

Angelina College
Science and Mathematics Division
BIOL 1408, Section 1 - General Biology I for Non-Majors
Lecture 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: 3-5 PM Monday and Thursday; 10-11 AM Friday; 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 be asked to analyze, compare, and contrast information describing a genetic disorder and use that information to make informed genetic predictions. A written synopsis will be submitted to the instructor. Evidence of critical analysis will be assessed using a standardized rubric.
2. **Communication** – oral and visual communication will be assessed during the class presentation of the findings from the genetic disorder research project. Written communication will be assessed based on the synopsis of findings as well as documentation used in the presentation. Communication skills and abilities will be assessed using a standardized rubric.
3. **Empirical and Quantitative Skills** – Research the available information relevant to the assigned genetic disorder, students will compare and analyze the data presented in the articles. Their findings will be presented orally and in written format. Empirical and quantitative skills will be evaluated using a standardized rubric.
4. **Teamwork** – Students will be assigned to teams. Each team will be assigned specific genetic disorder to analyze and compare. Team members will work together to define the roles of each member, will collaborate to share information and generate a meaningful synopsis of the assigned genetic disorder. 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

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

1. **Academic Assistance** – 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 should see the Office of Special Student Support Services, Room 208 of the Student Center. At a post-secondary institution, you must self-identify as a person with a disability; Ms. Bowser will assist you with the necessary information to do so. To report any complaints of discrimination related to disability, you should contact Mr. Steve Hudman, Student Center, Room 205-B or [936-633-5292](tel:936-633-5292).
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 November 5, 2018.**
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, Mastering Biology homework, and a group research assignment and presentation.

Lecture Exams: There will be four regular non-comprehensive lecture exams that will be given as shown on the class schedule. The final exam is comprehensive and will be given during the scheduled final examination period. Each exam is worth 100 points. The score of the final exam may replace the lowest regular exam grade.

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.

Group Project: The group project will have two components: a presentation (70 pts), and a Hardy-Weinberg worksheet (30 pts) over a chosen genetic disorder. The project will be collectively work 100 points.

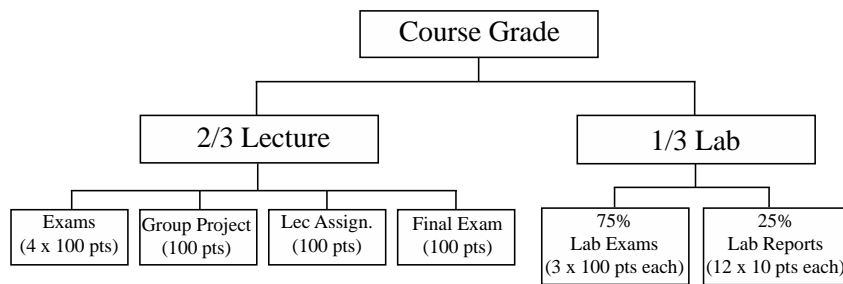
Lecture Assignments: Lecture assignments will be given throughout the semester. These assignments can include homework, quizzes, class participation, etc. Collectively, they are worth a possible 100 points.

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 100 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.

Class	Date	Chapter/Section	Description
1	08/27	1.1-1.2	Themes of Biology, Scientific Process
2	08/29	2.1-2.2	Molecules and Water
3	09/05	2.3	Biological Molecules
4	09/10	3.1-3.2	Prokaryotic/Eukaryotic Cells
5	09/12	3.3	The Eukaryotic Cell
6	09/17	3.4-3.6	The Cell Membrane and Transport
7	09/19		Exam 1
8	09/24	4.1-4.3	Metabolism, Cellular Respiration
9	09/26	4.4-4.5	Fermentation, Other Metabolic Pathways
10	10/01	5.1-5.3	Photosynthesis
11	10/03	6.1-6.2	Genome, the Cell Cycle (Mitosis)
12	10/08	6.3-6.4	Cancer and the Cell Cycle
13	10/10	7.1-7.3	Sexual Reproduction, Meiosis, Errors in Meiosis
14	10/15		Exam 2
15	10/17	8.1-8.2	Mendel's Experiments, Laws of Inheritance
16	10/22	8.3	Extensions of the Laws of Inheritance
17	10/24	9.1-9.2	Structure and Replication of DNA
18	10/29	9.3-9.4	Transcription and Translation
19	10/31	9.5	Gene Regulation
20	11/05*	10.1	Cloning and Genetic Engineering
21	11/07	10.2-10.3	Biotechnology, Genomics/Proteomics
22	11/12		Exam 3
23	11/14	11.1	Discovering How Populations Change
24	11/19	11.2-11.3	Mechanisms and Evidence for Evolution
25			Thanksgiving Holiday
26	11/26	11.4-11.5	Speciation, Common Misconceptions about Evolution
27	11/28		Exam 4
28	12/03		Group Project
29	12/05		Semester review
30	Final		Comprehensive Final Exam

Final Exam for Section 1 will be Monday December 10 at 8 – 10 AM

I. **LABORATORY OUTLINE:** Description of the lab activities including due dates, schedules, and deadlines.

Class	Week of	Lab	Description
1	27-Aug	1	Introduction, Safety, Scientific Method (no Monday lab section)
2	3-Sept	2	Light Microscope
3	10-Sept	3	Water and pH (Monday lab section will also do Exp 2)
4	17-Sept	4	Biological Molecules
5	24-Sept		Lab Exam 1
6	1-Oct	5	Deoxyribonucleic Acids (DNA)
7	8-Oct	6 9	Animal Cells, Plant Cells, and the Cell Membrane Respiration and Fermentation (Begin)
8	15-Oct	9 8	Respiration and Fermentation (Complete) Photosynthesis
9	22-Oct		Lab Exam 2
10	29-Oct	7	Cellular Division: Mitosis and Meiosis
11	5-Nov	10	Gene Expression
12	12-Nov	11	Genetics and Inheritance
	19-Nov		Thanksgiving (No Labs)
13	5-Nov	12	Evolution and Natural Selection
14	5-Nov		Lab Exam 3

Note: Schedule is subject to change

* Last day to drop with a "W" is Nov. 5