

MICROBIOLOGY FOR SCIENCE MAJORS – BIOL 2321
Sul Ross State University Spring 2022

Instructor: Anne Marie Hilscher, Biology Lecturer

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Office Hours: MWF 8:30-9:00 & 10-11:30; M 1:00-3:00; TR 2-3:00; & by appt. in WSB 220

Lecture: TR 12:30-1:45 WSB 201

Recommended Text for Lecture: Madigan et al. 2017. Brock Biology of Microorganisms.15e.

Course description: This course will focus on microorganisms and how they impact our everyday lives. As an introductory course in Microbiology, the focus will be on the ubiquity, diversity and evolution of microorganisms, microbial ecology, and medical microbiology. Genetics, genomics and molecular biology will receive less attention as these topics are covered in other courses.

Grading: There will be three lecture exams, each of equal contribution to the student grade. Exams will cover the lecture material immediately preceding the exams *i.e.*, no comprehensive final exam

Task	Points
Exam I	100
Exam II	100
Exam III	100
<u>Assignments</u>	<u>100</u>
TOTAL	400

Grades: A 90 – 100% B 80 – 89% C 70 – 79% D 60 – 69% F 0 – 59%

Marketable Skills (MS): The biology student graduating with a BS in Biology should have the following MS:

1. Ability to organize, analyze, and interpret data.
2. Proficiency in using presentation software.
3. Experience in managing time and meeting deadlines.
4. Ability to speak effectively and write concisely about scientific topics.
5. Experience in the development of professional email correspondence.

Student Learning Outcomes (SLO): The biology student graduating with a BS in Biology should be able to:

SLO1 demonstrate an understanding of basic biological concepts, including but not limited to evolution via natural selection, cell theory, and the role and function of DNA.

SLO2 demonstrate utilization of various field techniques toward addressing scientific questions in the specific discipline. These field techniques can include, but are not limited to, plant collection and processing, various animal collection techniques, ecological surveying and sampling, and biodiversity indexing.

SLO3 use biological instrumentation to solve biological problems using standard observational strategies.

SLO4 develop writing skills by summarizing and critiquing recent relevant biological literature.

TENTATIVE COURSE SCHEDULE

WEEK	DATE	TOPIC	Textbook Chapter
1 ONLINE	T Jan 11	Introduction to Course	1
	R Jan 13	An Introduction to Microorganisms	1
2	T Jan 18	Microorganisms & History of Microbiology	2
	R Jan 20	Microbial Cell Structure & Function	2
3	T Jan 25	Microbial Cell Structure & Function, cont.	3
	R Jan 27	Microbial Metabolism	4
4	T Feb 01	Molecular Microbiology	5
	R Feb 03	Microbial Growth & Control	5
5	T Feb 08	Microbial Growth & Control	8
	R Feb 10	EXAM I	
6	T Feb 15	Viruses	12
	R Feb 17	Microbial Evolution	15
7	T Feb 22	Diversity of Bacteria	15
	R Feb 24	Diversity of Bacteria, cont.	16
8	T Mar 01	Diversity of Archaea	16
	R Mar 03	Diversity of Archaea, cont.	17
9	No Classes—Spring Break		
10	T Mar 15	Diversity of Eukaryotic Microorganisms	
	R Mar 17	Diversity of Eukaryotic Microorganisms, cont.	17
11	T Mar 22	Diversity of Eukaryotic Microorganisms, cont.	17
	R Mar 24	Diversity of Eukaryotic Microorganisms, cont.	17
12	T Mar 29	EXAM II	
	R Mar 31	Microbial Ecology	19-20
13	T Apr 05	Microbial Symbioses	22
	R Apr 07	Microbial Symbioses	22
14	T Apr 12	Microbial Interactions with Humans	23
	R Apr 14	Microbial Interactions with Humans	23
15	T Apr 19	Diagnostic Microbiology & Vaccines	27
	R Apr 21	Bacterial and Viral Diseases	29-31
16	T Apr 26	Bacterial and Viral Diseases, cont.	29-31
	R Apr 28	No Classes – Study Day	29-31
17	Exam III administered on Wednesday, May 4th, 10:15am-12:15pm		

Note – Lecture topics are subject to change according to course interest, organization, and timing constraints, however the exam dates will remain the same.

Student Learning Objectives for this Course:

- Students will outline the differences between prokaryotes and eukaryotes
- Students will demonstrate an understanding of microbial growth, nutrition and metabolism
- Students will demonstrate an understanding of microbial ecology and nutrient cycling
- Students will outline the basic features of bacteria, archaea, fungi, algae, protists and viruses
- Students will demonstrate an understanding of diseases caused by bacteria, fungi and viruses

Attendance: Attendance is mandatory. Lectures will not be posted on Blackboard so students must attend lectures to receive the material. Absences are excused only if students have a documented, university approved excuse (illness, death in the family, etc.). As per SRSU policy, any students missing 20% of lectures (6 lectures) over the course of the semester shall be dropped from the class with an F. **Students cannot miss any exams** unless they have a documented, university-approved excuse; in these cases, the instructor needs to be informed **at least 24 hours in advance** of the exam.

Studying: As a general rule, students should spend 2-3 hours studying for every 1 hour of lecture material. So, for this class, you need to allocate 5-7.5 hours per week to study the lecture material. I recommend reading your notes in conjunction with reading the relevant textbook chapters. Studying is best done shortly after the lecture, not all at once the night before the exam. Look up anything that you do not understand or visit with your instructor during office hours.

ADA Statement: Any student who because of a disability, may require special arrangements to meet the course requirements should contact the instructor as soon as possible to make necessary arrangements. If an accommodation is needed, students must present their accommodation letter, obtained from Accessibility Services, as soon as possible. Please note that instructors are not permitted to provide classroom accommodations to a student until the appropriate verification has been received. Accessibility Services is in Ferguson Hall room 112. You can make an appointment by calling Mary Schwartz Grisham at 432 837-8203.

SRSU Library Services. The Sul Ross Library offers FREE resources and services to the entire SRSU community. Access and borrow books, articles, and more by visiting the library's website, library.sulross.edu. Off-campus access requires your LoboID and password. Check out materials using your photo ID. Librarians are a tremendous resource for your coursework and can be reached in person, by email (srsulibrary@sulross.edu), or phone (432-837-8123).

Academic Integrity. Students in this class are expected to demonstrate scholarly behavior and academic honesty in the use of intellectual property. A scholar is expected to be punctual, prepared, and focused; meaningful and pertinent participation is appreciated. Examples of academic dishonesty include but are not limited to: Turning in work as original that was used in whole or part for another course and/or professor; turning in another person's work as one's own; copying from professional works or internet sites without citation; collaborating on a course assignment, examination, or quiz when collaboration is forbidden.