RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE

BIOL 101 – General Biology I

I. Basic Course Information

A. Course Number and Title: BIOL 101 - General Biology I

B. New or Modified Course: Modified

C. Date of Proposal: Semester: Fall Year: 2023

D. Effective Term: Fall 2024

E. Sponsoring Department: Science and Engineering

F. Semester Credit Hours**: 4**

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

H. ☒ Prerequisite (s): Two years of college preparatory laboratory science or equivalent
☒ Corequisite (s): Precalculus I (MATH 112)
☐ Prerequisite (s) and Corequisite (s):

I. Additional Fees**:** None

J. Name and E-Mail Address of Department Chair and Divisional Dean at time of approval: Dr. Marianne Baricevic, marianne.baricevic@raritanval.edu, Dr. Sarah Imbriglio, sarah.imbriglio@raritanval.edu

II. Catalog Description

Prerequisite: Two years of college preparatory laboratory science or equivalent
Corequisite: Precalculus I (MATH 112)

An in-depth study of the fundamental concepts of biology, utilizing a molecular approach to the structure and function of living organisms. Emphasis is placed upon the biochemical and cellular base of life, metabolism, reproduction and Mendelian genetics.

III. Statement of Course Need

A. This is the first course in a two-course sequence providing an in-depth study of biological sciences. General Biology I is a 4 credit general education laboratory science course designed for students majoring in science and/or science related disciplines.

B. In the laboratory portion of the course, students will apply the concepts learned in lecture to laboratory activities that support those concepts.

C. This course generally transfers as a program requirement and/or a free elective.

IV. Place of Course in College Curriculum

A. This course is a free elective.

B. This course is a general education laboratory science course.

C. This course meets a program requirement in the following AS programs: Biological Sciences AS Degree Program, Environmental Science, Engineering – Biomedical Track and the AA Environmental Studies program. This course is a program option for Physics AS, Mathematics AS and Computer Science AS.

D. Course transferability; for New Jersey schools go to the NJ Transfer website, www.njtransfer.org. For all other colleges and universities go their individual websites.

V. Outline of Course Content

This course explores the following topics:

A. The Chemistry of Life

1. The Chemical Content of Life
2. Water and the Fitness of Life
3. Carbon and the Molecular Diversity of Life
4. The Structure and Function of Macromolecules
5. Enzymes and Enzyme Function

B. The Cell

1. A Tour of the Cell
2. Biological Membrane Structure & Function
3. Cellular Respiration
4. Photosynthesis
5. Cell Communication
6. The Cell Cycle, Cell Cycle Regulation and Cancer

C. Genetics

1. Meiosis and Sexual Life Cycles
2. Mendel and the Gene Idea
3. The Chromosomal Basis of Inheritance
4. Human Genetic Disorders

VI. A. Course Learning Outcomes:

After completion of this course, the student will be able to:

1. Apply the scientific method to analyze a problem and draw conclusions from data and evidence. (GE-3*)
2. Construct graphs and charts, interpret them, and draw appropriate conclusions. (GE-2*)
3. Demonstrate an informed understanding of the fundamental concepts in biological sciences and apply those biological concepts to real world societal issues. (GE-3*)
4. Demonstrate basic laboratory techniques in cell structure, metabolism, and classical genetics.

(* Embedded critical thinking)

B. Assessment Instruments

Given the outcomes described above, the following assessment methods may be used:

1. In class discussions
2. Warm-up assignments
3. Laboratory activities

VII. Grade Determinants

A. Homework assignments
B. Exams
C. Laboratory quizzes
D. Laboratory report
E. Laboratory practical

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. laboratory
F. student collaboration

VIII. Texts and Materials

A. suggested textbook
B. primary sources
C. web sources

Sample of specific text that may be featured:
Campbell's *Biology, Urry et al.* Pearson.

(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

Students may need to use library databases and other library resources for research assignments and/or computers.

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