2015-2016 / Spring  
BIO 121L.020-025  
Concepts of Biology Laboratory

Name: Gene A. Sullivan  
Department: Biology  
Email: gsullivan@sfasu.edu  
Phone: (936) 468-2458  
Office: S105  
Office Hours: M 11:00-12:00; T 10:00-11:00, 4:00-4:30; W 10:00-11:00; R 9:30-10:30, 1:00-2:00; F 10:30-11:30; or by appointment.

Class meeting time and place:  
020 W 11:00 am-12:50 pm, S103  
021 W 1:00-2:50 pm, S103  
022 W 3:00-4:50 pm, S103  
023 W 6:00-7:50 pm, S103  
024 R 11:00 am-12:50 pm, S103  
025 R 2:00 pm-3:50 pm, S103

Course Description:  
Laboratory study of the fundamental concepts of Biology for non-science majors, including the origin of life, cell structure and function, growth and reproduction, genetics, evolution and ecology.

Number of credit hours: 1

Prerequisite: None  
Co-requisite: BIO 121

Program Learning Outcomes:  
There is no specific program learning outcomes for the Biology major addressed in this course. It is a general education core curriculum course and/or a service course.

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.”
General Education Core Curriculum
This course has been selected to be part of Stephen F. Austin State University’s core curriculum. The Texas Higher Education Coordinating Board has identified six objectives for all core courses: Critical Thinking Skills, Communication Skills, Empirical and Quantitative Skills, Teamwork, Personal Responsibility, and Social Responsibility. SFA is committed to the improvement of its general education core curriculum by regular assessment of student performance on these six objectives.

However, exactly which objectives the Biology Department will be responsible to collect student work from BIO 121 is still in discussion. Therefore, **BIOLOGY WILL NOT BE COLLECTING ANY STUDENT WORK FOR CORE ASSESSMENT DURING THE SPRING 2016 SEMESTER.**

Student Learning Outcomes:
Student performance will be evaluated by assignments, weekly quizzes and participation during laboratory exercises. The final lab grade is computed into the course as 1/3 of the course grade. Upon successful completion of Concepts of Biology Lab:

1. Students will demonstrate skill in basic microscopy, production of temporary specimen mounts and observation of biological specimens. (CCO 1, 3)
2. Students will identify the four basic types of organic compounds, conduct experiments, do basic measurements and safely handles chemicals, including acids and bases. (CCO 1, 2, 3, 4)
3. Students will be able to differentiate between prokaryotic and eukaryotic cells, identify cell structures, including organelles, and describe the function of each in plant and animal cells. (CCO 1, 2, 3, 4)
4. Students will understand the mechanisms of cell membrane transport and the source of energy for the basic transport systems. (CCO 1, 2, 3, 4)
5. Students will understand the cell cycle, visually differentiate among the phases of mitosis and meiosis and explain the differences between the two processes. (CCO 1, 2, 3, 4)
6. Students will be able to predict their genotype for traits involving dominance, codominance and sex linkage, predict inheritance of traits using monohybrid crosses, and determine the genotype of individuals from a pedigree. (CCO 1, 2, 3, 4)
7. Students will be able to recognize the major cell types, tissues and organs of a flowering plant and discuss the function of each. (CCO 1, 3)
8. Students will understand the general characteristics of an enzyme including the effect of temperature, pH and concentration on enzymatic activity. (CCO 1, 2, 3, 4)
9. Students will observe experiments involving the two major pathways of photosynthesis to demonstrate the importance of light and carbon dioxide to the process. (CCO 1, 2, 3, 4)
10. Students will understand the modern biological classification system and apply it to identify selected lower organisms. (CCO 1, 2, 3)
11. Students will be able to apply ecological principles to the movement of matter and energy through the freshwater ecosystem of LaNana Bayou. (CCO 1, 2, 3, 4)

12. Students will be able to perform the protocol and calculations for estimating animal populations using a widely known technique. (CCO 1, 2, 3, 4)

Course Content:
- The microscope
- Organic molecules of the cell
- Cells
  - Prokaryotic
  - Eukaryotic
- Transport through the cell membrane
  - Passive systems
  - Active transport
- Mitosis and cytokinesis
- Meiosis and gametogenesis
- Inheritance
- Organization of the plant body
  - Cell types
  - Tissues
  - Stem
  - Root
  - Leaf
- Enzyme activity
- Photosynthesis
  - Light reactions
  - Calvin-Benson cycle
- Biodiversity of lower organisms
  - Bacteria
  - Protista
- Ecology of LaNana Bayou
- Estimating animal populations

