

PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

FUNDAMENTALS OF BOTANY I
BOT 1010

Class Hours: 3.0

Credit Hours: 4.0

Laboratory Hours: 1.0

**Date Revised: Spring
03**

Catalog Course Description:

Introduction to taxonomy through tree identification; basic organization and function of cells; respiration; photosynthesis; genetics (including meiosis, mitosis, Mendelian inheritance); survey of plant kingdom (bacteria, algae, fungi, mosses, ferns, conifers, and flowering plants).

Entry Level Standards:

Completion of all DSP course work.

Prerequisites:

None

Textbook(s) and Other Course Materials:

Text: *Botany*, Randy Moore et al., Second Edition, 1998

Lab: *Botany 1010 Lab Book* by Cook and McFarland

I. Week/Unit/Topic Basis:

Week	Topic
1	Introduction to Botany and Scientific Method; Atoms and Molecules
2	Cell Structure & Function; Cell Structure & Function/Membranes; Membranes & Transport
3	Membranes & Transport; Exam 1
4	Energy and Its Use by Plants; Respiration
5	Photosynthesis
6	Exam 2; The Cell Cycle & DNA Replication; Gene & Protein Synthesis
7	Meiosis & Chromosomes; Patterns of Inheritance
8	Patterns of Inheritance; Molecular Genetics
9	Exam 3; Systems of Classification; Bacteria & Viruses
10	Bacteria & Viruses; Fungi

- 11 Lichens; Algae
- 12 Exam 4; Bryophytes; Bryophytes & Seedless Vascular Plants
- 13 Seedless Vascular Plants
- 14 Gymnosperms; Reproductive Morphology
- 15 Reproductive Morphology; Angiosperms; Exam 5
- 16 Final Exam Period

II. Course Objectives*:

- A. Understand the reproductive morphology and life cycles of plants. I.5
- B. Understand the basic of plant growth and the differentiation of cells and tissues during the growth process. I.5
- C. Understand the differences between primary and secondary growth in plant tissue. I.5
- D. Understand the different physiological processes involved in plant functions including reproduction, photosynthesis and respiration). I.5
- E. Understand the importance of the different Divisions within the plant kingdom, understanding their differences and interrelationships. III.2, IV.3
- F. Demonstrate critical thinking skills. III.2
- G. Develop and demonstrate skills related to observing, measuring, classifying, communicating and inferring. I.2, I.5, III.1
- H. Interpret related biological information and determine its validity. III.2, VI.1

*Roman numerals after course objectives reference goals of the university parallel program.

III. Instructional Processes*:

Students will:

1. Read and evaluate scientific writings, including those from the text, biological journals, books and the Internet. *Communication Outcome, Technological Literacy Outcome, Information Literacy Outcome*
2. Listen to and discuss botanical information presented by the instructor, educational videos, guest speakers and peers. *Communication Outcome*
3. Work in teams in a laboratory or in the field setting to collect data, generate graphs and tables and summarize the data and draw conclusions using process skills such as: observing, measuring, classifying, communicating and inferring. *Problem Solving and Decision Making Outcome, Active Learning Strategy*
4. Write a formal laboratory paper based on one of the laboratory exercises completed. The paper will include introduction, materials and methods, results, conclusion and reference sections. *Communication Outcome, Information Literacy Outcome*
5. Research and write essays involving botany. *Communication Outcome, Information*

Literacy Outcome

6. Develop a vocabulary that allows them to communicate more effectively. *Communication Outcome, Personal Development Outcome, Transitional Strategies*
7. Locate and evaluate related scientific information in the library and on the Internet. *Technological Literacy Outcome, Information Literacy Outcome*

*Strategies and outcomes listed after instructional processes reference Pellissippi State's goals for strengthening general education knowledge and skills, connecting coursework to experiences beyond the classroom, and encouraging students to take active and responsible roles in the educational process.

