2017-2018/ Spring
BIO 131L.020-022
Principles of Botany Laboratory

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Office: S105
Office Hours: Mon. 9:00-10:00; Tue. 9:00-10:00, 1:00-2:00; Wed. 10:00-11:00; Thu. 9:00-10:00, 3:00-4:00; Fri. 10:30-11:30; or by appointment

Class meeting time and place: 020 M 10:00-11:50 am, S103
021 M 1:00-2:50 pm, S103
022 M 3:00-4:50 pm, S103

Course Description:
Laboratory study of the fundamental principles of plant life. Topics include the study of plant form, function, reproduction, and an overview of plant diversity including seed plants, ferns, mosses and lower forms.

Number of Credit Hours: 1

Prerequisite: Completion of all required remediation         Co-requisite: BIO 131

Program Learning Outcomes:
PLO 1: The student will demonstrate a good knowledge base in biological concepts.
PLO 4: The student will be able to design, carry out, and analyze experiments to answer biological questions using the scientific method.
PLO 5: The student will demonstrate preparation for future career and educational goals.

Texas Core Curriculum Objectives:
Texas Core Curriculum Objectives (CCO) addressed by this course are:
  1. Students will demonstrate mastery of “critical thinking to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information”.
  2. Students will demonstrate mastery of “communication to include effective development, interpretation and expression of ideas through written, oral and visual communication”.
  3. Students will demonstrate mastery of “empirical and quantitative skills to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.”
  4. Students will demonstrate mastery of “teamwork to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.”
Student Learning Outcomes:
Students will be evaluated by assignments and weekly quizzes. The final lab grade is computed into the course as 1/3 of the course grade. Students who complete this course will be able to:

1. Demonstrate skill in basic microscopy, production of temporary specimen mounts and observation of biological specimens. (CCO 1, 3; PLO 1, 5)
2. Identify plant cell organelles and recognize different cell types and tissues in the three vegetative organs of the plant including recognition of ecotypes by the adaptive histology of the leaf. (CCO 1, 2, 3, 4; PLO 1, 5)
3. Formulate a research question, develop an alternate and null hypothesis, set up an experiment investigating wood density among three species, perform calculations, including an ANOVA, and interpret the data. Additionally, students will explore anatomical characters to explain these results. (CCO 1, 2, 3, 4; PLO 1, 4, 5)
4. Develop an alternate and null hypothesis and set up an experiment investigating the two major photosynthetic pathways, do basic calculations and interpret the results. Additionally, students will be able to describe C₃, C₄ and CAM photosynthesis. (CCO 1, 2, 3, 4; PLO 1, 4, 5)
5. Recognize the structures and reproductive cells of each generation of the plant life cycle. Additionally, students will describe modifications of reproduction among different plant taxa. (CCO 1, 2, 3, 4; PLO 1, 5)
6. Recognize organisms from each of the major taxa of land plants. (CCO 1, 2, 3, 4; PLO 1, 5)
7. Recognize and describe the specialized cells and structures necessary for the major taxa of land plants to complete their life cycles. (CCO 1, 2, 3, 4; PLO 1, 5)

Course Content:
- The microscope
  - 1 laboratory period
- The plant cell
  - 1 laboratory period
- Cells and tissues of the plant body
  - 1 laboratory period
- Roots
  - Basic morphology
  - Anatomy of herbaceous and woody roots
  - Function
  - 1 laboratory period
- Stems
  - Basic morphology
  - Anatomy of herbaceous and woody stems
  - Function
  - 1 laboratory period
- Wood anatomy
  - 1 laboratory period
- Leaves
  - Basic morphology
  - Anatomy
  - Function
  - 1 laboratory period
- Photosynthesis
  - 1 laboratory period
• Light reactions
• Carbon fixation
  ▪ Plant reproduction               1 laboratory period
  ▪ The life history of bryophytes   1 laboratory period
  ▪ The life history of ferns and fern allies 1 laboratory period
  ▪ The life history of gymnosperms  1 laboratory period
  ▪ The life history of angiosperms  1 laboratory period

Text and Materials:

D2L printouts.

You should bring your lecture text to lab with you. It will be of help.

Course Requirements:
To complete Principles of Botany you must be enrolled in BIO 131 & BIO 131L in the same semester. Your laboratory grade is determined by in-class assignments and weekly quizzes.
Your lecture instructor will calculate your course grade using your lab average as follows:

\[
\text{lab avg.} = \frac{1}{3} \\
\text{lecture avg.} = \frac{2}{3}
\]

Attendance Policy:
A. All students are required to attend the scheduled lab.
B. Those students who have excused absences will be given make-up work.
C. Excused absences will be allowed for these reasons (university policy A-10):
   1. School trips and/or functions - arrangements with the lab coordinator for make-ups must be made prior to the absence.
   2. Death in the immediate family - a notice from the Office of Student Rights and Responsibilities may be sent to the lab coordinator.
   3. Too ill to attend class - a note from the physician must be brought to the lab coordinator. (If you go to the school infirmary, be sure to pick up a form at the desk before you see a doctor or nurse, and have them initial the form when you see them.)
D. Only the lab coordinator may excuse a student's absence from lab.
E. Arrangements to complete make-up work must be made prior to the date of the next scheduled lab.
F. Make-ups will be in the form of a 100-point quiz. No make-up quizzes are permitted after 3 absences, whether they are excused or unexcused. Additionally, ten points will be deducted from a student’s lab grade for every four absences.
G. Students are responsible for all work missed. Notes, data, etc for missed labs may be obtained from the lab instructors or fellow students.

