

Effective communication skills in genetics- Course Syllabus

Course number: 01:447:430

Instructor: Gary Heiman, PhD (Fall); TBD (Spring)

Catalog description

Communication is an essential part of science. Whether it is communicating research findings to other scientists or conveying complex concepts to a lay audience, a scientist must be able to effectively communicate their research in order to succeed. Communication in science is typically through publications, posters, or oral presentations. The goal of this course is provide students practice in effectively communicating scientific findings. This includes preparing and revising an introduction for scientific papers, writing a research description for general audience, and preparing and giving presentations (both oral and poster).

Course Goals: Students are expected to:

1. effectively incorporate critiques from peers and faculty in their revision of written and oral communication,
2. effectively describe their research, using relevant discipline-specific terminology with precision, accuracy & purpose,
3. accurately and effectively present advanced scientific concepts through oral presentations and poster formats.

SAS Core Learning Goals:

WCR- Communicate complex ideas effectively, in standard written English, to a general audience, and respond effectively to editorial feedback from peers, instructors, &/or supervisors through successive drafts & revision.

WCD- Communicate effectively in modes appropriate to a discipline or area of inquiry; evaluate and critically assess sources and use the conventions of attribution and citation correctly; and analyze and synthesize information and ideas from multiple sources to generate new insights.

Departmental Learning Goal:

Students will be able to communicate their discoveries through a written article appropriate for publication in a peer-reviewed Genetics journal, and through talks or posters appropriate for scientific meetings.

Required textbook

Scientific Writing and Communication: Papers, Proposals, and Presentations (Third edition), Angelika H. Hofmann, Oxford University Press, 2016; ISBN: 9780190278540

Weekly class schedule

You can find the weekly class schedule in the files section under, "Weekly Class Schedule.

Academic integrity policy

Cheating and plagiarism will not be tolerated. In accordance with Departmental and University Policies, violations of academic integrity will immediately be referred to the Dean's office. Violations include: cheating, fabrication, plagiarism, denying others access to information or material, and facilitating violations of academic integrity. See the following website for details: <http://academicintegrity.rutgers.edu/academic-integrity-policy/>

Class Attendance (IMPORTANT-READ CAREFULLY)

Students are expected to attend and be punctual for all classes. Attendance will be taken at the beginning of class. Class participation points are taken off for each missed class. Overall grade points are **ALSO** taken off for habitual lateness or frequent absences (see frequent absence policy below). If you expect to miss a class, you **MUST** use the University absence reporting website <https://sims.rutgers.edu/ssra/> to indicate the date and reason for your absence. An email is automatically sent to the course instructor.

Frequent absence policy:

- If a student **has more than 4 or more absences (both unexcused and excused)**, then they will suffer an additional 10% deduction from overall cumulative grade for each additional absence.
- If a student **has 6 or more absences (both unexcused and excused)**, then they will need to withdraw the course (if the sixth absence occurs prior to the withdrawal deadline) or fail the course (if the sixth absence occurs after the withdrawal deadline).

Grading system

Grading will be as follows.

25%- MISC section

- 1) Attendance & Class participation- 13%
- 2) Homework- 6%
- 3) Quizzes- 6%

25%- Writing section:

- 1) Project narrative, research question and hypothesis (PRH) – Total= 8%
 - a) Drafts of PRH- 4%
 - b) Final PRH- 4%
- 2) Editing & revising introduction- Total= 17%
 - a) Submit intro from last semester- 2%
 - b) Editing group members' introductions- 10%
 - c) Final revised introduction- 5%

25%- Oral presentation

- 1) Outside seminars and testing critiques- 3%
- 2) Student critiques- 8%
- 3) Professor critique- 10%
- 4) Self-evaluation- 4%

25%- Poster section: final poster and poster session

GRADING SCHEME

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

IMPORTANT GRADING NOTE: Points will be taken off for not following instructions or not meeting deadlines!

