



Science, Technology, Engineering and Mathematics (STEM) Division
1400 Tanyard Road, Sewell
856-468-5000

ENVS 201: Research Methods and Data Analysis

Syllabus

Lecture Hours/Lab Hours/Credits: 3/3/4

Catalog Description

Prerequisite: MAT-103 and BIO-101 or ENVS-101.

This course is designed to focus on the process of science, specifically fostering the student's independent use of scientific method/hypothesis testing. Emphasis is placed on developing valid sample approaches, experimental design and data analysis. A variety of a parametric and non-parametric statistical approach will be covered. Students will be trained to think and approach questions like a scientist which will help students success in any future endeavors, whether they are directly scientific or not. Computer software will be used regularly to manipulate and analyze data and present results. All lecture topics are supported by a lab component.

Textbook and Course Materials

It is the responsibility of the student to confirm with the bookstore and/or their instructor the textbook, handbook, and any other materials required for their specific course and section.

Click here to see current textbook prices at cccnj.bncollege.com.

Evaluation Assessment

Online Proctoring

All courses offered at RCSJ, whether they are web-enhanced, hybrid, or fully online, may include assessments that make use of Online Proctoring. To find out more about Online Proctoring, and to learn about the minimum technical requirements, visit rcsj.edu/elearning/online-proctoring.

Grading Distribution

Grading to be determined by individual instructors.

Individual instructors may include the following assessment(s):

- Exam
- Assignments
- Lab Exercises

Grading

The grading scale for each course and section will be determined by the instructor and distributed the first day of class.

Rowan College of South Jersey Core Competencies

(Based on the NJCCC General Education Foundation - August 15, 2007; Revised 2011; Adopted 2014)

This comprehensive list reflects the core competencies that are essential for all RCSJ graduates; however, each program varies regarding competencies required for a specific degree. Critical thinking is embedded in all courses, while teamwork and personal skills are embedded in many courses.

1. **Written and Oral Communication:** Students will communicate effectively in both speech and writing.
2. **Quantitative Knowledge and Skills:** Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems
3. **Scientific Knowledge and Reasoning:** Students will use the scientific method of inquiry, through the acquisition of scientific knowledge.
4. **Technological Competency:** Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals
5. **Society and Human Behavior:** Students will use social science theories and concepts to analyze human behavior and social and political institutions and to act as responsible citizens.
6. **Humanistic Perspective:** Students will analyze works in the fields of art, history, music, or theater; literature; philosophy and/or religious studies; and/or will gain competence in the use of a foreign language
7. **Historical Perspective:** Students will understand historical events and movements in World, Western, non-Western or American societies and assess their subsequent significance.
8. **Global and Cultural Awareness:** Students will understand the importance of a global perspective and culturally diverse peoples.
9. **Ethical Reasoning and Action:** Students will understand ethical issues and situations.
10. **Information Literacy:** Students will address an information need by locating, evaluating, and effectively using information.

ENVS 201 Core Competencies

This course focuses on three of RCSJ's Core Competencies:

1. **Quantitative Knowledge and Skills:** Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems
2. **Scientific Knowledge and Reasoning:** Students will use the scientific method of inquiry, through the acquisition of scientific knowledge.
3. **Technological Competency:** Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals

Student Learning Outcomes: Research Methods and Data Analysis

Successful completion of ENVS 201 will help students:	RCSJ Core Competencies	Evaluation / Assessment (Additional means of evaluation may be included by individual instructors)
<ul style="list-style-type: none"> Demonstrate the scientific method through the use of hypothesis testing in the design and implementation of an experiment. 	<ul style="list-style-type: none"> Quantitative Knowledge and Skills Scientific Knowledge and Reasoning 	<ul style="list-style-type: none"> Exam Assignments Lab Exercises
<ul style="list-style-type: none"> Choose an appropriate sampling scheme and/or experimental design for a given scientific question 	<ul style="list-style-type: none"> Quantitative Knowledge and Skills Scientific Knowledge and Reasoning 	<ul style="list-style-type: none"> Exam Assignments Lab Exercises
<ul style="list-style-type: none"> Identify different types of data and select/apply the appropriate analytical methods to scientific data. 	<ul style="list-style-type: none"> Quantitative Knowledge and Skills Scientific Knowledge and Reasoning 	<ul style="list-style-type: none"> Exam Assignments Lab Exercises
<ul style="list-style-type: none"> Demonstrate the necessary computer skills for scientific data management, analysis and graphical presentation. 	<ul style="list-style-type: none"> Quantitative Knowledge and Skills Scientific Knowledge and Reasoning Technological Competency 	<ul style="list-style-type: none"> Exam Assignments Lab Exercises
<ul style="list-style-type: none"> Communicate biological knowledge in oral and written form. 	<ul style="list-style-type: none"> Quantitative Knowledge and Skills Scientific Knowledge and Reasoning 	<ul style="list-style-type: none"> Exam Assignments Lab Exercises
<ul style="list-style-type: none"> Use inferential statistics to analyze scientific data 	<ul style="list-style-type: none"> Quantitative Knowledge and Skills Scientific Knowledge and Reasoning Technological Competency 	<ul style="list-style-type: none"> Exam Assignments Lab Exercises
<ul style="list-style-type: none"> Use descriptive statistics to summarize and present data. 	<ul style="list-style-type: none"> Quantitative Knowledge and Skills Scientific Knowledge and Reasoning Technological Competency 	<ul style="list-style-type: none"> Exam Assignments Lab Exercises

