RVCC CES ~ COURSE DESCRIPTIONS

RVCC offers a variety of science courses ranging from the typical introductory biology, chemistry, and physics courses to more specialized subjects such as environmental science and ecology. The course calendar and descriptions below are those specifically taught by the faculty of the Center for Environmental Studies (Drs. Kelly and Stander). This list does not include all of the classes that are required for the environmental science/studies majors.

The diamond-shaped symbol (◆) indicates which semester each course is offered. Sometimes courses are offered in additional semesters or cancelled for lack of enrollment ~ always check the official RVCC course schedule!

Course Number – Course Title (# credits)	Fall	Winter	Spring	Summer
BIOL101 – General Biology I (4)	◆		◆	◆
BIOL102 – General Biology II (4)	◆		◆	◆
BIOL150 – Plants, Humans, and the Environment (4)	◆		◆	◆
BIOL231 – Ecology (4)	◆			
BIOL232 – Field Botany (4)			◆	◆
BIOL247 – Vertebrate Zoology (4)			◆	
ENVI101 – Environmental Studies (3)	◆		◆	
ENVI102 – Environmental Science and Sustainability (4)	◆		◆	
ENVI103 – Energy and the Environment (3)	◆		◆	
ENVI201 – Environmental Science Applications (2)			◆	
ENVI299 – Ecology Experience Abroad (3)		◆		
GEOL157 – Intro to Geology (4)	◆	◆	◆	◆
GEOG101 – Intro to Physical Geography (3)	◆		◆	
SCIE210H – Independent Science and Research (3)	◆		◆	◆

BIOL101 – General Biology I

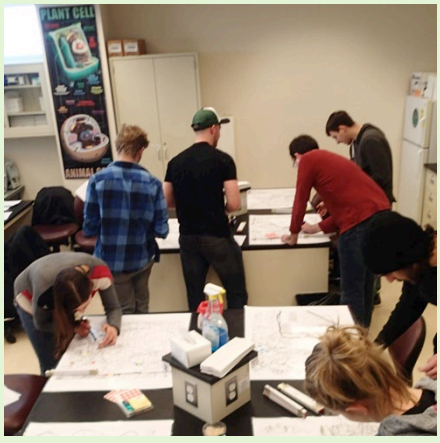
4 credits ◆ *Corequisites: MATH 112 - Precalculus I* ◆ *Fall, Spring, Summer*

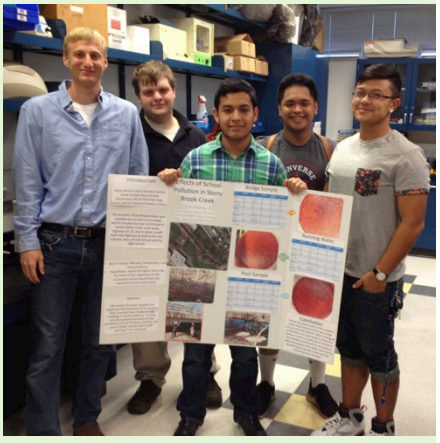
An in-depth study of the fundamental concepts of biology, utilizing a molecular approach to the structure and function of living organisms. Emphasis is placed upon the biochemical and cellular base of life, metabolism, reproduction and Mendelian genetics.

BIOL102 – General Biology II

4 credits ◆ *Prerequisites: BIOL 101 - General Biology I & MATH 112 - Precalculus I* ◆ *Fall, Spring, Summer*

This lecture and laboratory course considers the diversity of living things, molecular biology, evolution and ecology. Lecture and laboratory will use an investigative approach to these topics and stress both individual and team study related to theory, scientific methods and techniques, experimental design, and data analysis and interpretation.





