MICRO 60 Course Outline as of Fall 2007

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.

Prerequisites/Corequisites:
Completion of CHEM 60 and completion of BIO 10

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 and completion of BIO 10
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:
Major Applicable Course

COURSE CONTENT

Outcomes and Objectives:
Upon successful completion of this course students will be able to:
1. Describe the history of the discovery of the microbial world.
2. Relate microbial causality of disease to Koch's Postulates.
3. Categorize microbes taxonomically and evolutionarily.
4. Describe the basic chemical activities essential to life.
5. Contrast mutation, recombination, conjugation, transformation, transduction.
6. Describe viruses, their relation to cells, vaccinations.
7. Compare various mechanisms of pathogenicity.
8. Describe the function of the immune system and its relation to disease.
9. Relate environmental influences on host resistance to public health measures.
10. Perform basic microbiological laboratory techniques.

Topics and Scope:

1. History of microbiology
   A. Discovery, microscopy, staining
   B. Koch's Postulates and causality
   C. Scientific method as it applies to microbiology
   D. Microbiology and world civilizations
2. Unity of life
   A. Cells and chemistry
   B. Structure and function of nucleic acids
   C. Structure and function of proteins
   D. Energy metabolism
   E. Prokaryotes and eukaryotes
   F. Antibiotics and selective toxicity

3. Taxonomy and identification
   A. DNA based methodologies
   B. Epidemiology
   C. Select normal flora and pathogens
4. Microbial genetics
   A. Mutation and recombination
      1. Plasmids, conjugation, transduction, transformation
      2. Biotechnology
   B. Antibiotic paradox
5. Virus
   A. Discovery and definitions
   B. Interactions with host cell
   C. Anti-viral vaccination and chemotherapy
   D. Retrovirus, HIV disease, cancer
6. Prions
7. Host's role in disease
   A. Symbiosis
   B. Non-specific resistance
   C. The immune system and immunization
   D. Environmental influences on host resistance

Assignment:

1. Reading assignments from text, averaging one chapter per week; additional reading assignments averaging 5-10 pages per week.
2. Laboratory experiments, data collection, demonstration of sterile and culture technique.
3. Lab reports.
4. Examinations: objective and essay questions.

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.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments and skill demonstrations are more appropriate for this course.	Writing 0 - 0%

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

Lab reports	Problem solving 10 - 40%

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

Sterile and culture technique	Skill Demonstrations 10 - 20%

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

Multiple choice, Completion, Essay	Exams 50 - 80%

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

None	Other Category 0 - 0%

Representative Textbooks and Materials:
Microbiology: An Introduction, 8th edition, by G.J. Tortora, B.R. Funke and C.L. Case, 2004
Microbiology for the Health Sciences, 2006, by G.Burton and P.Engelkirk
Instructor prepared lab manual