

**JEFFERSON COLLEGE**

**COURSE SYLLABUS**

**BIO114**

**MICROBIOLOGY LAB FOR THE HEALTH SCIENCES**

**1 Credit Hour**

**Prepared by:  
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**Revised Date: February 2001  
by  
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**Division of Math and Science  
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## BIO114 MICROBIOLOGY LAB FOR THE HEALTH SCIENCES

### I. CATALOGUE DESCRIPTION

Prerequisite/corequisite: BIO113 or instructor=s permission.  
1 semester hour credit

Microbiology for the Health Sciences Lab explores methods used to observe and investigate characteristics of microorganisms. The course stresses Ahands-on@ activities with the microscope and materials that assist in isolation, identification, growth and control of microbes. BIO114 meets for two hours of lab per week, and will partially satisfy the science requirement for the Associate of Arts degree. Students cannot apply both BIO114 and BIO215 toward graduation. (F,S)

### II. GENERAL COURSE OBJECTIVES

Upon completion of this course the student will be able to:

- A. Characterize representative members of the microbial kingdoms.
- B. Describe methods of isolation and cultivation of microbes.
- C. List basic methods of sterilization and disinfection.
- D. List methods of testing for antibodies.
- E. Perform basic laboratory methods associated with microbiology.
- F. Properly use a compound microscope.

### III. COURSE OUTLINE (COURSE CONTENT WILL BE DRAWN FROM THIS)

- A. Using the Microscope
- B. Preparation and Staining Methods of Microscope Slides
- C. Methods of Growth and Cultivation
- D. Isolation Methods
- E. Antibiotics, Disinfectants and Antiseptics
- F. Identification Methods

#### IV. UNIT OBJECTIVES

- A. Microscopy Techniques
  1. Perform heat fixation.
  2. Prepare gram stains.
  3. Observe microbial morphology.
  
- B. Growth
  1. Be able to grow anaerobes in culture.
  2. Inoculate broths and solid media.
  3. Cultivate viruses.
  
- C. Control
  1. Use U.V. light sterilization.
  2. Use disinfectants and antiseptics.
  3. Test antibiotics.
  
- D. Microbial Metabolism
  1. List and describe sugar metabolism tests.
  2. List and describe protein tests.
  3. List and describe catalase and oxidase tests.
  
- E. Microflora of the Body
  1. Use selective media to isolate microbes from the body.
  2. Use differential media to isolate microbes from the body.
  
- F. Identification of an Unknown
  1. Isolate a microbe from a mixed culture.
  2. Perform the proper tests to identify the isolated microbe.

#### V. METHOD(S) OF INSTRUCTION

- A. Pre-Lab Discussions
- B. Classroom Discussions
- C. Classroom Demonstrations
- D. Laboratory Exercises

#### VI. REQUIRED TEXTBOOK(S) WITH PUBLICATION INFORMATION

Hampton, C.M. and Curfman-Falvey, M. *Laboratory Explorations in Microbiology*, Simon & Schuster Custom Publishing, Needham Heights, MA.

VII. REQUIRED MATERIALS (STUDENT)

None.

VIII. SUPPLEMENTAL REFERENCES

Bergy=s Manuals (Library Reserve Desk)

IX. METHOD OF EVALUATION (STUDENT)

A. Laboratory Reports

B. Laboratory Exams

C. Microbial Unknown Investigation