

Angelina College
Science and Mathematics Division
BIOL 1408 - General Biology I
Lab Syllabus

I. COURSE DESCRIPTION: BIOLOGY – BIOL 1408 – GENERAL BIOLOGY I. Four hours credit. This course provides a survey of biological principles with an emphasis on humans, including chemistry of life, cells, structure, function, and reproduction. THIS COURSE IS NOT INTENDED FOR SCIENCE MAJORS. The laboratory portion of the course will reinforce a survey of biological principles with an emphasis on humans, including chemistry of life, cells, structure, function, and reproduction. Three lecture and two lab hours each week. Lab fee.

A. Intended Audience

Business, Human Services, Criminal Justice, Child and Family Development, and certain liberal arts and fine arts majors.

B. Instructor

Instructor: Jessica Heppard

Office: S109

Office Hours: M & R 9:30 – 11:30 am, W 9:30 – 10:30 am; or by appointment

Phone: (936) 633-5461

e-mail: jheppard@angelina.edu

II. INTENDED STUDENT OUTCOMES:

A. Core Objectives Required for this Course

1. **Critical Thinking:** to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
2. **Communication:** to include effective development, interpretation and expression of ideas through written, oral and visual communication
3. **Empirical and Quantitative Skills:** to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
4. **Teamwork:** to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal

B. Course Learning Outcomes for all Sections

Upon successful completion of this course, students will:

1. Distinguish between prokaryotic, eukaryotic, plant and animal cells, and identify major cell structures.
2. Identify stages of the cell cycle, mitosis (plant and animal), and meiosis.
3. Interpret results from cell physiology experiments involving movement across membranes, enzymes, photosynthesis, and cellular respiration.
4. Apply genetic principles to predict the outcome of genetic crosses and statistically analyze results.
5. Interpret the results of karyotypes, pedigrees, and biotechnology experiments.
6. Identify parts of a DNA molecule, and describe replication, transcription, and translation.
7. Analyze evidence for evolution and natural selection.
8. Be able to apply scientific reasoning to investigate questions, and utilize scientific tools such as microscopes and laboratory equipment to collect and analyze data.
9. Use critical thinking and scientific problem-solving to make informed decisions in the laboratory.
10. Communicate effectively the results of investigations.

III. ASSESSMENT MEASURES

A. Assessments for the Core Objectives:

1. **Critical thinking** – students will complete an activity requiring the comprehension and analysis of information in a DNA sequencing activity. Evidence of critical analysis will be assessed using a standardized rubric.

2. **Communication** – oral and visual communication will be assessed through a well-researched essay on the role of the cell cycle and cancer. Communication skills and abilities will be assessed using a standardized rubric.
3. **Empirical and Quantitative Skills** – a simulation of the scientific method will be used to evaluate data collection, analysis, and interpretation skills. Empirical and quantitative skills will be evaluated using a standardized rubric.
4. **Teamwork** – students will be assigned to teams. Each team will create a comprehensive study guide over cellular respiration and photosynthesis. Team members will evaluate the performance of one another using standardized rubrics.

B. Assessments for Course Learning Outcomes

1. Students will distinguish between prokaryotic, eukaryotic, plant and animal cells, and identify major cell structures on embedded exam questions.
2. Students will identify stages of the cell cycle, mitosis (plant and animal), and meiosis in lab activities and embedded exam questions.
3. Students will interpret results from cell physiology experiments involving movement across membranes, enzymes, photosynthesis, and cellular respiration in classroom activities and on embedded exam questions.
4. Students will apply genetic principles to predict the outcome of genetic crosses and statistically analyze results through the use of pedigrees and Punnett Squares in lab activities.
5. Students will interpret the results of karyotypes, pedigrees, and biotechnology experiments on embedded exam questions and in lab activities.
6. Students will identify parts of a DNA molecule, and describe replication, transcription, and translation on embedded exam questions.
7. Students will analyze evidence for evolution and natural selection in lab and classroom activities.
8. Students will apply scientific reasoning to investigate questions, and utilize scientific tools such as microscopes and laboratory equipment to collect and analyze data in lab activities.
9. Students will use critical thinking and scientific problem-solving to make informed decisions in the laboratory as evidenced by safe laboratory practices and on embedded exam questions.
10. Students will communicate effectively the results of investigations on assigned biological topics.