Text and Materials:

Course Requirements:
To complete Concepts of Biology you must be enrolled in BIO 121 & BIO 121L in the same semester. Your laboratory grade is determined by daily assignments, daily quizzes and a performance grade. The performance grade is based upon your participation in each lab exercise, proper use of the equipment and your adherence to lab safety rules. 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-up work must be made prior to 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. All make-ups will be in the form of a quiz ten questions long. Arrangements to complete a make-up quiz must be made prior to the date of the next scheduled lab exercise.
F. 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. You are expected to take the daily quiz for the next lab.

NOTE: Departmental policy prohibits the lab coordinator and instructors from returning phone calls to numbers outside Nacogdoches exchanges. Therefore, contact should be made in person, by email or from local phones if you require a reply.

Grade Determination
Your lab grade is determined by daily quizzes (45%), daily assignments (45%) and a performance grade (10%). Total possible points = 2860.
A. Quizzes, given at the beginning of each lab, will consist of three (3) questions. The questions will come from the exercise objectives, bold-faced terms and safety instructions that apply to the current day’s exercise. The daily quiz is worth 100 points.
B. You will need a cover sheet and an answer sheet with only your quiz heading on them for each quiz. Your cover sheet will be picked up along with your completed 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 lap board as intended, your quiz will be picked up and you will be given a zero for that quiz.
C. You are required to complete and turn in the day’s lab assignment to your lab instructor. The in-class assignment is worth 100 points.
D. For minor spelling errors 2 points will be taken off.
E. To ensure that the lab runs efficiently, you will have ten (10) points taken off of your daily lab assignment grade for 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.
   6. Marking on your lapboard.
   7. Bringing a used lab manual to lab.
   8. Failure to bring a lab manual to lab.
   9. Bringing food or beverages into lab.
   10. Use of cell phones, MP3’s or other non-lab equipment during lab.
   11. Tardiness. Twenty points may be deducted for extreme tardiness.
F. During every lab period your lab instructor will evaluate your performance in class with regard to preparation, adherence to lab safety, attitude, cooperation with lab partners, participation in the exercise and effort. Your class participation is worth 20 points.

G. Any grade appeal must be accompanied by your graded quizzes/assignments.

H. As per departmental policy, you are required to evaluate the lab. This online course assessment is administered 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. You will be notified of the deadline by ITS.

I. 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.

J. All lab work is to be done in the laboratory.

K. You may leave the lab after completing the exercise and checking with your lab instructor. Leaving early will result in a zero for all of the day’s grades.

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. Cell phones, iPods, etc. must be TURNED OFF and PUT AWAY.

Course Calendar:

<table>
<thead>
<tr>
<th>Exercise</th>
<th>Topic</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Printout</td>
<td>Introduction &amp; The Microscope (d2L printout)</td>
<td>Jan. 27-28</td>
</tr>
<tr>
<td>2</td>
<td>Organic Molecules of the Cell</td>
<td>Feb. 3-4</td>
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<tr>
<td>3</td>
<td>Cells</td>
<td>Feb. 10-11</td>
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<td>4</td>
<td>Molecular Movement and the Cell Membrane</td>
<td>Feb. 17-18</td>
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<tr>
<td>5a</td>
<td>Mitosis and Cytokinesis (pg. 31-35 &amp; d2L printout))</td>
<td>Feb. 24-25</td>
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<tr>
<td>5b Printout</td>
<td>Meiosis and Gametogenesis (d2L printout)</td>
<td>Mar. 2-3</td>
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<td>6</td>
<td>Inheritance</td>
<td>Mar. 9-10</td>
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<td><strong>Spring Break</strong></td>
<td>Mar. 16-17</td>
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<td></td>
<td><strong>No Lab</strong></td>
<td>Mar. 23-24</td>
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<tr>
<td>7</td>
<td>Organization of the Flowering Plant Body (pg. 45-55)</td>
<td>Mar 30-31</td>
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Core Curriculum Assignment

**BIO 121 WILL NOT BE COLLECTING ANY STUDENT WORK FOR CORE ASSESSMENT DURING THE SPRING 2016 SEMESTER.**

**Academic Integrity (A-9.1)**

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/.

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 Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.