Topical Outline

The course lecture and laboratory will focus on the following topics*;

- Scientific Method & Hypothesis Testing
- Experimental Design
- Sampling Methodology and Data Collection
- Introduction to Field Work
- Descriptive Statistics
- Inferential Statics
- Survey Design and Analysis

* Note: Subject matter used to teach these topics is will be based in the discipline of Environmental Science

Affirmative Action Statement

The Board of Trustees is committed to providing a work and academic environment that maintains and promotes affirmative action and equal opportunity for all employees and students without discrimination on the basis of certain enumerated and protected categories. These categories are race, creed (religion), color, national origin, nationality, ancestry, age, sex (including pregnancy and sexual harassment), marital status, domestic partnership or civil union status, affectional or sexual orientation, gender identity or expression, atypical hereditary cellular or blood trait, genetic information, liability for military service, or mental or physical disability, including AIDS and HIV related illnesses.

For questions concerning discrimination, contact Almarie J. Jones, Special Assistant to the President, Diversity and Equity/Title IX and Compliance, ☐ 856-415-2154 or ☐ ajones@rcsj.edu ☐ or (Cumberland) Nathaniel Alridge, Jr., JD, Director, Diversity and Equity/Title IX and Judicial Affairs, 856-691-8600, ext. 1414 or nalridge@rcsj.edu. For disability issues or any barriers in the learning or physical environment related to a document condition/disability please contact: ☐ Gloucester campus – Carol Weinhardt, Director, Department of Special Services, ADA/504 Officer at 856-415-2247 or cweinhar@rcsj.edu; or Cumberland Campus – Meredith Vicente, Senior Director, Department of Special Services/Project Assist at 856-200-4688 or ☐ mvicent1@rcsj.edu ☐

Department of Special Services

The Department of Special Services is committed to providing support services and ensuring equal access to eligible students with documented conditions/disabilities as outlined by the Americans with Disabilities Act (ADA) and the Americans with Disabilities Act with Amendments Act (ADAAA).

(Gloucester Campus Location and Contact)

Location: Instructional Center, room 425A. ☐

Primary Contact: Director, ☐ Carol Weinhardt, (email) cweinhar@rcsj.edu; or (phone) 856-415-2247.

(Cumberland Campus Location and Contact)

Location: Center for Academic & Student Success (CASS)

Primary Contact: Senior Director, Meredith Vicente, (email) mvicent1@rcsj.edu; or (phone) 856-200-4688.

Reporting Allegations of Sexual Assault and Resource Referrals (08/2021)

Gloucester Campus

There are multiple safe places for students to report allegations of sexual assault, both on and off campus. Reports of sexual assault can be made to any of the following offices listed in the chart below.

All students are encouraged to report alleged crimes on campus. Crimes that pose a threat to the campus community must be reported to **9-1-1**, Security, the Sheriff's Office or the Deptford Township Police Department. All employees, including Security staff, must report incidents of discrimination, harassment or sexual misconduct to the Title IX Officer.

Service	Resource	Phone Number/Location/Website
Non-Confidential Reporting Local Law Enforcement	Gloucester County Sheriff's Office	856-681-2200
	Deptford Township Police Dept.	856-845-2220
	Gloucester Co. Prosecutor's Office	856-384-5500
	Sexual Assault Response Team	856-384-5555
Non-Confidential Reporting 9-1-1 and Campus Security	9-1-1 Gloucester County Emergency Management Dispatch Campus Security Blue Light Emergency Phones <u>or</u> ext. 4444 from any campus desk phone	9-1-1 or push RED button on Campus Blue Light Emergency Phones 856-681-6287
Non-Confidential On-Campus Reporting Support Services	Almarie J. Jones Special Assistant to the President Diversity and Equity/Title IX and Compliance	856-415-2154 College Center, Room 116 ajones@rcsj.edu
	John F. Ryder Director, Student and Veteran Affairs	856-468-5000, ext. 6456 College Center, room 202 jryder@rcsj.edu
Confidential On-Campus Counseling and Support Services	Lois Y. Lawson-Briddell, Ph.D. MSW, LSW, Director Counseling & Wellness Services Center	856-464-5236 llawsonb@rcsj.edu College Center, Room 206
	William Leonard, Ph.D. Intervention Teams Consultant	856-415-2119 wleonard@rcsj.edu College Center, STEM Office C-168
	Crystal Noboa, LSW, MSW Director, The Center for People in Transition (PIT)	856-415-2264 cnoboa@rcsj.edu Career & Technical Education Center, Room 809, 1492 Tanyard Road
	Diane Mussoline, EdS, LMFT Executive Director of Behavioral Services	856-494-5665 dmussoli@rcsj.edu Rowan University Center, Room 200A
Confidential Off-Campus Full-Service Support	Center for Family Services/ Services Empowering Rights of Victims (SERV)	1-866-295-7378 Camden and Gloucester counties www.centerffs.org/serv
Hospitals with Sexual Assault Nurse Examiners	Inspira Medical Center	700 Mullica Hill Road, Mullica Hill, NJ 08062 856-508-1000
	Jefferson Washington Township Hospital	435 Hurffville-Crosskeys Rd., Turnersville, NJ 856-582-2500