IV. INSTRUCTIONAL PROCEDURES:

This course will be taught using a combination of lectures and laboratory exercises that complement and supplement lecture material. Audio-visual materials, models, and dissection of specimens will be employed to enhance lecture and laboratory presentations.

V. COURSE REQUIREMENTS AND POLICIES:

A. Required Textbooks and Recommended Readings, Materials and Equipment

1. Concepts of Biology, OpenStax College. The textbook can be downloaded for free at <https://openstax.org/details/concepts-biology> or ask your instructor about purchasing a hard copy.
2. Introductory Biology: A Laboratory Exploration of Life, Volume 1, by Pfluger, (Kendall-Hunt) 3rd Edition.
3. Access to Blackboard (www.angelina.blackboard.com)
4. Scantrons for exams (form 882-E)

B. Course Policies – This course conforms to the policies of Angelina College as stated in the Angelina College Handbook.

1. **Educational Accommodations** – If you have a disability (as cited in Section 504 of the Rehabilitation Act of 1973 or Title II of the Americans with Disabilities Act of 1990) that may affect your participation in this class, you may fill out the Educational Accommodations application within your AC Portal, under the “Student Services” tab. A Student Success team member will contact you once the application is received. At a post-secondary institution, you must self-identify as a person with a disability in order to receive services; for questions regarding the application process you can visit the Office of Student Success and Inclusion in the Student Center (Room 200) or email access@angelina.edu. To report any complaints related to accommodations, you should contact Annie Allen, Director of Student Success & Inclusion, in Room 200 of the Student Center. You may also contact Ms. Allen by calling (936) 633-4509 or by emailing aallen@anglina.edu. To report discrimination of any type, contact Steve Hudman, Dean of Student Affairs, at (936) 633-5292 or shudman@angelina.edu.
2. **Attendance** – Attendance is required as per Angelina College Policy and will be recorded every day. Any student with three (3) consecutive absences or four (4) cumulative absences may be dropped from the class. Records will be turned in to the academic dean at the end of the semester. Do not assume that non-attendance in class will always result in an instructor drop. **You must officially drop a class or risk receiving an F.** This is official Angelina College Policy. **The last day to drop the class with a “W” is April 1, 2019.**
3. **Additional Policies Established by the Instructor**
 - a. Be prepared to begin class on time and do not prepare to leave before class is over.
 - b. Cell phones should be turned off during class time.
 - c. Children and other guests are not permitted in the classroom. Children are not allowed to wait in the hall unsupervised. See Student Services for child-care problems.
 - d. Students are expected to participate in the instruction through courteous, relevant comments and questions during class. Behavior that interferes with the learning environment will not be tolerated. Conferences outside of class are available by appointment during the instructor’s office hours.

ATTENDANCE

To be considered present for a class period, the student must be present when roll is taken. Absences will be excused ONLY if a student contacts the instructor within 48 hours of missing a class with a valid excuse with documentation (doctor’s note, coach’s letter, etc.). If an absence is excused, students may make up any exercises missed during class.

MAKE-UP EXAMS

There will be no make-up exams; however, the score on the comprehensive final exam may replace your lowest test grade.

STUDENT CONDUCT

A positive environment for learning will be maintained by students being courteous to each other and to the instructor. Eating, drinking, sleeping, and distracting conversations during lecture will not be allowed. Cheating on tests is not tolerated as per Angelina College policy and may result in expulsion from the course. Regular attendance is also expected as per college policy. Cellular phones or pagers must be turned off or placed on the silent mode.

CONTACTING THE INSTRUCTOR

Emails to the instructor should be professional and should be made from the student’s Angelina College email. It is suggested they take the following format:

Dear (Instructor’s name),
My name is (blank) and I am in your (BIOL #####) class, section (#). (Sentence describing your concern or reason for writing.) (Sentence with your question or the outcome you are seeking [to meet during office hours, reschedule a quiz, etc.]

