

Effective communication skills in genetics- Course Syllabus

Course number: 01:447:430

Instructor: Gary Heiman, PhD (Fall); Maureen Barr, PhD (Spring)

Class location: Different each semester

Class meeting times: Different each semester

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 to provide students with practice in effectively communicating scientific findings. This includes preparing and revising an introduction for scientific papers, writing a research description for a 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 (FIFTH EDITION), Angelika H. Hofmann, Oxford University Press, 2022; ISBN: 9780197613795.

- [Order from Oxford](#)
- [Order from Amazon](#)

Academic integrity policy:

Rutgers University takes academic dishonesty very seriously. By enrolling in this course, you assume responsibility for familiarizing yourself with the Academic Integrity Policy and the possible penalties (including suspension and expulsion) for violating the policy. As per the policy, all suspected violations will be reported to the Office of Student Conduct. Academic dishonesty includes (but is not limited to):

- Cheating
- Plagiarism
- Aiding others in committing a violation or allowing others to use your work
- Failure to cite sources correctly
- Fabrication
- Using another person's ideas or words without attribution—reusing a previous assignment
- Unauthorized collaboration

- Sabotaging another student's work in doubt, please consult the instructor

NOTE: Use of AI such as ChatGPT is not permitted in any stages of the writing process on any assignment.

[See the University Policy for details.](#)

Class Attendance (IMPORTANT- READ CAREFULLY)

Class meetings are our main opportunity to create knowledge together and practice the skills you are learning this semester. Your attendance is crucial to your and your peers' learning as everyone misses out on your contributions if you are not present. Therefore, attendance at all sessions is important. As per the Rutgers Attendance Policy, students are expected to attend each class unless they have a recognized grounds for absence under [Rutgers policy 10.2.7](#).

Therefore, I take attendance at the beginning of each class meeting. However, I understand that sometimes life happens. So, excluding the Rutgers-approved absences, you can miss 2 class sessions without penalty. Beyond these 2 absences, each additional absence will lower your **OVERALL COURSE GRADE BY 5 POINTS** (unless we've come to an agreement in advance). In other words, if you are absent 4 times, your possible final maximum grade will be 90% (excluding the Rutgers-approved absences). **At the end of the semester, the OVERALL course graded is changed through a course override and is based on the Roll Call Attendance percent.** If you are ill or have another valid reason for missing, please email me directly in advance of the absence or in the case of an emergency, as soon after the emergency as possible.

For all absences, you must complete the [Rutgers online absence reporting system](#) to indicate the date and reason for your absence.

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- 5%
- 2) Your evaluation of classmates' presentations- 5%
- 3) Classmates evaluation of your presentation- 5%
- 4) Professor evaluation of your presentation- 5%
- 5) Your Self-evaluation- 5%

25%- Poster section: final poster and poster session

- 1) Submitting drafts and final- 5%
- 2) Poster reviewer evaluations- 20%

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 NOTES:

1. Points will be taken off for not following instructions
2. An automatic deduction of 15% will be applied for each 24 hour an assignment is late.
3. Assignments are typically due before class starts or at 2pm (check the assignment to confirm).
4. Late submission of the final poster (for printing) will result in MAJOR point reductions or a zero for the whole poster section of the class.
5. See the Attendance & participation policies.

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. Editing is the learning process. This editing will occur outside of class time.

During class, 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 materials from 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, we will have a virtual poster session. Mimicking a poster session at a scientific conference, individuals (i.e., faculty members, postdocs, and graduate students) will attend the poster session (typically held in Atrium of the Life Science Building). The student will give a short presentation and the reviewers will ask questions about the poster. The reviewers will evaluate your poster and your presentation.

Information for Student-Wellness Services:

- Student Success Essentials: <https://success.rutgers.edu>
- Student Support Services: <https://www.rutgers.edu/academics/student-support>
- The Learning Centers: <https://rlc.rutgers.edu/>
- Rutgers Libraries: <https://www.libraries.rutgers.edu/>
- Bias Incident Reporting: <https://studentaffairs.rutgers.edu/bias-incident-reporting>
- Dean of Students – Student Support Office: <https://success.rutgers.edu/resource/dean-students-student-support-office>
- Office of Veteran and Military Programs and Services: <https://veterans.rutgers.edu>
- Student Health Services: <http://health.rutgers.edu/>
- Counseling, Alcohol and Other Drug Assistance Program & Psychiatric Services (CAPS): <http://health.rutgers.edu/medical-counseling-services/counseling/>
- UWill: free immediate access to teletherapy; you can choose a therapist based on your preferences including issue, gender, language, ethnicity. <http://health.rutgers.edu/uwill/>
- Office for Violence Prevention and Victim Assistance: <https://vpva.rutgers.edu/>
- Office of Disability Services: <https://ods.rutgers.edu/>
- Basic Needs Assistance (food, housing, and other essentials): <https://ruoffcampus.rutgers.edu/basic-needs>
- Rutgers Student Food Pantry: <https://ruoffcampus.rutgers.edu/food-pantry>