

MICRO 60 Course Outline as of Fall 1997**CATALOG INFORMATION**

Dept and Nbr: MICRO 60 Title: FUND/MICROBIOLOGY

Full Title: Fundamentals of Microbiology

Last Reviewed: 5/8/2023

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	4.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	4.00	Lab Scheduled	3.00	5	Lab Scheduled	52.50
		Contact DHR	0		Contact DHR	0
		Contact Total	6.00		Contact Total	105.00
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00

Total Student Learning Hours: 210.00

Title 5 Category: AA Degree Applicable

Grading: Grade or P/NP

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly:

Catalog Description:

Survey of the major concepts of microbiology with emphasis on those related to infectious disease. Basic techniques for cultivation and identification of micro-organisms, principles of genetics, physiology, and disease resistance.

Prerequisites/Corequisites:

Completion of CHEM 60 or higher (V6) and Completion of BIO 10 or higher (V7)

Recommended Preparation:

Eligibility for ENGL 100 or ESL 100.

Limits on Enrollment:**Schedule of Classes Information:**

Description: Survey of the major concepts of microbiology with emphasis on those related to human disease. Basic lab techniques. (Grade or P/NP)

Prerequisites/Corequisites: Completion of CHEM 60 or higher (V6) and Completion of BIO 10 or higher (V7)

Recommended: Eligibility for ENGL 100 or ESL 100.

Limits on Enrollment:

Transfer Credit: CSU;
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	Area		Effective:	Inactive:
	C	Natural Sciences	Fall 1981	
CSU GE:	Transfer Area		Effective:	Inactive:
	B2	Life Science	Fall 1981	
	B3	Laboratory Activity		
IGETC:	Transfer Area		Effective:	Inactive:
CSU Transfer:	Transferable	Effective:	Fall 1981	Inactive:
UC Transfer:		Effective:		Inactive:

CID:

Certificate/Major Applicable:

Not Certificate/Major Applicable

COURSE CONTENT

Outcomes and Objectives:

Upon completion of the course the student should be able to:

1. Describe the discovery of the microbial world and its ubiquity.
2. Relate microbial causality of disease to Koch's Postulates.
3. Place microbes evolutionarily and taxonomically.
4. Describe the basic chemical activities essential to life.
5. Define selective toxicity and relate its connection to the basic chemical activities of cells.
6. Compare and contrast anti-microbial and anti-viral chemotherapy.
7. Describe the modern approach to taxonomy and relate it to epidemiology and biotechnology.
8. Contrast mutation and recombination and relate to diversity of micro-organisms and virus.
9. Describe conjugation, transformation, and transduction and relate to the "antibiotic paradox".
10. Construct and sterilize culture media.
11. Isolate and identify organisms in pure culture by staining and microscopy.
12. Biotype representative organisms.
13. Isolate and identify normal flora of human body.
14. Test antibiotic sensitivity of representative micro-organisms.
15. Titrate virus.
16. Define virus, and retrovirus and describe their interactions with cells.
17. Relate antiviral vaccination to virus cell interaction.
18. Relate anti-viral chemotherapy to virus cell interactions.
19. Define symbiosis and relate to role of the host in disease.
20. Describe various mechanisms of pathogenicity.

21. Describe non-specific defences against disease.
22. Describe the components and functions of the immune system and relate to disease processes.
23. Describe environmental influences on host resistance to disease and relate to public health measures for the control of disease.

Topics and Scope:

1. History of microbiology
 - A. Discovery, microscopy, staining
 - B. Koch's Postulates and causality
2. Methods
 - A. Pure and enrichment cultures
 - B. Sterilization
3. Unity of life
 - A. Cells and chemistry
 - B. Structure and function of nucleic acids
 - C. Structure and function of proteins
 - D. Commonalities of energy metabolism
 - E. Prokaryotes and eukaryotes
 1. Antibiotics and selective toxicity
4. Taxonomy and identification
 - A. DNA based methodologies
 - B. Epidemiology
 - C. Select pathogens and normal flora
5. Microbial genetics
 - A. Mutation and recombination
 1. Plasmids, conjugation, transduction, transformation
 2. Biotechnology
 - B. Antibiotic paradox
6. Virus
 - A. Discovery and definitions
 - B. Interactions with host cell
 - C. Anti-viral vaccination and chemotherapy
 1. Small pox and polio
 - D. Retrovirus, HIV disease, cancer
7. Symbiosis
 - A. Evolutionary origins and significance
 - B. Role in host centered model of disease
8. Host's role in disease
 - A. Non-specific resistance
 - B. The immune system and its functions
 1. Vaccination
 - C. Environmental influences on host resistance

Assignment:

Assignments for Microbiology 60 include:

1. Specific reading assignments from the text averaging one chapter per week. Outside reading averaging 5-10 pages per week.
2. Lab reports averaging 1-2 pages per week.

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Lab reports, Essay exams

Writing
30 - 60%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Lab reports, Exams

Problem solving
10 - 40%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Class performances, Performance exams

Skill Demonstrations
10 - 40%

Exams: All forms of formal testing, other than skill performance exams.

ESSAY

Exams
20 - 50%

Other: Includes any assessment tools that do not logically fit into the above categories.

None

Other Category
0 - 0%

Representative Textbooks and Materials:

MICROBIAL BIOLOGY, 4th edition, by Rosenberg, E. and Cohen, I. Saunders College, 1983.

MICROBIOLOGY, 3rd edition, by I.E. Alcama, Benjamin/Cummings Publishing Co. Inc., 1991