

B. In the laboratory portion of the course, students will learn to work independently on projects including an aquatic ecology and molecular biology project.

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: Biology, Environmental Science, General Science/Pre Health Professional, Pre-Medical Professional, Pre-Pharmacy, 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

A. Scientific Inquiry

1. Independent research projects
2. Data analysis and statistics
3. Public Health/policy issues

B. Ecology

1. Introduction to Ecology
2. Organismal, Community, and Ecosystem Ecology
3. Aquatic ecology

C. Molecular Biology

1. DNA tools and application
2. DNA sequence analysis

D. Mechanisms of Evolution

1. An Introduction to Evolution
2. Population Genetics
3. Origin of Species/Macroeolution

VI. General Education and Course Learning Outcomes

A. General Education Learning Outcomes:

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

A. General Education 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-NJ 3*)
2. Construct graphs and charts, interpret them, and draw appropriate conclusions (GE-NJ 2*)
3. Develop oral and written communication skills. (GE-NJ 1, IL)

(* Embedded critical thinking)

B. Course Learning Outcomes:

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

1. Demonstrate an informed understanding of the fundamental concepts in biological sciences and apply those biological concepts to real world societal issues.
2. Demonstrate basic laboratory techniques in molecular genetics and ecology.

C. Assessment Instruments:

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

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

VII. Grade Determinants

- A. Data interpretation (Required)
- B. Exams
- C. Laboratory reports
- D. Laboratory quizzes
- E. Oral presentation

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
- C. computer-assisted instruction
- D. laboratory

- E. student oral presentations
- G. Group research projects

VIII. Text 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. Honors Option: Not applicable