BIOL 1106
Biology for Science Majors I Lab
Fall 2026

LAMAR INSTITUTE OF TECHNOLOGY

Credit: 1 semester credit hours (2 hours lab)

Prerequisite/Co-requisite:
TSI Complete
Biology 1306 Corequisite

Course Description
This laboratory-based course accompanies Biology 1306, Biology for Science Majors I. Laboratory activities will reinforce the fundamental properties of living organisms, including physical and chemical properties of life, organization, function, evolutionary adaption, and classification. Study and examination of the concepts of cytology, reproduction, genetics, and scientific reasoning are included.

Course Objectives
Upon completion of this course, the student will be able to:

1. Apply scientific reasoning to investigate questions and utilize scientific tools such as microscopes and laboratory equipment to collect and analyze data.
2. Use critical thinking and scientific problem-solving to make informed decisions in the laboratory.
3. Communicate effectively the results of scientific investigations.
4. Describe the characteristics of life.
5. Explain the methods of inquiry used by scientists.
6. Identify the basic properties of substances needed for life.
7. Compare and contrast the structures, reproduction, and characteristics of viruses, prokaryotic cells, and eukaryotic cells.
8. Describe the structure of cell membranes and the movement of molecules across a membrane.
9. Identify the substrates, products, and important chemical pathways in metabolism, cell respiration, and photosynthesis.
10. Identify the principles of inheritance and solve classical genetic problems.
11. Identify the chemical structures, synthesis, and regulation of nucleic acids and proteins.
12. Describe the unity and diversity of life and the evidence for evolution through natural selection.

Core Objectives

1. **Critical Thinking Skills:** To include creative thinking, innovation, inquiry, analysis, evaluation and synthesis of information
2. **Communication Skills:** To include effective development, interpretation, and expression of ideas through written, oral, and visual communication
3. **Empirical & 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 connect choices, actions, and consequences to ethical decision-making

INSTRUCTOR CONTACT INFORMATION

Instructor:
Email:
Office Phone:
Office Location:
Office Hours: See Starfish for available office hours -
Click Here for Starfish

TEXTBOOK AND MATERIALS:

- REQUIRED = Textbook **-** OpenStax Biology 2e **–** https://openstax.org/details/books/biology-2e?Book%20details
- Your textbook for this class is available for free online and a print copy, can be purchased online, or obtained through Eagle Learning Essentials. Click Here for Eagle Learning Essentials

ATTENDANCE POLICY

1. You must log into Blackboard and access this course a minimum of 3 times per week.
2. Late assignments will be accepted with a deduction as a late penalty. Students will receive a zero for assignments not completed.
3. If you wish to drop this course, you must drop it administratively. If you do not drop, you will receive an F for the course

Drop Policy

If you wish to drop a course, you are responsible for initiating and completing the drop process by the specified drop date as listed on the Academic Calendar. If you stop coming to class and fail to drop the course, you will earn an "F" in the course.

Instructor reserves the right to modify the schedule as needed

Week:	Weekly Assignments:	Due Date:
Week 1 **Aug 24th - 28th** **Introduction** **Study of Life** **Chemistry of Life**	• **Discussion Board: Introduction** • **Syllabus Quiz/Syllabus Acknowledgment**	• **08.28.26**
	• **Register for McGraw-Hill Virtual Labs – Click on "McGraw Hill Virtual Labs" folder in 'Module 1 folder' to get started** • **Complete the Introductory Materials:** 1. **Virtual Labs Tutorial** 2. **Lab Safety – Hand Washing** 3. **Lab Safety – Personal Safety** 4. **Quiz: Lab Safety** • **Join a group for Group Project: Gene Therapy *Due 11.13.26***	• **08.30.26**
Week 2 **Aug 31st - Sep 4th** **Biological Molecules**	• **Complete Module 1 "Chemical Foundations of Life" Labs:** 1. **Test for Sugars, Starch, Fat, Protein** 2. **Emulsification of Lipids** 3. **Assignment: Biochemistry** 4. **Quiz: Chemical Foundations of Life** • ***Work on* Group Project: Gene Therapy *Due 11.13.26***	• **09.06.26**
Week 3 **Holiday Sep 7th** **Sep 8th – 11th** **Cell Structure & Function**	• **Complete Module 2 "Cell Structure & Function" Labs** 1. **Cell Structure – Examining Plant & Animal Cells** 2. **Assignment: Cells** • ***Work on* Group Project: Gene Therapy *Due 11.13.26***	• **09.13.26**
Week 4 **Sep 14th - 18th** **Structure & Function of Plasma Membranes**	• **Complete Module 2 "Cell Structure" Labs:** 1. **Diffusion** 2. **Osmosis** 3. **Passive & Active Transport** 4. **Quiz: Cell Structure & Function** • ***Work on* Group Project: Gene Therapy *Due 11.13.26***	• **09.20.26**

