

# **RARITAN VALLEY COMMUNITY COLLEGE ACADEMIC COURSE OUTLINE**

## **BTCP 101 Principles of Biotechnology**

### **I. Basic Course Information**

A. Course Number and Title: BTCP 101 Principles of Biotechnology

B. New or Modified Course: New

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

**D. Effective Term: Fall 2025**

E. Sponsoring Department: Science and Engineering

F. Semester Credit Hours: **1**

G. Weekly Contact Hours: 2

Lecture: 2

Laboratory: **0**

Out of class student work per week: 4

H. ☐ Prerequisite (s): None

☐ Corequisite (s): None

I. Additional Fees: None

### **II. Catalog Description**

**Prerequisites and/or co-requisites:** None.

This course is an introduction to biotechnology concepts and techniques. This course will provide a survey of ethical issues pertaining to basic and applied research in human health, agriculture, and the environment. Student will research, evaluate, and present on bioethical topics pertaining to biotechnology.

### **III. Statement of Course Need**

- A. This course is intended to provide students in the Biotechnology track in the Biological Sciences program with an introduction to the field of biotechnology. It is also appropriate for students exploring career options in the field of science.
- B. This course does not have a lab.
- C. This course generally transfers as a biotechnology program requirement or a free elective dependent on transfer institution.

### **IV. Place of Course in College Curriculum**

- A. Free Elective
- B. This course meets a program requirement for the Biotechnology track in the Biological Sciences AS degree program.
- C. To see course transferability: a) for New Jersey schools, go to the NJ Transfer website, [www.njtransfer.org](http://www.njtransfer.org); b) for all other colleges and universities, go to the individual websites.

### **V. Outline of Course Content**

This course explores the following topics:

- A. Introduction to biotechnology and bioethics
- B. Historical perspective of biotechnology
- C. Molecular biotechnology
- D. Microbial biotechnology
- E. Plant biotechnology
- F. Animal biotechnology
- G. Marine biotechnology
- H. Biotechnology and pharmaceuticals
- I. Genetics and genetic counseling
- J. Gene therapy & stem cell research
- K. Ethical issues in biotechnology
- L. Regulation, patents and society

### **VI. A. Course Learning Outcomes:**

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

1. Explain the fundamental techniques employed in the biotechnology industry (GE-1).
2. Identify key ethical issues pertaining to medical, food, environmental, and agricultural biotechnology (GE-ER).
3. Examine the laws and regulations governing intellectual property and patents for the biotechnology industry.

4. Evaluate scientific journal articles to debate ethical issues in current topics in biotechnology (GE-ER\*).

**\*embedded critical thinking**

**B. Assessment Instruments**

1. Debate
2. Projects
3. Presentations
4. Quizzes
5. Class participation
6. In class discussions

**VII. Grade Determinants**

- A. Discussions
- B. Projects
- C. Quizzes
- D. Presentations

Given the goals and outcomes described above, LIST 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. Student oral presentations
- F. Student collaboration

**VIII. Texts and Materials**

- A. Suggested textbook: Introduction to Biotechnology, 4th Edition, by W. J. Thieman and M. A. Palladino
- B. Primary sources
- C. Web sources

**The following statement should be included in the outline:**

(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**

What specific or unusual resources (such as library, computer, or laboratory resources) does the College presently have that will be necessary for the course? What additional resources will be needed? List the resource: Library

**X. Check One:** ☐ Honors Course ☐ Honors Options ☒ N/A