RUTGERS

Course Syllabus
Genetic Approaches and Research Analysis (01:447:465; Fall 2023)

Instructor information

Instructor: Devanshi Jain
Email: devanshi.jain@rutgers.edu
Office Hours: Throughout the semester by appointment
Office Address: Life Sciences Building, Room 228, 145 Bevier Road, Piscataway, NJ 0885

Class information

Dates: Classes begin **9/6/2023** and end on **12/13/2023**
Classes will be held every **Monday** and **Wednesday 2:00-3:20pm** at **SEC-217**
Credits: 3
Prerequisites: Students must have taken the following courses: 01:447:384-385 or 01:447:380

Course description: *This is an active learning-based class designed to expose students to primary research literature and will provide them with the necessary tools to effectively read and understand research literature. Students will gain a deep understanding of the science behind techniques. They will also gain knowledge on steps of the research process, gain critical appraisal skills and learn how to effectively communicate complex principles: skills integral to success in both science-based and non-science careers.*

What is this class like? This class will teach students how to read, interpret and analyze research articles. The class will follow an active learning format, where we will discuss seminal and recent research articles in depth: What was the scientific question or problem? What methods and strategies were used to address it? What were the findings and conclusions? What are the alternative interpretations and methods that could have been applied? What questions are remaining?

This class will expose students to a diverse selection of research literature, involving genetic and molecular analyses in model organisms such as mice, worms, flies and yeast. The class series will begin with a research article presented by the teacher. During the majority of the class series, students will be divided into groups of 4-5. Each group will be assigned one research article and be required to work together to a) interpret, b) analyze and c) present the article in the form of an oral presentation to the class. Students will be graded on their ability to perform each of these tasks and on active participation during presentations by other groups. All groups will also be required to complete and be graded on a written discussion summary assignment at the end of each article discussion. This summary assignment may take many forms, e.g., preparation of a graphical abstract or a news and views article.

Goals:
- Learn to read, as well as critically and creatively analyze published research articles.
- Learn the concepts and methods involved in genetic and molecular analyses.
- Learn to think deeply about experimental strategies and scientific interpretations.
- Learn to communicate advanced scientific concepts through oral presentations.

Departmental goal:
- Use genetic information and ideas to critically analyze published research articles.
- Integrate the material from multiple courses and research.

Materials

Required textbook: none

Other resources: Research articles will be provided within the Canvas course site.

Canvas: To access the companion Canvas course site, please visit Rutgers Canvas at https://canvas.rutgers.edu/ and log in using your NetID. For more information about access and support contact Canvas Help at https://canvas.rutgers.edu/canvas-help/, via email at help@canvas.rutgers.edu.

Technology: In addition to accessing Canvas, you will need to access the PubMed online database for literature searches. PubMed can be accessed at https://pubmed.ncbi.nlm.nih.gov/?otool=njrutulib and for more guidance visit https://libguides.rutgers.edu/pubmed. You will require the following: Computer, stable internet access, MS office. Please visit the Rutgers Student Tech Guide page (https://it.rutgers.edu/technology-guide/students/) for technology resources available to all students.

Grading

Grades in this course are weighted according to the table below.

Activity or assignment	Grade (%)
Group presentation: interpretation of article	20
Group presentation: analysis of article	20
Group presentation: presentation of article	20
Discussion worksheet A	10
Discussion worksheet B	10
Discussion worksheet C	10
Active participation	10
Total	**100**

Grade	Range
A	90-100
B+	87-89
B	80-86
C+	77-79
C	70-76
D+	67-69
D	60-66
F	0-59

Participation will be evaluated according to the following rubric:

A-range: Student participated thoughtfully in every, or nearly every, class discussion.
B-range: Student participated in most class discussions, but sometimes the contributions reflected only a surface-level engagement with class materials.
C-range: Student made relevant comments when prompted, but group dynamic and level of discussion are not affected by the student's presence.
D or F: Student rarely participates or demonstrates a noticeable lack of interest.

Presentations will be evaluated according to the following rubric:

A-range: Student understood and presented the material clearly.
B-range: Student only partly understood the material and presentation was unclear.
C-range: Student made a poor effort to understand or present the material.
D or F: Student made no effort to understand and present the material.

Academic policies and procedures

Attendance: Given the format of this class, attendance is mandatory. If you miss a class, this is to be reported using the University absence reporting website (https://sims.rutgers.edu/ssra/).

Coursework difficulties: Please discuss any issues that you are having in participating or completing coursework with me. I am available to talk this over with you by appointment.

Academic honesty and plagiarism: Any student considering plagiarism should recognize the consequences and consider alternatives. Students uncertain about what constitutes plagiarism may request help from faculty or from appropriate University services. For more information, see http://academicintegrity.rutgers.edu/.

Student code of conduct: Students are required to adhere to the University Code of Student Conduct delineated in the Rutgers Student Affairs website Student Conduct page (https://studentconduct.rutgers.edu/processes/university-code-student-conduct#1495568095620-2f5ce77d-17dd).

Support services

Academic services:
- For academic support visit https://sasundergrad.rutgers.edu/advising/advising and https://rlc.rutgers.edu/.
- For library resources visit https://www.libraries.rutgers.edu/.

Disability services: Rutgers University welcomes students with disabilities into all the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability service office (https://ods.rutgers.edu/students/getting-registered), who can provide a Letter of Accommodations. Please share this letter with instructors and discuss accommodations with them as early in the course as possible. For full information visit https://ods.rutgers.edu/.

Student wellness: Rutgers Student Health Services is dedicated to health for the whole body, mind and spirit. See below for services available to students.

Counseling, ADAP & Psychiatric Services: http://health.rutgers.edu/medical-counseling-services/counseling/
Crisis Intervention: http://health.rutgers.edu/medical-counseling-services/counseling/crisis-intervention/
Report a Concern: http://health.rutgers.edu/do-something-to-help/
Report a Bias Incident: http://inclusion.rutgers.edu/report-bias-incident/
Violence Prevention & Victim Assistance: www.vpva.rutgers.edu/