Week 5 **Sep 21st - 25th** **Metabolism**	• **Complete Module 2 "Cell Energy" Lab:** 1. **Enzyme Function** • ***Work on* Group Project: Gene Therapy *Due 11.13.26***	• **09.27.26**
Week 6 **Sep 28th - Oct 2nd** **Cell Respiration**	• **Complete Module 2 "Cell Energy" Labs:** 1. **Cell Respiration** 2. **Cell Respiration – Yeast Fermentation** • ***Work on* Group Project: Gene Therapy *Due 11.13.26***	• **10.04.26**
Week 7 **Oct 5th - 9th** **Photosynthesis**	• **Complete Module 2 "Cell Energy" Labs:** 1. **Photosynthetic Pigments** 2. **Photosynthesis – Carbon Dioxide Uptake** 3. **Assignment: Cell Energetics** 4. **Quiz Cell Energy** ***Work on* Group Project: Gene Therapy *Due 11.13.26***	• **10.11.26**
Week 8 **Oct 12th - 16th** **Midterm Exam**	• ⏰ **Midterm Exam *Opens 10.13.26 @ 7:30 am and Closes 10.15.26 @ 11:59 pm (Chapters 1 - 8)*** • ***Work on* Group Project: Gene Therapy *Due 11.13.26***	• ⏰ **Midterm due 10.15.26**
Week 9 **Oct 19th - 23rd** **Cell Communication** **Cell Reproduction**	• **Complete Module 2 "Cell Reproduction" Labs:** 1. **Cell Division – Mitosis** 2. **Assignment: Cell Division** 3. **Quiz: Cell Division** • ***DUE*** ***Work on* Group Project: Gene Therapy *Due 11.13.26***	• **10.25.26**
Week 10 **Oct 26th - 30th** **Meiosis & Sexual Reproduction**	• **Complete Module 3 "Heredity" Labs:** 1. **Meiosis** 2. **Chromosomal Inheritance** 3. **Genetic Inheritance** • **DUE: Group Project: Gene Therapy *Due 11.13.26***	• **11.01.26**
Week 11	• **Complete Module 3 "Heredity" Labs:**	• **11.08.26**

Nov 2nd - 6th **Mendel & Heredity** **Modern Inheritance**	1. **Monohybrid Cross** 2. **Dihybrid Cross** 3. **X-Linked Fruit Fly Cross** 4. **Assignment: Heredity** 5. **Quiz: Cell Reproduction & Heredity**	
<u>Week 12</u> **Nov 9th - 13th** **DNA Structure & Function** **DNA Replication**	• **Complete Module 3 "Molecular Genetics" Labs** 1. **DNA/RNA Structure** 2. **DNA Isolation**	• **11.16.25**
<u>Week 13</u> **Nov 16th - 20th** **Genes & Proteins**	• **Complete Module 3 "Molecular Genetics" Labs:** 1. **Transcription, Translation & Mutations** 2. **Genetics – DNA Profiling** 3. **Gel Electrophoresis**	• **11.21.25**
<u>Week 14</u> **Nov 23rd - 24th** **Thanksgiving Holiday Nov 25th - 27th** **Thanksgiving Break**	• **Work on Missing Assignments** • **Sleep, rest, relax** • **Enjoy time with family and friends** • **Netflix, etc.** • **Exercise** • **Read a good book** • **Do something nice for someone**	
<u>Week 15</u> **Dec 1st – 5th** **Gene Expression** **Biotechnology & Genomics**	• **Complete Module 3 "Molecular Genetics" Labs:** 1. **Polymerase Chain Reaction (PCR)** 2. **Rapid Diagnostic Testing** 3. **Assignment: Molecular Genetics** 4. **Quiz: Molecular Genetics**	• **12.05.25**
<u>Week 16</u> **Dec 7th - 9th** **Final Exam**	• ⏰ **FINAL EXAM Opens 12.06.26 and Closes 12.08.26 (Chapters 9 – 17)** • **Congratulations!! You made it!! Celebrate** ☺	⏰ **Final is *due 12.08.26 by 11:59 pm*** **Final Grades must be submitted to Banner by 12.11.26 at noon**

Student Expected Time Requirement

For every hour in class (or unit of credit), students should expect to spend at least two to three hours per week studying and completing assignments. For a 3-credit-hour class, students should prepare to allocate approximately six to nine hours per week outside of class in a 16- week session OR approximately twelve to eighteen hours in an 8-week session. Online/Hybrid students should expect to spend at least as much time in this course as in the traditional, face-to-face class.