IV. Expectations for Student Performance*:

Upon successful completion of this course, the student should be able to:

1. Classify organisms into one of the different Divisions of plants based on characteristics such as reproduction, vascular structure, and seed type. A, F, G
2. Distinguish between Divisions based on morphological and physiological differences in plants. A
3. Compare and contrast photosynthesis and cellular respiration. E
4. Explain the basic concepts of plant reproduction and the role of reproduction in the plants lifecycle in various environments. C, F
5. Work standard Mendelian genetics problems, as well as problems with multiple alleles and sex-linked traits and illustrating inheritance. B, F
6. Use dichotomous keys to identify unknown plants and report data using graphs. G, F, H
7. Locate botany related material in the library and on the Internet. Evaluate biological information read about or seen on TV. H, F
8. Interpret and draw conclusions from data presented in graphic form. G, F

*Letters after performance expectations reference the course objectives listed above.

V. Evaluation:

A. Testing Procedures:

Each lecture unit will be evaluated using one or more tests totaling 100 points. Exams will be a mix of discussion questions and objective questions. There will be no makeup lecture tests. There will be a comprehensive final for the course worth 100 points. The comprehensive final may be used to take the place of one missed exam if there is evidence of a valid and reasonable excuse. The comprehensive final score may also be used to replace the lowest unit exam score if all exams were attempted.

B. Laboratory Expectations:

1. Students are expected to go to the appropriate laboratory for which they are enrolled and complete the assignments in a timely manner. Laboratory work will not be accepted late.
2. Students are expected to dress appropriately for the laboratory to minimize the possibility of the spread of contamination and risk to personal safety. No open-toed shoes are allowed, and garments that cover the legs are recommended. Students are required to report to their

laboratory instructor any concern for personal safety or injury sustained during various exercises.

3. Students are encouraged to work cooperatively together to complete the exercises in a timely fashion but not to plagiarize notebook work nor to communicate during the practical.
4. After each lab exercise, students are required to complete any post-lab assignments handed out by the instructor. These post-lab questions will be collected and graded on randomly selected dates. Each graded set of post lab questions will be worth 10 points. Post-lab questions will not be accepted late.
5. Students are required to read the scheduled lab exercise before coming to class. To encourage preparation, 5 pre-lab quizzes will be given on randomly selected dates. Each pre-lab quiz is worth 5 points. Students must be present in order to take the pre-lab quiz. There are no make-ups.
6. Students will be required to make a specimen collection of various plant species. The student will have to collect, dry, press, mount, and properly ID and label 25 different plants. The collection will be due on the week of November 1.
7. Drink, food or any form of tobacco is not allowed in the classroom or laboratory.

C. Field Work:

Students may be required to read supplemental articles or papers on reserve in the library.

D. Other Evaluation Methods:

Other evaluation methods may be arranged at the discretion of the lead instructor and the lecture instructor.

E. Grading Scale:

Point Distribution:

Unit 1	100 pts.
Unit 2	100 pts.
Unit 3	100 pts.
Unit 4	100 pts.
Unit 5	100 pts.
Comprehensive Exam	100 pts.
Laboratory	215 pts.
Special Topic	<u>+ 50 pts.</u>
	860 pts.

Letter grades will be distributed as follows:

A	90% and above	675 or more points
B+	87-89%	652-674 points
B	80-86%	600-651 points
C+	77-79%	577-599 points
C	70-76%	525-576 points
D	60-69%	450-524 points
F	59% and below	449 or fewer

VI. Policies:

A. Attendance Policy:

Pellissippi State Technical Community College expects students to attend all scheduled instructional activities. As a minimum students in all courses must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of

Academic and Student Affairs, may have requirements that are more stringent. Consistent tardiness and excessive absences may lower the final grade.

B. Academic Dishonesty:

With any form or valid proof of dishonesty with regard to student work or testing, the instructor may elect from a range of actions. Academic dishonesty could lead to failure for the entire course on consultation with the lead instructor, department head, and dean. Additionally, dismissal from the institution is an option and may be sought.

C. Other Policies:

Classroom disruptions during the lecture, any form of communication during testing, or any other behavior that may prove distracting to others will not be tolerated and may lower the final grade. Students are expected to work on Botany related materials and participate in meaningful discussions. Visitors are not allowed in the classroom.