



Biology for Science Majors (BIOL 1306) Credit:

3 semester credit hours

Co-requisite: BIOL 1106 Biology for Science Majors I Laboratory

Prerequisite: Passed the TSI reading and writing placement exams for LIT

Course Description

BIOL 1306 Biology for Science Majors I (lecture)

This lecture-based course accompanies BIOL 1106, Biology for Science Majors I lab. This lecture course provides a survey of biological principles with an emphasis on fundamental principles of living organisms including physical/chemical properties of life, organization, function, evolutionary adaptation, and classification. Concepts of cytology, reproduction, genetics and scientific reasoning are included.

Required Textbook and material

Openstax ISBN-10: 1-947172-51-4

<https://openstax.org/details/books/biology-2e>

Your textbook for this class is available for free online. If you prefer, you can also get a print version at a very low cost. Your book is available in web view and PDF for free. You can also choose to purchase on iBooks or get a print version via the campus bookstore or from OpenStax on Amazon.com.

You can use whichever formats you want. Web view is recommended -- the responsive design works seamlessly on any device. If you buy on Amazon, make sure you use the link on your book page on openstax.org so you get the official OpenStax print version.

Course Objectives

Upon successful completion of this course, students will:

1. Describe the characteristics of life.
2. Explain the methods of inquiry used by scientists.
3. Identify the basic requirements of life and the properties of the major molecules needed for life.
4. Compare and contrast the structures, reproduction, and characteristics of viruses, prokaryotic cells, and eukaryotic cells.
5. Describe the structure of cell membranes and the movement of molecules across a membrane.
6. Identify the substrates, products, and important chemical pathways in metabolism.
7. Identify the principles of inheritance and solve classical genetic problems.
8. Identify the chemical structures, synthesis, and regulation of nucleic acids and proteins.

9. Describe the unity and diversity of life and the evidence for evolution through natural selection.

Course Outcome

1. Critical Thinking Skills: To include creative thinking, innovation, inquiry, and 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. To include the ability to connect choices, actions, and consequences to ethical decision making

Course Outline

The chemistry of life

- Evolution, the themes of biology and scientific inquiry
- The chemical context of life
- Water and life
- Carbon the key
- Biological molecules form and function, composition and structure

- The cell
 - What is a cell
 - The membrane
 - Metabolism, activities in the cell
 - Cell respiration and fermentation
 - Photosynthesis
 - Cell communication and signaling
 - The cell cycle

- Genetics
 - Meiosis
 - Mendel's research
 - Chromosomes and inheritance
 - Molecules of heredity
 - Gene expression

Grade Scale:

89.5 – 100	A
79.5 – 89.4	B

69.5 – 79.4	C
59.5 – 69.4	D
59.4 or below	F

Course Evaluation

Final Grades will be calculated according to the following criteria:

1.4-unit Exams	30%
2.4 quizzes	20%
3.video quizzes	20%
4.Projects	20%
5.Discussion	10%

Course Requirements:

- Completion of all written or oral reports
- Taken all four Unit tests
- Completed all homework assignments and taken all of the quizzes given during the semester
- Taken the final exam

Course Policies

- No late assignments will be accepted unless covered by a college excused absence.
- Exams. There will be four exams
- Attendance Policy. Students are expected to attend class.
- Online video assignments will be posted every week, they carry 20% of your final grade
- If you wish to drop a course, the student is responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an ‘F’ in the course.

Student Code of Conduct Statement

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 or obtained in print upon request at the Student Services Office. Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document

Disabilities Statement

The Americans with Disability Act of 1990 and Section 504, Rehabilitation Act of 1973 are federal anti-discrimination statues that provide comprehensive civil rights for persons with disabilities. LIT provides reasonable accommodations as defined in the Rehabilitation Act of 1973, Section 504 and the American with Disability Act of 1990, to students with a diagnosed disability. The Special Populations Office is located in the Eagles’ Nest Room 129 and helps foster a supportive and inclusive educational environment by maintaining partnerships with faculty and staff, as well as promoting awareness among all members of the Lamar Institute of

Technology community. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator (409)839-2018. You may also visit the online resource at Special Populations - Lamar Institute of Technology (lit.edu)

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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.