Course Evaluation

Final grades will be calculated according to the following criteria:

1. Assignments (Lab Activities) = 25%
2. Quizzes MGH = 20%
3. Group Lab Project = 20%
5. Final Exam = 30%

_____

Total = 100%

GRADING SCALE

90-100 = A
80-89 = B
70-79 = C
60-69 = D
0 – 59 = F

Academic Dishonesty

Students found to be committing academic dishonesty (cheating, plagiarism, or collusion) may receive disciplinary action. Students need to familiarize themselves with the institution's Academic Dishonesty Policy available in the Student Catalog & Handbook at http://catalog.lit.edu/content.php?catoid=3&navoid=80#academic-dishonesty.

AI STATEMENT

Lamar Institute of Technology (LIT) recognizes the recent advances in Artificial Intelligence (AI), such as ChatGPT, have changed the landscape of many career disciplines and will impact many students in and out of the classroom. To prepare students for their selected careers, LIT desires to guide students in the ethical use of these technologies and incorporate AI into classroom instruction and assignment appropriately. Appropriate use of these technologies is at the discretion of the instructor. Students are reminded that all submitted work must be their own, original work, unless otherwise specified. Students should contact their instructor with any questions as to acceptable use of AI / ChatGPT in their courses.

Technical Requirements (for courses using Blackboard)

The latest technical requirements, including hardware, compatible browsers, operating systems, etc. can be online at https://lit.edu/online-learning/online-learning-minimum-computer-requirements. A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of online technology and resources.

Quizzes and Exams in this course are administered through Blackboard. Exams will be administered with Respondus **LockDown Browser + Respondus Monitor (webcam)** Requirements to take exams include:

- A reliable computer, desktop or laptop (phones, chromebooks, tablets, and iPads are not allowed).

- Windows: 10, 8, 7
- Mac: OS X 10.10 or higher
- Adobe Flash Player (bundled with the LockDown Browser installation)
- Web camera (internal or external) & microphone
- A reliable internet service provider. A broadband internet connection.
- A room to take the exam where you are alone (other individuals in the room are not allowed)

Watch these overview videos to understand the tools your will be using to take the exam.
Respondus LockDown
Browser: https://www.youtube.com/watch?v=XuX8WoeAycs#action=share
Respondus Monitor: https://www.youtube.com/watch?v=hv2L8Q2NpO4 - action=share

Respondus **LockDown Browser + Respondus Monitor (webcam)**
Download Instructions:

- Select the quiz in the course
- Under Quiz Requirements you will see "To take this quiz you must use the Respondus LockDown Browser"
- Below this will appear: "You can use the button below if you have not already downloaded LockDown Browser". Click the button to go to the download page and then follow the instructions
- Use the link to download Respondus LockDown Browser to your computer; follow the installation instructions
- Return to the Quiz page in Brightspace (it may still be open in another tab) and select the quiz
- Select "Launch LockDown Browser"
- The quiz will now start

Note: LockDown Browser only needs to be installed once on a computer or device. It will start automatically from that point forward when a quiz requires it.

Guidelines while taking online quiz, follow these guidelines

- Ensure you're in a location where you won't be interrupted.
- Turn off all other devices (e.g. tablets, phones, second computers) and place them outside of your reach.
- Before starting the test, know how much time is available for it, and also that you've allotted sufficient time to complete it.
- Clear your desk or workspace of all external materials not permitted - books, papers, other devices.
- Remain at your computer for the duration of the test.
- If the computer, Wi-Fi, or location is different than what was used previously with the "Webcam Check" and "System & Network Check" in LockDown Browser, run the checks again prior to the exam.
- To produce a good webcam video, do the following:
    - Avoid wearing baseball caps or hats with brims.
    - Ensure your computer or device is on a firm surface (a desk or table). Do NOT have the computer on your lap, a bed, or other surface where the device (or you) are likely to move.
    - If using a built-in webcam, avoid readjusting the tilt of the screen after the webcam setup is complete.
    - Take the exam in a well-lit room, but avoid backlighting (such as sitting with your back to a window)

- Remember that LockDown Browser will prevent you from accessing other websites or applications; you will be unable to exit the test until all questions are completed and submitted.

The following violations during testing will result in a grade of zero or reduction in points:

- Using technology or electronic devices including, but not limited to, iPads, phones, smart glasses, earbuds, smartwatches.
- Leaving the testing environment or face missing from frame or obscured.
- Noises that might indicate external help.
- Any other questionable activities indicating cheating.

Disabilities Statement

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.
https://lit.edu/student-success/starfish

Student Code of Conduct

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at www.lit.edu. Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document.

STARFISH

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.

Course Requirements

- A Final is required with two attempts given per assessment and uses Respondus Lockdown Browser. The final score will be an ***average of attempts***.
- Students will complete McGraw Hill virtual labs and quizzes.
- Students will complete a group project. A deduction in points will be given for completing group project without partners.
- Late assignments will be accepted with a deduction as a late penalty. Students will receive a zero for assignments not completed.