Rules of conduct

No cell phones are allowed in class. Laptops are permitted for the purpose of taking notes but not surfing the internet or playing games. Such behavior is distracting to other students in the class. If found violating this policy, a student will no longer be allowed to bring his/her laptop to class. Recording of lectures or classmate presentations are not permitted.

What is the class like?

This is an applied course to help students understand the format and practice of scientific communication. This includes preparing and revising an introduction for scientific papers, writing a research description for general audience, and preparing and giving presentations (both oral and poster). The course is divided into three sections:

Section 1- Writing and incorporating critiques into revisions

The goal of this section is to learn about scientific writing principles, understand specific aims of a research proposal and to be able to incorporate critiques into your writing. To give a structure to the course, we will begin by discussing the process of a research study. We will review the grant proposal process, conducting the research once it is funded, and ultimately publicizing the results in scientific journals and conference abstracts (both oral and poster format). For the grant review process, we will discuss the components of grant proposal, focusing on project narrative, research question, and hypotheses. If possible, students should try to obtain the specific aims from their respective lab to help them understand the larger goals and hypotheses of the lab.

Readings: There will be assigned readings that pertain to the topics we will cover in class. We will NOT cover all areas that are presented in the chapters and you are expected to read the assigned chapters.

Lectures and quizzes: There will be a few short quizzes from the material covered in class and in the readings. Questions will be taken directly from the examples within the chapters or from exercises at the end of the chapters.

New writing exercise: You will write a short lay narrative, limited to 3-5 sentences, describing your research project. This project narrative should use lay language, something that a non-scientist could understand. On the same page, you will write the research question and hypothesis for your project. In collaboration with your

research supervisor, you will develop and write this exercise using the format presented in class. In class, we will review and edit each student's project narrative.

Edited writing exercise: You will use what you have learned about scientific writing to edit your classmate's introduction that was submitted in a prior semester. Students will be assigned to an introduction editing group, typically 5-10 per group. This editing will occur outside of class time and you will meet with your group to review suggested edits they give. Later, you will submit your final revised introduction after reviewing your classmate's edits. This final version will include a section describing areas you need to improve in your writing (i.e., self-evaluation of what learned about your writing during this process). This paper will be reviewed by the course professor and possibly sent to your research supervisor. Your grade for this section will be based on your edits of classmate's introduction and your final introduction after editing.

Section 2- Experience in preparing, giving, and analyzing scientific oral presentations

Using the material we reviewed in class and from the relevant textbook chapters, you will prepare an oral presentation. You will be assigned a date to give the presentation. The professor and classmates will critique each presentation using a specific rubric. Your classmates will upload these critiques to a site for you to improve your future oral presentations. You will also need to submit a self-evaluation of your oral presentation.

Section 3- Creating a scientific poster

Through an iterative process, students will create a poster describing their research project or independent study. At the end of class, the posters will be printed and there will be a poster presentation day. Mimicking a poster session at a scientific conference, individuals (i.e., faculty members, postdocs, and graduate students) will approach the student and ask questions about the poster. Using a rubric, they will critique your poster and your presentation.

Information for Student-Wellness Services:

[Just In Case Web App](#)

<http://www.physics.rutgers.edu/~vkir/351/StudentWellnessServices.pdf>

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

Counseling, ADAP & Psychiatric Services (CAPS)

(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901/ <http://rhscaps.rutgers.edu/>

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

Violence Prevention & Victim Assistance (VPVA)

(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / <http://vpva.rutgers.edu/>

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

Disability Services

(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>

The Office of Disability Services works with students with a documented disability to determine the eligibility of reasonable accommodations, facilitates and coordinates those accommodations when applicable, and lastly engages with the Rutgers community at large to provide and connect students to appropriate resources.

Scarlet Listeners

Scarlet Listeners – get things off your chest in a non-judgmental, empathetic space facilitated by trained students. Sessions are held Monday-Thursday evenings during the Fall and Spring semesters. Sign up for information about times and locations at tinyurl.com/SLGroupSessions or email scarlet.listeners@gmail.com