(Closing),
(Your full name)

GRADE APPEALS

Grades on an assignment may be appealed up to one week after a grade is issued.

TEST REFLECTION

If a student earns less than a C (> 70) on an exam (excluding the final), they may make arrangements to meet with the instructor and complete a test reflection worksheet to evaluate what questions were missed and how to improve future test preparation. This will result in up to 5 points added to their test grade, with a final score of no more than a 70.

VI. EVALUATION AND GRADING:

LECTURE

The lecture portion of the course accounts for two-thirds of the course grade. Lecture grades are based on four regular exams, one comprehensive final exam, assessments, quizzes, and homework as decided by instructor.

Lecture Exams: There will be four regular non-comprehensive lecture exams that will be given as shown on the class schedule. Each exam is worth 100 points.

Missed Exams: There will be NO make-up exams. The final exam grade may replace the single lowest test grade or the grade for a missed exam.

Final Exam: There will be a comprehensive final exam at the end of the semester. It will be worth 100 points. The score of the final exam may replace the lowest regular exam grade.

Projects: There will be assigned four projects which assess the four core objectives. The projects will be collectively worth 100 points.

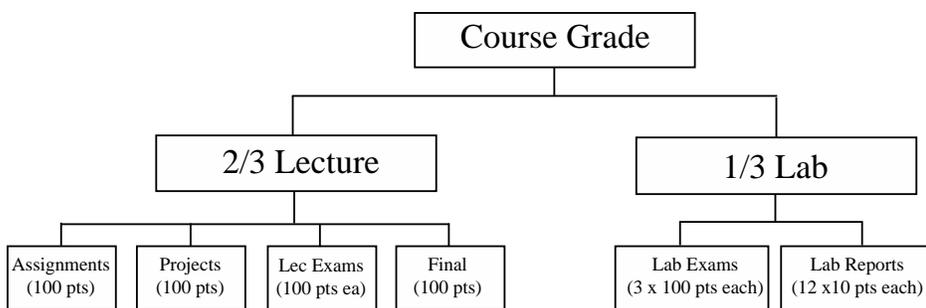
Lecture Assignments: Lecture assignments will be given throughout the semester. These assignments can include homework, quizzes, class participation, etc. Collectively, they are worth a possible 100 points.

LAB

The lab counts for one-third of the course grade. Lab grades are based on three lab exams and lab reports for each experiment.

Lab Grades: There will be three regular non-comprehensive lab exams that will be given as shown on the lab class schedule. Each exam is worth 100 points.

Lab Reports: All lab report "conclusions and review" work at the end of each lab experiment will be graded. Collectively, they are worth a possible 120 points.



SYLLABUS MODIFICATION: The instructor may modify the provisions of the syllabus to meet individual class needs by informing the class in advance as to the changes being made.

VII. COURSE OUTLINE: Description of the Course Activities including due dates, schedules, and deadlines.

Session	Week Of	Exp	Experiment Description
1	14-Jan	1	Introduction, Safety, Scientific Method
2	21-Jan	3	Water and pH (No lab Monday - MLK Holiday)
3	28-Jan	4	Biological Molecules (Monday lab section will also do Exp 3)
4	4-Feb	2 6	Light Microscope Animal Cells, Plant Cells, and the Cell Membrane
5	11-Feb		Lab Exam 1
6	18-Feb	9	Respiration and Fermentation (Begin)
7	25-Feb	9 8	Respiration and Fermentation (Complete) Photosynthesis
8	4-Mar	7	Cellular Division: Mitosis and Meiosis
	11-Mar		Spring Break
9	18-Mar		Lab Exam 2
10	25-Mar	5	Deoxyribonucleic Acids (DNA)
11	1-Apr	10	Gene Expression
12	8-Apr	11	Genetics and Inheritance
13	15-Apr	12	Evolution and Natural Selection
14	22-Apr		Lab Exam 3