**Spring 2024 Biology 260/261 Syllabus**

**Introduction to Microbiology**

**TR 11:00am-12:15pm**

**Labs: 12:30-3:15 T (01) R (02) M (03)**

**Dobbs 122 (lecture)/220 (lab)**

**Dr. Danielle Satre**

**Office: Dobbs 226**

**Office Hours:** M-R 10:30-11:00am

 TR 3:15-3:30

 F (virtual through Teams) 1-4:30 and by appointment

**Phone #: 770-720-5596**

**e-mail:** **DAS@Reinhardt.edu**

**\*email is the BEST way to contact me**

**Text (Required):**

**The text that is required this year is available online at Openstax.org**

[**https://openstax.org/details/books/microbiology**](https://openstax.org/details/books/microbiology)

**This text can be viewed online, or you can download the pdf file. You can also purchase a hard copy from OpenStax for a nominal fee.**

**\*Please consider donating $10 to OpenStax for use of the textbook and supporting materials so that they can continue to offer free science textbooks.**

**Catalog Course Description:**

This course is a survey of microorganisms with special emphasis on bacteria and their relationship to human beings. It covers eukaryotic and prokaryotic cell structure and function, microbial nutrition and growth, and control of microorganisms. It includes basic biology of bacteria, fungi, algae, protozoa, and viruses with particular emphasis on bacteriology. The course includes both lecture and laboratory instruction.

**This is a 4 credit hour course with a laboratory component.** Over 16 weeks students will spend the equivalent of 2.5 hours per week in lectures, class discussions, and examinations, and 2.75 hours per week in laboratory work. Instructional time includes a 3 hour final exam. Homework, preparation for exams, quizzes, and other out-of-class work will require around 3 hours per credit hour of class OUTSIDE of class/lab time (9-12 hours per week).

***Prerequisite for this course is BIO 120 or Bio 222 or permission of the department.***

***Bio261 is a co-requisite for this course and must be taken in conjunction with this course.***

**Important:**

All students, faculty, staff and administration at Reinhardt University are subject to changes in policies if mandated by the State of Georgia. Current policies and procedures can be found at: https://www.reinhardt.edu/back-to-campus

If you have any questions, please refer to the website or contact Reinhardt University at the numbers below.

* Campus Nurse within the Student Health Center nurse@reinhardt.edu, 770-720-5542 or www.reinhardt.edu/nurse.
* Public Safety - Non-Emergency Phone: 770.720.5789 Emergency Phone: 770.720.5911 publicsafety@reinhardt.edu
* Dean of Students deanofstudents@reinhardt.edu, 770-720-5540
* Office of the Provost provost@reinhardt.edu, 770-720-9102.

**Course Purposes and Learning Objectives:**

Material is presented in both lecture and laboratory formats to aid students in the development of an understanding and appreciation of the following topics:

*main themes of microbiology the chemistry of biology*

*tools of the laboratory eukaryotic and prokaryotic cell structure and function*

*viruses elements of microbial nutrition, ecology and growth*

*microbial metabolism microbial control*

*microbe-human interactions immunity*

* Students will be able to identify major groups of microorganisms. (PLO3)
* Students will be able to apply various microbiological laboratory techniques used to study and identify microbes.
* Students will be able to determine the identity of a bacterium to the species level by comparing and contrasting various characteristics of the bacterium (cell structure, metabolism, growth, etc.). (PLO3)
* Students will be able to apply the scientific method by formulating hypotheses, gathering and analyzing data, and presenting their research in an oral report to the class written lab report. In addition, they will be able to demonstrate their ability to access and utilize primary literature in their written work. (PLO1&2)
* Students will be able to understand complex interactions between microbes and humans and be able to apply their knowledge to their everyday lives by understanding how to control microbial grown and limit possibility of disease.

**Course Policies: The following regulations must be observed.**

**1. You must check Canvas daily for announcements!**

**2. Class Attendance Policy:** It is expected that students will demonstrate their professionalism through promptness and regular attendance in the college classroom. Excessive absenteeism and tardiness will result in a lower grade (attendance points for both lecture and lab are taken at the beginning of each session).

**If an absence is unavoidable, please email the professor as soon as possible. In addition, if the unavoidable absence occurs on the day of an exam, the instructor must be notified within 24 hours of the missed exam (please see exam/assignments policies for consequences of missing an exam or turning in late work).**

Each class member is responsible for all material and information discussed and assigned in class. It is recommended that you make arrangements with a fellow class member to take notes, to collect handouts, and to contact you about important assignments when you are absent from class. Also, you must check Canvas for announcements pertaining to class.

**3.**   **Conduct:** Each student is expected to speak and conduct himself/herself in a manner that is respectful and courteous to everyone in the classroom (classmates and the instructor) at all times.

