RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE

MLTC 202 Clinical Microbiology II

I. Basic Course Information

A. Course Number and Title: MLTC 202 Clinical Microbiology II

B. New or Modified Course: Modified

C. Date of Proposal: Semester: Fall Year: 2024

D. Effective Term: Fall 2025

E. Sponsoring Department: Science & Engineering

F. Semester Credit Hours: 4 credit

G. Weekly Contact Hours: 6 Lecture: 3
Laboratory: 3
Out of class student work per week: 7.5

H. Prerequisites: MLTC 100 with a grade of C or higher and MLTC 201 with a grade of C or higher; or permission of the instructor

I. Laboratory Fees: No

II. Catalog Description

Prerequisites: MLTC 100 with a grade of C or higher and MLTC 201 with a grade of C or higher; or permission of the instructor. This course is a comprehensive study of microorganisms of importance in human health and disease. The fundamental concepts of microbial evolution, genetics, and metabolism will be covered. Emphasis is placed on the causative agents of disease and their identification, pathogenesis, transmission, and control in laboratory, clinical and residential settings. Fundamental microbiological methods such as aseptic technique, culture methods, microscopy, metabolic and physiological tests, microbial isolation and identification, and molecular analysis will be covered. Virology, parasitology, mycobiology, and micobacteriology are emphasized in this class.

III. Statement of Course Need

A. Microbiology techniques and skills are needed for competent MLTs. This course is required for the Medical Laboratory Technology program.

B. There is a lab component in this course so that the theory can be practiced.

C. This course generally transfers as a Free Elective, but dependent on the transfer institution it may transfer as a Program Elective to schools that offer a B.S. degree in Clinical Laboratory Science.

IV. Place of Course in College Curriculum

A. Free Elective
B. This course meets a program requirement for the Associate of Applied Science degree program in Medical Laboratory Technology
C. To see course transferability: a) for New Jersey schools, go to the NJ Transfer website, www.njtransfer.org; b) for all other colleges and universities, go to the individual websites.

V. Outline of Course Content

I. ANALYTIC PROCEDURES FOR MYCOLOGY, MYCOBACTERIOLOGY, PARASITOLOGY, AND VIROLOGY

- A. Mycobacteriology and Nocardia spp.
  - 1. Specimen source (e.g., lower respiratory, blood, soft tissue)
  - 2. Acid-fast reaction, colony morphology and growth characteristics
- B. Virology
  - 1. Specimen sources
  - 2. Major pathogens and disease states (e.g., etiology, epidemiology, transmission)
  - 3. Direct detection of pathogens
- C. Parasitology
  - 1. Specimen source (e.g., stool, respiratory, blood, tissue)
  - 2. Major pathogens and disease states (e.g., etiology, epidemiology, transmission)
  - 3. Microscopic identification
  - 4. Direct and molecular detection
- D. Mycology
  - 1. Specimen sources
  - 2. Major pathogens and disease states (e.g., etiology, epidemiology, transmission)
  - 3. Yeast identification (e.g., biochemical, automated methods, MALDI-TOF MS)

4. Microscopic identification of major pathogens
5. Other identification methods

II. POST-ANALYTIC PROCEDURES
A. Documentation Practices
B. Urgent and Critical Value Reporting
C. Result Review and Autoverification
D. Issuing Corrected Reports
E. Reporting to Infection Control/Prevention and Public Health

VI. A. Course Learning Outcomes:

At the completion of the course, students will be able to:

1. Explain the principles and significance of clinical microbiology tests and results (GE-1).
2. Use appropriate mathematical applications to interpret data (GE-2*).
3. Explain the principles of and demonstrate correct use of clinical microbiology instrumentation and technology (GE-1, 3, 4).

(*Embedded critical thinking)

4. Describe and demonstrate pre- and post-examination procedures applicable to diagnostic microbiology.
5. Describe and perform standard microbiological staining procedures.
6. Describe and demonstrate the correct culture set up and incubation of microbial specimens.
7. Interpret the results of microbial cultures, stains and tests.
8. Explain the principles for different media for growth, isolation and identification of microbes.
9. Use standard microbial techniques and procedures to identify unknown microbes.
10. Demonstrate aseptic techniques for working with microbes.
11. Describe quality assessment practices for diagnostic microbiology.
12. Develop professionalism, communication skills, and interpersonal relationships by working cooperatively with instructors, preceptors and fellow students

C. Assessment Instruments

1. Exams
2. Assignments
3. Quizzes

4. laboratory products
5. laboratory reports
6. research papers
7. demonstrations
8. essays
9. journals
10. portfolios

VII. Grade Determinants

A. Exams
B. Assignments
C. Quizzes
D. laboratory reports
E. research papers

The primary formats, modes, and methods for teaching and learning that may be used in the course:

A. lecture/discussion
B. small-group work
C. computer-assisted instruction
D. guest speakers
E. laboratory
F. student oral presentations
G. simulation/role playing
H. student collaboration
I. independent study

VIII. Texts and Materials

A. Textbooks

Sample of specific texts which may be featured:

- Introduction to Diagnostic Microbiology for the Laboratory Sciences, by Maria Dannessa Delost.
- A Photographic Atlas for the Microbiology Laboratory, 4th edition, by Michael Leboffe and Burton Pierce.

(Please Note: The course outline is intended only as a guide to course content and resources. Do not purchase textbooks based on this outline. The RVCC Bookstore is the sole resource for the most up-to-date information about textbooks.)

IX. Resources

A. Laboratory
B. Computers with internet access.
C. RVCC library databases.

X. Honors Options

An Honors Option is not available for this course.