RARITAN VALLEY COMMUNITY COLLEGE
ACADEMIC COURSE OUTLINE

SCIE – 212H INDEPENDENT RESEARCH IN SCIENCE AND ENGINEERING III -HONORS

I. Basic Course Information

A. Course Number and Title: SCIE-212H

B. New or Modified Course: Modified

C. Date of Proposal: Semester: Fall Year: 2022

D. Effective Term: Fall 2023

E. Sponsoring Department: Science & Engineering

F. Semester Credit Hours: 3

G. Weekly Contact Hours: Lecture: 0
Laboratory: 0
Independent Research: 135 hours
Out of class student work per week:

H. ☒ Prerequisite (s): GPA 3.5; Completion of SCIE – 211H Independent Research in Science & Engineering II-Honors; permission of instructor in Science & Engineering department.
☐ Corequisite (s):
☐ Prerequisite (s) and Corequisite (s):

I. Additional Fees: No

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

II. Catalog Description

Prerequisite: Minimum GPA of 3.5; Completion of SCIE – 211H Independent Research in Science & Engineering I-Honors; permission of instructor in Science and Engineering department.

This is the third sequenced course for students working on an independent research project. Independent research provides students with an opportunity to engage in scientific research with the guidance of a faculty member. In consultation with and approval of the faculty member, students select a research topic, perform a literature search, design and complete appropriate research. Students will be required to complete a formal paper detailing the research; including the purpose, methods, results and conclusions. Additional culminating experiences, as directed by the instructor, may include an oral presentation, a poster display at a local or regional conference, or submission of a research paper to a journal.

III. Statement of Course Need

A. The course provides an opportunity for students to continue to conduct independent scientific research on a topic of interest. It may strengthen their applications to transfer or graduate institutions.

B. This is a lab course. A lab setting is required to conduct scientific research.

C. This course is not designed for transfer.

IV. Place of Course in College Curriculum

A. Free Elective
B. This course does not serve as a General Education course.
C. This course is not a requirement for any programs.
D. 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

A. Introduction to research.
B. Literature research techniques.
C. Introduction to scientific writing.
D. Oral presentation of scientific research.

VI. A. Course Learning Outcomes:

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

1. Locate, review, interpret and analyze scientific information. (GE-IL*)
2. Apply fundamental concepts in engineering and science (GE-3*)
3. Demonstrate understanding of the scientific method to solve a problem (GE-3)
4. Analyze and interpret data (GE-1)
4. Write a formal research proposal and effectively communicate scientific research findings (GE-1)

B. Assessment Instruments

1. performance of laboratory techniques
2. presentation of research findings
3. analysis of reading assignments
4. other, as specified by instructor

VII. Grade Determinants

A. performance of laboratory techniques
B. presentation of research findings
C. analysis of reading assignments
D. other, as specified by instructor

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

A. laboratory
B. presentations
C. independent study

VIII. Texts and Materials

A. Lab notebook
B. primary sources
C. web sources
D. other computer-based 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

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