**4. Lab Policies:** Students must be present for ALL labs. Due to the nature of the labs for this course, students will **NOT** be able to make-up a missed lab. If you miss a lab, the grade for that lab will be a zero. Students must also follow lab safety protocols at ALL times when in the lab. Ignoring safety regulations and practices during lab sessions will result in the loss of points on lab exercises and may result in dismissal from lab. A separate sheet with lab rules will be provided.

**5.** E**xams/Assignments policies:** All exams are expected to be completed in class on the scheduled day of the exam and all assignments are expected to be turned in on their due date. No late work will be accepted unless the student has a legitimate, verifiable reason for turning something in late. In addition, if an exam is missed, you must have a legitimate, verifiable reason for missing the exam in order to be able to make it up (please see acceptable reasons for missing class/exam below), otherwise, the missed exam will receive the grade of zero. Additionally, any make up exam will be given on the day the student returns to class and may be in essay format.

**6. Acceptable reasons for missing class/exam:** Legitimate reasons for missing a class/exam include any illness requiring a doctors’ visit or involving a fever (you must have a note from your doctor or have the school nurse send the instructor an e-mail), or a death in the immediate family (an obituary will be needed for documentation). Any other excuses will be considered on an individual basis and the instructor will determine whether the absence will be excused and the student will be able to make up any work missed due to their absence. Any absence deemed to be excusable will **require documentation**.

**7. Reading Assignments: Students are expected to complete all readings for lab and lecture (including any pre-lab assignments) and watch the lecture videos BEFORE coming to class.**

**8.Academic Integrity:** No form of academic dishonesty or student misconduct will be tolerated. In all classes at Reinhardt University, it is an HONOR CODE VIOLATION to cheat or pass information about tests/quizzes from one individual to another. The professor has the right to give both the person who attempts to pass the information and the person who receives it the grade of ‘F’ in the course. In addition, plagiarism is a punishable offense. All coursework should be done individually and be written in your own words when applicable. If it is determined that you have copied/pasted someone else’s work or information from the internet, you will be referred to the Vice President of Academic Affairs/Provost and written up. Please see the Student Handbook for consequences of plagiarism. If you ever have questions regarding plagiarism, please ask!

**9. Electronics:** The Department of Math and Sciences is an electronics-free zone! The use of tablets/iPads, cellular phones etc. are **NOT** allowed in lecture, lab, or the field. Private laptops may be used to take notes during lecture, however, this will not be the case if students are using them for social media, games, or any other non-class-related subject matter during class time. **The use of electronic devices will NOT be allowed in lab for ANY reason.**

**10.** If an emergency occurs and the instructor is not present for a designated class or lab session the student is expected to remain in the class or lab room for 15 minutes or until they are notified that the session has been cancelled. The student should use this time for group study or review of assigned material. Always check Canvas before leaving.

**11.** If the University officially closes on an exam day (see [www.reinhardt.edu](http://www.reinhardt.edu/) for official

cancellation or delay notices), the exam will be given in the next regularly scheduled class or may be given online.

**12.** If you are a student with a disability and require special accommodations to complete

this course please see the instructor.

**Students with Disabilities**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a documented disability requiring an accommodation, please contact the Academic Support Office (ASO).

Reinhardt University is committed to providing reasonable accommodations for all persons with disabilities. Therefore, if you are seeking classroom accommodations under the Americans with Disabilities Act, you are required to register with the Academic Support Office (ASO). ASO is located in the basement of Lawson Building. Phone is 7707205567. To receive academic accommodations for this class, please obtain the proper ASO letters/forms.

**Evaluation and Grading:**

Grades are based on class attendance and contribution, lab participation, 1 major lab report/research paper, a presentation, quizzes, exams, and a cumulative final exam. All students are required to keep a current class notebook in which assignments, as well as lecture and lab notes are kept. Again, if a student has an issue (i.e. illness), labwork, quizzes and exams may be accepted if the student has verifiable documentation for his/her absence. Any make up exams or quizzes will be given on the day the student returns to class and may be in essay format.

Class grades are based on a percentage of the total number of points accumulated in the class as follows:

**Class Contribution (10%)** = Class contribution is measured by attendance, participation and professionalism.

**Lab Participation (20%)** = Lab participation is measured by lab attendance and participation in small group activities, completion of graded lab assignments, upkeep of a lab notebook.

**Lab Research Project (10%) =** Students will identify an unknown bacterium by performing a series of experiments in the lab and give a brief presentation on their unknown bacterium. This will include a research component. More on this will be provided on Canvas.

**Exams (60%)** = Basic content is measured by unit exams and quizzes. There will be 4 unit exams, each being worth 15% of your final grade and the lowest exam grade will be dropped (totaling 45% of your final course grade). Exams may include short answer, fill in the blank, labeling, multiple choice, matching, and short essay questions. The final exam will be cumulative and will account for 15% of your final course grade.

**The grading scale is as follows:** This scale is subject to change at the instructor’s discretion. However, do not rely on potential modification of the grading scale (i.e. a curve).

