigate any form of academic dishonesty brought to its attention. If the charge of academic dishonesty is proved, the College will impose sanctions. The three most common forms of academic dishonesty are cheating, plagiarism, and bribery.

College attendance policy:

Students are expected to attend all class meeting in the courses for which they are registered. Classes begin at the times indicated in the official schedule of classes. Arrival in class after the scheduled starting time constitutes lateness.

The maximum number of absences is limited to 15% of the number of scheduled class hours per semester and a student absent more than the indicated 15% is deemed excessively absent. Attendance is monitored from the first official day of classes. In the case of excessive absences or lateness, the instructor has the right to lower the grade, assign a failing grade, or assign additional written work or readings.

Absences due to late registration change of program, or extenuating circumstances will be considered on an individual basis by the instructor. Each department and program may specify in writing a different attendance policy. Instructors are required to keep an official record of student attendance and inform each class of the College's or department attendance policy.

Course specific warnings:

No student under any circumstances will be given a passing grade in this Biology course without taking and passing the laboratory.

- Attendance is required at Laboratory Sessions. Excessive absences will affect your overall performance.
- Lectures and labs consist of learning exercises that you cannot make up or gain elsewhere. Communicate to your instructor the reasons for your absence and ask for ways of completing material missed during your absence.
- Tardiness will affect your grade. If the student has been late three (3) times, this will be considered equivalent to one (1) absence.
- **Four (4) unexcused absences to lab are equivalent to an F.**
- Unexcused absences from tests will result in scores of zero for those tests.
- Any violations of the above code, including plagiarism, will be dealt accordingly.
- If you are having difficulty understanding the material, do not hesitate to ask questions or request help. Your instructor can provide personal assistance and/or refer you to tutors at the Learning Center (HALC).
- Readings must be completed for each class. Not all assigned texts will be discussed in class or covered in the class lectures.

Students with disabilities:

The Americans with Disabilities Act prohibits discrimination based on disability and requires the College to be physically and programmatically accessible. Beyond the basic requirements of the ADA, Section 504 of the Rehabilitation Act and New York State and New York City statutes, the College has created an office that provides services intended to help each student with a disability maximize his or her potential for success. Based on an intake interview and documentation provided by a student, a variety of accommodations may be provided to assist qualified students to attain their academic objectives. Intake and counseling are provided in English and Spanish.

Savoy Building, Room D-101

Telephone: (718) 518-4351 e-mail: infocounseling@hostos.cuny.edu

Hours: Mondays, Tuesdays and Fridays, 9:00 a.m. to 5 p.m.

Wednesdays and Thursdays, 9:00 a.m. to 7 p.m.

Saturdays, by appointment only.

*Students under this program are required to alert their instructor and present the form stating exam accommodations on the first week of class.

Tutoring Resources:

Students having difficulty with course content or just need a refresher are encouraged to take advantage of Tutorial services in any academic subject. These tutorials are available at the HALC. The Learning Center houses three computer labs equipped with interactive software. Hostos Academic Learning Center: <http://www.hostos.cuny.edu/asc/>

Class schedule:

Readings must be completed before each class. Not all assigned texts will be discussed in class or covered in the class lectures.

LABORATORY SCHEDULE

Each laboratory report will be completed during lab period. Complete reports will be stamped. **Each student is responsibly of printing the manual at the beginning of the semester and bringing it to each lab session.** Points will be granted for completion and quality. Failure to turn in a report will result in a grade of 0 (zero).

Week	Lab #	Topic	Handout pages
Week 1	Lab 1	The Plant Cell	4-10
Week 2	Lab 2	Plant Architecture – Plant tissues	11-17
Week 3	Lab 3	Flowers, structure and function	18--21
Week 4	Lab 4	Plant reproduction and propagation	23-26
Week 5	Lab 5	Fruits, structure and classification	27-30
Week 6	Lab 6	Food Plants: Grasses and Cereals	31-37
Week 7	Lab 7	Food Plants: Legumes	38-43
Week 8	Lab 8	Food Plants: Starchy Staples	44-50
Week 9	Lab 9	Nutrients of Plant Origin	51-52
Week 10	Lab 10	Herbs and spices	53-56
Week 11	Lab 11	Fibers and wood products Paper making	56-60
Week 12	Lab 12	Medicinal plants	61-64
Week 13	Lab 13	Fungi and Alcoholic beverages	65-68
Week 14	Lab 14	Fieldtrip date TBA	Appendix
Week 15	Final Exam Week		

COURSE CONTENT

Laboratory 1 The Plant Cell

Plant Cell structure

Exercise # 1 Components of the Plant Cell

Exercise # 2 Crystals within the cells

Exercise # 3 Plant Dyes – sites of storage

Laboratory 2 Plant Architecture – Plant tissues

Exercise # 1 Root function and structure

Exercise # 2 Stem anatomy

Exercise # 3 Leaf form and function

Laboratory 3 Flowers – Structure and Function

Flower morphological diversity

Exercise # 1 Parts of the flower

Exercise # 2 Classification of flowers

Laboratory 4 Fruits – Structure and Function

Parts of the fruit

Exercise # 1 Fruit dissection

Exercise # 2 Diversity of fruits

Laboratory 5 Plant Reproduction and Propagation

Exercise # 1 Seed Propagation

Exercise # 2 Seedling Propagation

Exercise # 3 Cutting Propagation

Laboratory 6 Food Plants: Grasses and Cereals

Typical grass plant

The Grain

Exercise # 1 Typical grass plant and flower

Exercise # 2 Botany of baking

Laboratory 7 Food Plants: Legumes

Legume morphology

Nitrogen Cycle

Exercise # 1 Typical Legume flower and fruit

Exercise # 2 Edible legumes

Exercise # 3 Legumes as a source of protein

Laboratory 8 Food Plants: Vegetables and Starches

Exercise # 1 Storage Organs

Exercise # 2 Starch Grains

Laboratory 9 Nutrients of plant origin

Proteins

Carbohydrates

Lipids

Exercise # 1 Test for organic molecules

Laboratory 10 Herbs and Spices

Exercise # 1 Herbs and Spices

Exercise # 2 Aromatic Plant Identification

Laboratory 11 Fibers and Wood Products

Exercise # 1 Economic Fibers

Exercise # 2 Paper Making

Laboratory 12 Medicinal and Psychoactive Plants

Exercise # 1 Plant Extracts

Exercise # 2 Testing your extract: Does Your Plant Have Anti-Bacterial

Laboratory 13 Fungi – Alcoholic beverages

Fungi Diversity

Division Zygomycota

Division Ascomycota

Division Basidiomycota

Alcoholic beverages

Fermentation

Distillation

Exercise # 1 Fungus classification

Laboratory 14 Plants and People: Fieldtrips (varies every semester)

New York Botanical Garden

Farmers' Market