

## **Introduction to Microbiology (BIOL 2320)**

**For Non-Science Majors**

### **CREDIT**

3 Semester Credit Hours (3 hours of lecture)

### **MODE OF INSTRUCTION**

Face to Face

Time: Tuesday and Thursday 2-3:30 pm

Location: PATC 226

### **PREREQUISITE/CO-REQUISITE:**

Must be enrolled in BIOL 2120 at the same time

### **COURSE DESCRIPTION**

Study of cell types and structure also microbial growth, control, metabolism, and genetics. This course provides information about microbes and human interactions, microbial pathogens and human diseases/ health.

### **COURSE OBJECTIVES**

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

1. Identify and describe groups of microbes including prokaryote microbes, eukaryote microbes, and viruses.
2. Explain differences between prokaryotic and eukaryotic cells.
3. Understand importance of microorganisms on agriculture, environment, and human health.
4. Demonstrate microbial metabolism and genetics.
5. Describe interaction between microbes and human, and understand the mechanisms of pathogenesis, diseases transmission, spread, and control.
6. Describe host defense and immunity.
7. Understand microbial growth, manipulation of microorganisms, and control.

### **CORE OBJECTIVES**

1. Critical thinking skills and problem-solving skills to make decision in the laboratory.
2. Communication skills to effectively develop, interpret, and express the ideas and results of scientific investigations.
3. Quantitative skills to investigate and analysis data and use scientific tools in the laboratory to collect data.



**LAMAR INSTITUTE  
OF TECHNOLOGY**

## **INSTRUCTOR CONTACT INFORMATION**

Instructor: Y. Anna Cheng  
Email: ycheng@lit.edu  
Office Phone: 409-247-5323  
Office Location: MPC 241  
Office Hours: MWF 9:30 am-12 pm face to face, by phone, or online. Please feel free to contact me outside office hours by phone, email, or raising the "I Need Help" flag in Starfish.

## **REQUIRED TEXTBOOK AND MATERIALS**

**Open stax ISBN-10: 1938168143**

<https://openstax.org/details/books/microbiology>

## **COURSE POLICIES**

- No food, drinks, or use of tobacco products in class.
- Computers, telephones, headphones, and any other electronic devices must be turned off while in class or used only with permission of the instructor.
- Do not bring children to class.
- 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 10% of your final grade

## **DROP POLICY**

If you wish to drop a course, you are 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.

## COURSE CALENDAR

Week:	2320 To Do:	Due Date
<b>Week 1</b> Aug 21 <sup>st</sup> – 25 <sup>th</sup> Intro/Syllabus Chapter 1: An Invisible World	<input type="checkbox"/> Discussion: Introductions <input type="checkbox"/> Discussion: Netiquette in Online Classes <input type="checkbox"/> Video Quiz: History of Microbiology <input type="checkbox"/> Get started on Individual Project <input type="checkbox"/> Join a group for Group Project	<input type="checkbox"/> 08.26.23
<b>Week 2</b> Aug 28 <sup>th</sup> –Sep 1 <sup>st</sup> Chapter 2: How We See the Invisible World	<input type="checkbox"/> Video Quiz: What are Light and Electronic Microscopes <input type="checkbox"/> Video Quiz: Types of Light Microscopy <input type="checkbox"/> Work on Individual Project Due 10.14.23 <input type="checkbox"/> Work on Group Project Due 11.13.23	<input type="checkbox"/> 09.02.23
<b>Week 3</b> Sep 4 <sup>th</sup> (Holiday) Sep 5 <sup>th</sup> – 8 <sup>th</sup> Chapter 3: The Cell	<input type="checkbox"/> Quiz 1 <input type="checkbox"/> Video Quiz: Prokaryotic vs Eukaryotic Cells <input type="checkbox"/> Work on Individual Project Due 10.14.23 <input type="checkbox"/> Work on Group Project Due 11.13.23	<input type="checkbox"/> 09.09.23
<b>Week 4</b> Sep 11 <sup>th</sup> – 15 <sup>th</sup> Chapter 4 Prokaryotic Diversity	<input type="checkbox"/> Video Quiz: Bacteria <input type="checkbox"/> Discussion: Bioterrorism <input type="checkbox"/> Work on Individual Project Due 10.14.23 <input type="checkbox"/> Work on Group Project Due 11.13.23	<input type="checkbox"/> 09.16.23
<b>Week 5</b> Sep 18 <sup>th</sup> – 22 <sup>nd</sup> Chapter 5 The Eukaryotes of Microbiology	<input type="checkbox"/> Exam 1 <input type="checkbox"/> 5 Video Quizzes <input type="checkbox"/> Work on Individual Project Due 10.14.23 <input type="checkbox"/> Work on Group Project Due 11.13.23	<input type="checkbox"/> 09.23.23
<b>Week 6</b> Sep 25 <sup>th</sup> – 29 <sup>th</sup> Chapter 6 Acellular Pathogens	<input type="checkbox"/> Video Quiz: Viruses <input type="checkbox"/> Video Quiz: Viral Replication <input type="checkbox"/> Discussion: Vaccines <input type="checkbox"/> Work on Individual Project Due 10.14.23 <input type="checkbox"/> Work on Group Project Due 11.13.23	<input type="checkbox"/> 09.30.23
<b>Week 7</b> Oct 2 <sup>nd</sup> – 6 <sup>th</sup> Chapter 7 & 8 Microbial Biochemistry and Metabolism	<input type="checkbox"/> Video Quiz: Metabolism and ATP <input type="checkbox"/> Work on Individual Project Due 10.14.23 <input type="checkbox"/> Work on Group Project Due 11.13.23	<input type="checkbox"/> 10.07.23
<b>Week 8</b> Oct 9 <sup>th</sup> – 13 <sup>rd</sup> Chapter 9 Microbial Growth	<input type="checkbox"/> Exam II <input type="checkbox"/> Video Quiz: Microbial Growth 1 <input type="checkbox"/> Video Quiz: Microbial Growth 2 <input type="checkbox"/> Discussion: Antibiotic Resistance <input type="checkbox"/> Individual Project Due 10.14.23 <input type="checkbox"/> Work on Group Project Due 11.13.23	<input type="checkbox"/> 10.14.23
<b>Week 9</b> Oct 16 <sup>th</sup> – 20 <sup>th</sup> Chapter 10&11&12 Microbial Genetics	<input type="checkbox"/> Video Quiz: Structure of Nucleic Acids <input type="checkbox"/> Video Quiz: DNA replication <input type="checkbox"/> Video Quiz: From DNA to Protein	<input type="checkbox"/> 10.17.22 <input type="checkbox"/> 10.18.22