BIOL150 – Plants, Humans, and the Environment

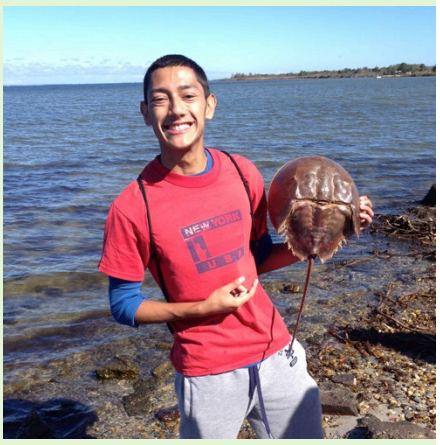
4 credits ◆ *Prerequisites: none* ◆ *Fall, Spring, Summer*

This course explores the relationship between people and plants, with a focus on agriculture and the environment. Lectures provide an interdisciplinary perspective on the biological, cultural, economic and political significance of plants and agricultural systems for human societies and the environment. Labs provide a first-hand introduction to human uses of plants (e.g., food, fuel, shelter, fiber, dyes), and how the scientific method can be used to better understand their causes and consequences. One weekend day trip is required.

BIOL231 – Ecology

4 credits ◆ *Prerequisites: BIOL 102 - General Biology II* ◆ *Fall only*

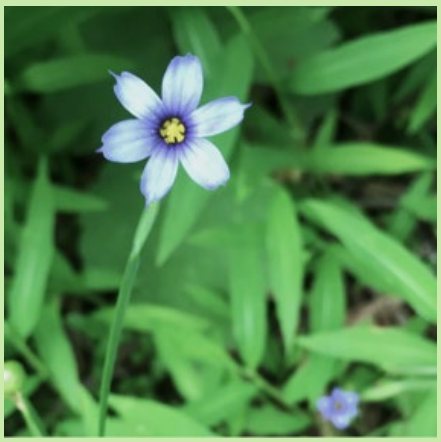
This course explores the interactions between organisms and the environment. Students will investigate and develop an understanding of the effects of physical and biological factors on the distribution and abundance of species. Major areas of focus include biogeography, adaptations and evolution, population biology, community and ecosystem ecology, and applications to modern environmental problems. Labs provide hands-on experience with field research techniques in local natural areas and a survey of important New Jersey ecosystems, patterns and processes. One weekend field trip is required.

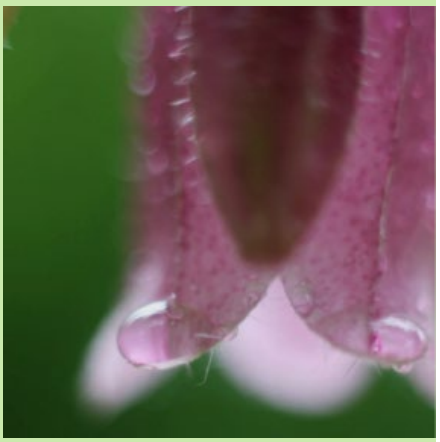


BIOL232 – Field Botany

4 credits ◆ *Prerequisites: BIOL 102 - General Biology II or BIOL 150 - Plants, Humans & the Environment or with permission of instructor* ◆ *Spring, Summer*

A field study of the plants of New Jersey, emphasizing methods of plant identification, the characteristics of major plant families, plant ecology and conservation. Labs consist of field trips to local natural areas, and will introduce students to the plant species of the region, their habitats, and relations to other species. Two weekend field trips required (Pine Barrens and Appalachian Mountains). Offered in spring and summer semesters only.





BIOL247 – Vertebrate Zoology

4 credits ◆ *Prerequisites: BIOL 102 General Biology II or permission of instructor* ◆ *Spring only*

Students will be introduced to the biology, evolution, and diversity of vertebrate species around the world, and will learn to identify the fish, amphibian, reptile, bird, and mammal species of the region. Labs consist of field trips to local natural areas or related institutions (e.g., zoos, museums, animal rehabilitation centers, trout hatchery). One evening and two weekend day trips required.



ENVI101 – Environmental Studies

3 credits ◆ *Prerequisites: none* ◆ *Fall, Spring*

This course is an introduction to environmental studies. Students will explore current topics to understand the causes and consequences of environmental problems facing the world and efforts being made to address them. Students will apply scientific methods and technological tools to analyze and evaluate how these environmental concerns relate to their own lives from both global and local perspectives. One weekend field trip is required. Students cannot receive credit for both ENVI 101 and ENVI 102. This course may be used to fulfill one semester of a non-laboratory science requirement for non-science majors or as an elective for science majors.