**A = 90-100% D = 60-69%**

**B = 80-89% F = <60%**

**C = 70-79%**

**Suggestions for Success:**

* Attendance is important. Taking lecture notes is a learning process, and you will not learn the same things working with someone else's notes.
* Watching the lecture videos and taking notes is absolutely necessary, as is reading the text!
* Study regularly! Be diligent and stay on top of your studies. Set aside time in your schedule to study in a non-distracting environment. Turn off your phone and notifications from social media during these scheduled study periods. Do not try to cram right before an exam. Material builds and you will need to retain what you have learned from 1 exam to another.
* Use multiple resources and study in several different ways. Again, reading and taking notes are absolutely necessary, however, just doing this will not likely be enough to succeed. Review your lecture notes together with the text and re-write your notes as you do so. Try multiple strategies, like diagramming and making your own flash cards. Utilize the resources that are available to you through OpenStax and answer questions at the end of each chapter. Use the other resources I provide and watch additional videos.
* If you can draw it, you probably know it. Pick significant figures from the lectures and text and see if you can re-draw them from memory. It doesn't have to be pretty to help you a lot.
* Make and listen to an audiotape of your notes. Make a tape **in your own words** and listen to it while doing other things, such as exercising or cleaning.
* Collaborate! Getting together with other students (in discussion groups on Canvas for example) for your note-rewriting as review will help you catch details you may have missed the first time through... and will do the same for them.
* **Also-I am available! If you have questions, do not hesitate to ask!**

**Center for Student Success:**

The Center for Student Success, located in the library, offers free peer and faculty tutoring for all subjects.  Please contact Charity Robertson for more information.

**Tentative Course Schedule:**

**Date, Topic and Reading Assignment (textbook and lab materials)**

***\*You will be expected to check results in the lab outside of lab periods***

**Week 1: week of 1/8**

First day of class – Introduction

An Invisible World (Ch. 1)

How we see the invisible world (Ch. 2)

Lab Exercise: **No Lab**

**Week 2: week of 1/15**

**M 1/15 – Martin Luther King Jr. Day – campus closed**

**\*Last day to drop/add Tuesday 1/16**

The Cell (Ch. 3)

Lab Exercise: Introduction/Ubiquity of bacteria

**Week 3: week of 1/22**

Prokaryotic Diversity (Ch. 4)

Lab Exercises: Microscopy and Tools of the Lab

**Week 4: week of 1/29**

**Exam 1 (Ch.’s 1-4 and lab exercises)**

The Eukaryotes of Microbiology (Ch. 5)

Lab Exercises: Inoculating media and obtaining a pure culture

**Week 5:** **week of 2/5**

Acellular Pathogens (Ch. 6)

Lab Exercise: Protists, Algae, and Fungi

**Week 6: week of 2/12**

Microbial Biochemistry (Ch. 7)

Microbial Metabolism (Ch. 8)

Lab exercise: Staining

**Week 7: week of 2/19**

Microbial Growth (Ch.9)

Lab: Introduction to Media and isolate unknown

**Week 8: week of 2/26**

**Exam 2 (Ch.’s 5-9 and lab exercises)**

Lab: Begin Unknown Bacteria Lab (inspect growth, and Gram staining, determine action plan to identify genus)

**Week 9: week of 3/4**

 **Spring Break-No Class**

**Week 10: week of 3/11**

Control of Microbial Growth (Ch. 13)

Lab: Work on unknown (determine Genus, determine action plan to identify species)

**\*Last day to withdraw Tuesday 3/12**

\*\***Sign up for advising!**

**Week 11: week of 3/18**

**\*Advisement and Registration for summer and fall 2023**

Antimicrobial Drugs (Ch. 14)

Lab: Work on unknown (determine species)

**Week 12: week of 3/25**

Microbial Mechanisms of Pathogenicity (Ch. 15)

Disease and Epidemiology (Ch. 16)

Lab – \*Lab presentation on unknown bacteria

**Week 13: week of 4/1**

**Exam 3 (Ch.’s 13-15 and lab exercises)**

Innate Nonspecific Host Defenses (Ch. 17)

4/13 is Spring day-No class

Lab-NO LAB

**Week 14: week of 4/8**

Adaptive, Specific Host Defenses (Ch. 18)

Lab: Effectiveness of germicides and Antibiotic resistance

**Week 15: week of 4/15**

**Exam 4 (Ch.’s 16-18 and lab exercises)**

Lab: Notebooks due

**Week 16:** **week of 4/22**

4/23-Last Day of class

4/24 – Reading Day

**Cumulative Final Exam Friday April 26 @ 11:15**

Please sign and return this page.

Reinhardt University

Biology 260/261 Course Acknowledgement

I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ have read and I understand all material contained within the syllabus. I also certify that the instructor has explained in detail all information contained within the syllabus.

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_