	<input type="checkbox"/> Video Quiz: Molecular Biology <input type="checkbox"/> Video Quiz: How CRISPR lets you edit DNA <input type="checkbox"/> Work on Group Project Due 11.13.23	
<p><u>Week 10</u>  Oct 23<sup>rd</sup> - 27<sup>th</sup>  Chapter 13  Control of Microbial Growth  Chapter 14  Antimicrobial Drugs</p>	<input type="checkbox"/> Quiz 2 <input type="checkbox"/> Video Quiz: Infection and Intoxication <input type="checkbox"/> Discussion: Antimicrobial Products <input type="checkbox"/> Pathogen Project: Gallery Walk <input type="checkbox"/> Work on Group Project Due 11.13.23	<input type="checkbox"/> 10.28.23
<p><u>Week 11</u>  Oct 30<sup>st</sup> – Nov 3<sup>rd</sup>  Chapter 17  Innate Nonspecific Host Defenses</p>	<input type="checkbox"/> Exam III <input type="checkbox"/> Video Quiz: Immune System 1 <input type="checkbox"/> Work on Group Project Due 11.13.23	<input type="checkbox"/> 11.04.23
<p><u>Week 12</u>  Nov 6<sup>th</sup> – 10<sup>th</sup>  Chapter 18  Adaptive Specific Host Defense</p>	<input type="checkbox"/> Video Quiz: Immune System 2 <input type="checkbox"/> Video Quiz: Immune System 3 <input type="checkbox"/> Work on Group Project Due 11.13.23	<input type="checkbox"/> 11.11.23
<p><u>Week 13</u>  Nov 13<sup>th</sup> – 17<sup>th</sup>  Group Project Presentations</p>	<input type="checkbox"/> Group Project Due 11.13.23 <input type="checkbox"/> Group Project Presentations	<input type="checkbox"/> 11.18.23
<p><u>Week 14</u>  Nov 20<sup>st</sup> – 21<sup>st</sup>  Nov 23<sup>rd</sup> &amp; 24<sup>th</sup> (Holiday)  Chapter 19  Diseases of the Immune System</p>	<input type="checkbox"/> Sleep, rest, relax <input type="checkbox"/> Enjoy time with family and friends <input type="checkbox"/> Exercise <input type="checkbox"/> Read a good book <input type="checkbox"/> Do something nice for someone	<input type="checkbox"/> 11.25.23
<p><u>Week 15</u>  Nov 27<sup>th</sup> – Dec 1<sup>st</sup>  Chapter 19  Diseases of the Immune System</p>	<input type="checkbox"/> Video Quiz: This is What Happens When You Have an Autoimmune Disease <input type="checkbox"/> Video Quiz: Hypersensitivity Types in 4 Minutes <input type="checkbox"/> Video Quiz: Hypersensitivity Type1 Allergic Reaction	<input type="checkbox"/> 12.02.23
<p><u>Week 16</u>  Dec 4<sup>th</sup> - 6<sup>th</sup></p>	<input type="checkbox"/> Final Exam (Exam IV)	<input type="checkbox"/> 12.05.23

## COURSE EVALUATION

Final Grades will be calculated according to the following criteria:

- |                                    |     |
|------------------------------------|-----|
| 1. 4 Units Exams                   | 30% |
| 2. 2 Quizzes                       | 20% |
| 3. Video Quizzes                   | 20% |
| 4. Projects (Individual and Group) | 20% |
| 5. Discussions                     | 10% |

### Grade Scale

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

## **TECHNICAL REQUIREMENTS**

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.

## **DISABILITIES STATEMENT**

The Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes 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 Americans with Disabilities 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 at (409)-951-5708 or email [specialpopulations@lit.edu](mailto:specialpopulations@lit.edu). You may also visit the online resource at [Special Populations - Lamar Institute of Technology \(lit.edu\)](#).

## **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](http://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.