

CATALOG INFORMATION

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Dept & Nbr: BIO 259 Title: MICROBIOLOGY

Full Title: Microbiology

Units	Course Hours	Per Week	Nbr of Weeks	Course Hours	Total
Max: 5.0	Lecture	4.0	17	Lecture	68.0
Min: 5.0	Lab	4.0		Lab	68.0
	Contact DHR	0.0		Contact DHR	0.0
	Contact Total	8.0		Contact Total	136.0
	Non-contact DHR	0.0		Non-contact DHR	0.0

Title 5 Category: 01 AA Degree Applic
Grading: GC Credit course for grade or CR/NC
Repeatability: 00 No repeatability allowed or defined
Also listed as:

CATALOG DESCRIPTION:

An introduction to the morphology, physiology and ecology of bacteria and microorganisms and their role in areas related to human health and disease. Laboratory sessions will be devoted to culturing, staining and identifying nonpathogenic organisms.

PREREQUISITES:

BIO 200 and 201 or 230 or 231 or 250 or 255 or 257 and CHM 200

COREQUISITES:

RECOMMENDED PREPARATION:

No advisories.

LIMITS ON ENROLLMENT:

SCHEDULE OF CLASSES INFORMATION:

Prerequisites: BIO 200 and 201 or 230 or 231 or 250 or 255 or 257 and CHM 200

Biology majors and health professionals will study bacteria, viruses fungi, and protozoa that cause human and plant disease. Provider approve by the California Board of Registered Nursing, Provider Number CEP3 09 for 60 contact hours. (Grade or CR/NC)

Transfer Credit: CSU; UC. (CAN BIOL 14)

ARTICULATION and CERTIFICATE INFORMATION

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ASSOCIATE DEGREE:	Effective: FALL	1981	Inactive:
Area: A	NATURAL SCIENCES		
CSU GE:	Effective: FALL	1981	Inactive:
Transfer area: B2	LIFE SCIENCE		
B3	LAB ACTIVITY		
IGETC:	Effective: FALL	1981	Inactive:

Transfer area: 5B BIOLOGICAL SCIENCES

CSU TRANSFER: TRANSFERABLE Effective: FALL 1981 Inactive:

UC TRANSFER: TRANSFERABLE Effective: FALL 1981 Inactive:

CAN:

BIOL 14 Grp Nbr: 01 Effective: FALL 1995 Inactive: SPRING 2009

CERTIFICATE APPLICABLE: N NOT CERTIFICATE/MAJOR APPLICABLE

APPROVAL AND DATES

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Version 01 Submitted by: DEBBI Date: 10/10/2001
Department approved: Date:
Curriculum approved: 10/10/2001 Version approved: 10/10/2001
Prerequisites approved: 10/10/2001 Last reviewed: 10/10/2001
Term effective: FALL 2002 Last taught: FALL 2003 Inactive: FALL 2004

COURSE CONTENT

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OUTCOME AND OBJECTIVES:

1. Identify the organisms of importance that require study under the microscope.
2. Develop an understanding of the anatomy and physiology of microorganisms and the consequential effect of various environmental factors upon them.
3. Know the causative organism of the more common human diseases and the physiological effect of the drugs most commonly used in the fight against these diseases.
4. Understand "Genetic Engineering" and the role that microorganisms are playing in this process.
5. Develop the fundamental laboratory skills that are essential to further study and entry level employment.

TOPICS AND SCOPE:

Lecture

1. Fundamentals of Microbiology
 - a. Microbial World
 - b. Functional anatomy of prokaryotic cells
 - c. Functional anatomy of eukaryotic cells
 - d. Microbial metabolism
 - e. Microbial growth
 - f. Control of microbial growth
 - g. Microbial genetics
 - h. Biotechnology and Recombinant DNA
2. Survey of the Microbial World
 - a. Classification of microorganisms
 - b. Prokaryotes: Domain bacteria and Archaea
 - c. Eukaryotes: fungi, Algae, Protozoa, Helminths
 - d. Viruses, Viroids, Prions
3. Interaction Between Microbe and Host
 - a. Principles of disease and epidemiology
 - b. Microbial mechanisms of pathogenicity
 - c. Nonspecific defenses of the host
 - d. Specific defenses of the host
 - e. Practical applications of Immunology
 - f. Disorders associated with the immune system
4. Diseases by Systems Affected
 - a. Skin

- b. Upper respiratory
 - c. Lower respiratory
 - d. Alimentary
 - e. Genitourinary
 - f. Nervous
 - g. Wounds
 - h. Blood and lymphatic
5. Applied Microbiology
- a. Epidemiology
 - b. Microorganisms in the environment
 - c. Microorganisms in food
 - d. Commercial applications

Laboratory

- 1. Microscopy
- 2. Phase Contrast
- 3. Negative Stain
- 4. Smear Preparation
- 5. Simple Stain
- 6. Capsular Stain
- 7. Gram Stain
- 8. Spore Stain
- 9. Acid Fast Stain
- 10. Stain
- 11. Pure Culture
- 12. Bergey's Manual
- 13. Bacterial Counts of Foods
- 14. Temperature
- 15. Temperature: Lethal Effects
- 16. Disinfectants
- 17. Antiseptics
- 18. Sensitivity
- 19. Hand scrubbing
- 20. Urinary
- 21. Water
- 22. Microscope Measurements
- 23. Electrophoresis

ASSIGNMENTS:

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READING ASSIGNMENTS:

Students will be required to read and study the assigned chapters in the textbook, as well as assignments from the laboratory manual prior to laboratory experiments. Supplemental reading from selected journal articles will be assigned. Examples of appropriate recommended reading are: Scientific American; New England Journal of Medicine; Journal of the American Medical Association; and Biological Bulletin.

WRITING ASSIGNMENTS:

Students are required to investigate and complete selected laboratory reports, which are submitted to the instructor at the end of each week.

OUTSIDE ASSIGNMENT:

Six hours of independent work must be completed out of class each week. This work includes studying lecture discussions, reviewing and writing laboratory reports, answering questions presented in the textbook and preparing for upcoming laboratory activities.

ASSIGNMENTS THAT DEMONSTRATE CRITICAL THINKING:

The experimental laboratory by its very nature requires critical thinking on the part of the student. Students must analyze laboratory results and demonstrate their understanding by interpreting the

results in a well-written laboratory report.

METHOD OF INSTRUCTION:

Lecture, laboratory assignments, slide presentations, handouts, reading assignments, laboratory skill demonstrations and class discussion.

METHODS OF EVALUATION:

1. Total grade for the semester will be comprised of 1/4 for the laboratory and 3/4 for the lecture. 2. The lecture grade will be based on at least four exams plus the final with the total score being the cumulative total of each exam. Relative weighting of each exam is accomplished by the number of questions varying according to the amount of material covered. 3. The laboratory grade will be based on at least one lab practical exam counting 1/2 and the remaining 1/2 coming from indicated lab reports that will be turned in.

BASIS FOR GRADING:

The assignment of a grade is based on the level of achievement of the outcomes and objectives of the course outline and is reflected in quantifiable terms in the course syllabus.

REPRESENTATIVE TEXTBOOKS:

Microbiology, hardbound 5th Ed./2002, Prescott, Harley, Klein, McGraw Hill
Microbiological Applications, 7th edition paperback/1998,
Benson/McGraw Hill