NOTE: Departmental policy prohibits the lab coordinator and instructors from returning phone calls to numbers outside the Nacogdoches exchanges. Therefore, contact should be made in person, by email or from local phones if you require a reply.
Grade determination
A. Your lab grade is determined by in-class assignments and weekly quizzes. Total possible points = 1300.
B. You are required to complete and turn in an individual lab assignment to your lab instructor. The in-class assignment is worth 90 points. To ensure that the lab runs efficiently, you will have ten (10) points deducted for each of the following infractions:
   1. Returning your microscope to the cabinet improperly. The scanning lens should be in the viewing position when you put your microscope away.
   2. Failing to put your microscope slides in the proper place.
   3. Failing to clean your microscope slides before returning them.
   4. Leaving your lab table or glassware messy.
   5. Failing to return instruments to the lab kit.
   7. Bringing a used printout to lab.
   8. Failure to bring a printout to lab.
   9. Bringing food or drink into lab.
  10. Use of cell phones, MP3’s or other non-lab equipment.
  11. Tardiness. Twenty points may be deducted for extreme tardiness.
C. Weekly quizzes will be worth ten points. The questions will focus on the day’s assignment and will be administered at the beginning of lab.
D. You should use a cover sheet and answer sheet with only your heading on each for the quiz. Your cover sheet will be picked up along with your quiz. Your quiz should always be covered by your cover sheet. If at any time your quiz is not covered by your cover sheet, any notes are on the cover sheet, or you do not use your lab board as intended your quiz will be picked up and you will be given a zero on that quiz.
E. One point will be deducted for minor spelling errors.
F. Your lecture instructor will assign your course letter grade (lab avg. = 1/3, lecture avg. = 2/3). You will receive the same letter grade for the lecture and lab.
G. Any grade appeal must be accompanied by your graded quizzes/assignments.
H. All lab work is to be done in the laboratory.
I. You may leave the lab after completing the exercise and checking with your lab instructor. Leaving early will result in a zero on all work for the day.
J. As per departmental policy, you are required to evaluate the lab. This online course assessment is administered online near the end of the semester. If you have not completed the assessment by the deadline, one point will be deducted from your lab grade. The deadline is e-mailed to you by ITS.

Lab safety
A. No food or drink in the lab.
B. No smoking in the lab.
C. Footwear that covers your feet must be worn in the lab.
D. All cell phones, iPads, etc. must be TURNED OFF and put away.
## Course Calendar:

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<th>Exercise</th>
<th>Topic</th>
<th>Dates</th>
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<td>Printout</td>
<td>Introduction and the Microscope</td>
<td>Jan. 22</td>
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<tr>
<td>Printout</td>
<td>The Plant Cell</td>
<td>Jan. 29</td>
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<td>Printout</td>
<td>Cells &amp; Tissues of the Plant Body</td>
<td>Feb. 5</td>
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<tr>
<td>Printout</td>
<td>The Root</td>
<td>Feb. 12</td>
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<td>Printout</td>
<td>Primary Structure of the Stem and Woody Stems</td>
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<td>Printout</td>
<td>Wood Anatomy</td>
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<td>Printout</td>
<td>The Leaf</td>
<td>Mar. 5</td>
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<td><strong>Spring Break</strong></td>
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<tr>
<td>Printout</td>
<td>Photosynthesis</td>
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<td>Printout</td>
<td>Plant Reproduction</td>
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<td>Printout</td>
<td>The Bryophytes</td>
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<tr>
<td>Printout</td>
<td>Seedless Vascular Plants</td>
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<td>Printout</td>
<td>Seed Plants: Gymnosperms</td>
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<td>Printout</td>
<td>Seed Plants: Angiosperms</td>
<td>Apr. 23</td>
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## Academic Integrity (4.9.7)

Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

### Definition of Academic Dishonesty

Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on
an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Please read the complete policy at [http://www.sfasu.edu/policies/academic_integrity.asp](http://www.sfasu.edu/policies/academic_integrity.asp)

**Withheld Grades Semester Grades Policy (A-54)**

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

The circumstances precipitating the request must have occurred after the last day in which a student could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C.

**Students with Disabilities**

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to [http://www.sfasu.edu/disabilityservices/](http://www.sfasu.edu/disabilityservices/).

**Acceptable Student Behavior**

Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy D-34.1). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the iCare (Early Alert) Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.