ENVI102 – Environmental Science and Sustainability

4 credits ◆ *Prerequisites: none* ◆ *Fall, Spring*

This is an interdisciplinary lecture and laboratory course that uses a scientific approach to analyze the biophysical, social, political, and economic causes and consequences of environmental problems. Students will be encouraged to explore how these concepts and issues relate to their own lives. Students will study existing solutions and develop concepts and designs for their own potential solutions to common environmental problems documented on campus, at home, or in the surrounding community. Students will gain hands-on experience and build skills in environmental science and research through field work, online databases, group projects inside and outside the classroom, and service learning opportunities. Students cannot receive credit for both ENVI 101 and ENVI 102.



ENVI103 – Energy and the Environment

3 credits ◆ *Prerequisites: MATH 020 Elementary Algebra or passing score on a placement test* ◆ *Fall, Spring*

This course provides a broad introduction to energy issues as they relate to generation options, utilization and environmental impacts. Topics include overviews of traditional carbon based energy sources, nuclear options and alternative energy technologies such as solar, wind, biofuels and hydrogen. The crucial link between energy and climate change will be examined. The environmental consequences of energy choices on local and global scales will be discussed throughout the course. Topics will be evaluated by applying basic scientific principles and the scientific method to real world problems. Policy options and understanding energy in a societal context will also be explored.

ENVI201 – Environmental Science Applications

2 credits ◆ *Prerequisites: ENVI 102 Environmental Science and Sustainability or BIOL 231 Ecology* ◆ *Spring only*

A capstone class in which students will apply what they have learned in ecology and environmental science to develop solutions to real-world environmental problems in areas such as ecosystem management and restoration, pollution control, and species conservation. Case studies will be used to explore various dimensions of these issues and help reinforce skills in data analysis, interpretation, and presentation, and their integration in environmental planning and problem-solving. Students will also be introduced to basic skills in remote sensing and GIS, environmental communication and outreach, and areas of environmental specialization.

ENVI299 – Ecology Experience Abroad (Brazil)

3 credits ◆ *By special permission of instructors only* ◆ *Winter*

This course provides immersive experience studying the biodiversity, ecology and conservation of a given region of interest. Students will travel with the class to the selected country or region and will participate in lectures, guided tours of natural areas and other points of interest, and hands-on research and conservation activities. Preliminary coursework will help students prepare for the trip, including an introduction to the relevant aspects of local culture, language, geography, natural history, and scientific research techniques. Trip activities will be held primarily outdoors and may include visits to remote sites with rustic accommodations. Students must be in good physical condition, willing and able to adjust to new and sometimes challenging circumstances, and engage in intensive academic work throughout the duration of the trip. Additional costs for travel and lodging are required.

GEOL157 – Intro to Geology

4 credits ◆ *Prerequisites: none* ◆ *Fall, Winter, Spring, Summer*

This is an introductory course in physical geology that examines the materials composing the Earth and seeks to understand the many processes that operate beneath and upon its surface. Applications are presented that include evaluating mineral, water, and energy resources and the nature of natural hazards. Laboratory activities include mineral and rock identification, dating of rocks and fossils, the construction of geologic maps and their interpretation, and evaluation of stream, groundwater, and shoreline data. One field trip is required for the on campus course. No field trip is required for online and summer courses.

GEOG101 – Intro to Physical Geography
3 credits ◆ *Prerequisites: none* ◆ *Fall, Spring*
The course examines the processes that shape the physical and biological landscape with which humans interact. Special emphasis is placed upon the role of humans in affecting this landscape.

SCIE210H – Independent Science and Research
3 credits ◆ *Fall, Spring, Summer*
Independent research provides students with an opportunity to engage in scientific research under the supervision of a faculty member. In consultation with and approval of the faculty member, students select a research topic, perform a literature search, design and conduct appropriate research, and analyze their results. 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.





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CENTER FOR ENVIRONMENTAL STUDIES