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:

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	Area C	Natural Science	25	Effective: Fall 1981	Inactive:
CSU GE:	Transfer Area B2 B3	Life Science Laboratory Activity		Effective: Fall 1981	Inactive:
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 activties 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 microscopsy.
- 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 there 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 is 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, microscopsy, staining
 - B. Koch's Postulates and causality
- 2. Methods
 - A. Pure and enrichment cultures
 - B. Sterlization
- 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. Procaryotes and eucaryotes
 - 1. Antibiotics and selecive 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

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

Lab reports, Exams

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

Class performances, Performance exams

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

ESSAY

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

None

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

	Writing 30 - 60%
er than exams, that l or non-	
	Problem solving 10 - 40%
d physical oses including skill	
	Skill Demonstrations 10 - 40%
than skill	
	Exams 20 - 50%
t do not logically	
	Other Category

0 - 0%