

BIOL 4460: COMMUNICATING BIOLOGICAL RESEARCH SYLLABUS

Fall 2015
(1 credit hour)

Location: CULC 262, Mondays from 4:05–5:25 pm

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Office Hours: M 2-4 and by appointment

Course summary: Senior students learn to convey the importance of research findings in the biological sciences through discussions and scientific presentations. This course will be structured similar to an academic lab meeting, where effective participation and the ability to provide constructive criticism to your colleagues are fundamental.

Learning outcomes: Upon completing this class students will be able to

- Give oral and poster presentations on their own research
- Engage an audience in a scientific topic through presentation
- Critically present and discuss research results
- Put biological findings in a broad scientific context

These skills can be applied in a variety of possible future careers including: business (convincing supervisors of a new project idea, delivering results from a pilot project or clinical trial), medicine (informing colleagues about a medical case, teaching colleagues about a new treatment), government (testifying before elected officials about the importance of a research area, negotiating with bureaucrats about funding for science or education), and academia (presenting your own research in a faculty seminar or job interview, delivering a presentation at an international conference). We will also discuss strategies and techniques for scientific writing and interacting with other scientists in formal and informal meetings and conferences.

Pre- and Co-requisites: BIOL 4460 is a co-requisite for BIOL 4590 (Research Project Lab) because students will present their research from BIOL 4590 in this course. Students who have chosen to take BIOL 4690 (Independent Research Project) or BIOL 4910 (Honors Research Thesis) as their Senior Research Experience will present their research from BIOL 4690/4910 in this class, and may enroll in BIOL 4460 concurrently or after completion of BIOL 4690/4910.

Format: Because this is a presentation and discussion-based course, attendance and active participation are required. Thus you must have a legitimately excusable absence if you miss class. Examples of excusable absences include documented illness, death in the family, accident, and sanctioned Institute events. If you know that you are going to be absent from a class, you must let the instructor know ahead of time. Each unexcused absence will lower the final grade by 5%.

Optional text: Writing Papers in the Biological Sciences by Victoria E. McMillan (4th or 5th edition), Bedford/St.Martin's, Boston/NY, 2006 or 2011. Approx. \$30.

Office hours: By appointment. Please email or consult with instructor during class to set up a meeting. Students are also welcome to visit the instructor to talk about issues other than course material (e.g., career plans, research interests).

Assessment:

Mini oral presentation	10%
Major oral presentations	40%
Self Assessment of presentation	10%
Poster presentation	25%
Class participation	15%

Oral presentations should be formatted as PowerPoint presentations, rehearsed, and will be peer-reviewed and graded by the instructor following the rubric below. Mini oral presentations (6 min) may be on a scientific topic of your choosing or framed around a recent primary literature journal article. Major oral presentations (8-12 min) will be based on your research from BIOL 4590, 4690, or 4910.

Self Assessment: Students complete an evaluation of their own major oral presentations, due 1 week after the presentation. This provides an opportunity for students to reflect on how they could have prepared for, practiced, and structured their talks differently, and what they would change for their next presentation.

Poster presentation: Each student will create a poster to present their research in a poster session held at the end of the semester. Guidelines and rubric are given below.

Class participation: Students will be judged by the extent to which they participate in class discussions (by asking questions, answering questions, offering ideas, opinions, and critiques of student presentations). Students are expected to ask a question or offer a comment at least once every class.

Academic Integrity: Academic dishonesty will not be tolerated. This includes cheating, lying about course matters, plagiarism, stealing classroom materials, or helping others commit a violation of the Honor Code. Students are reminded of the obligations and expectations associated with the Georgia Tech Academic Honor Code and Student Code of Conduct, available online at honor.gatech.edu.

Plagiarism includes reprinting the words *or ideas* of others without both the use of quotation marks and citation. As direct quotes are seldom used in scientific writing, you are expected to rephrase the words of others and provide the citation. If this is unclear, please ask instructors for help as you work on an assignment.

Learning Accommodations: If needed, we will make classroom accommodations for students with disabilities. These accommodations must be arranged in advance and in accordance with the Office of Disability Services (disabilityservices.gatech.edu).

Schedule (subject to change)

Week	Date	Topic	Due
1	17-Aug	Introduction: Details regarding Senior Research Experience as well as what you can expect from this course Class discussion: how to give an effective oral presentation	
2	24-Aug	Class workshop: How to construct an effective talk	
3	31-Aug	Mini-presentations: Student 3-4 minute oral presentations & discussion for improvement	Powerpoint presentation due to t2/Assignments by NOON
4	7-Sep	HOLIDAY	
5	14-Sep	Student research proposals: Presentation of 7-8 minutes of student research question and exptal design (videotaped for presenter's review)	Da Hee Melissa Sasha Lanerica Anna Lily
6	21-Sep	Student research proposals: Presentation of 7-8 minutes of student research question and exptal design (videotaped for presenter's review)	Micaela Brittany Alex YooJin Jacob Sharadha
7	28-Sep	Class discussion: Peer review of scientific manuscripts, presenting at international conferences, and other things that scientists do	
8	5-Oct	Class workshop: How to construct an effective poster	
9	12-Oct	FALL BREAK	
10	19-Oct	Class workshop: How to write an effective manuscript	
11	26-Oct	Class workshop: Presenting results	Bring your research results to date (discuss options with instructor if you will not have results by this date)
12	2-Nov	Student major presentations: Full presentation (10-12 minutes) of student research and results (videotaped for presenter's review)	Alex YooJin Micaela Brittany
13	9-Nov	Student major presentations: Full presentation (10-12 minutes) of student research and results (videotaped for presenter's review)	Jacob Sharadha Da Hee Melissa
14	16-Nov	Student major presentations: Full presentation (10-12 minutes) of student research and results (videotaped for presenter's review)	Anna Lily Sasha Lanerica
15	23-Nov	Poster Working session and elevator speech rehearsal	Poster submission to T-square by Monday at NOON, or print on your own.
16	30-Nov	Poster session: Monday 30-Nov 4-6 pm presentations and end of semester celebration in EEB 1 st floor Lobby	Present your poster

ORAL PRESENTATION GRADING RUBRIC

The scoring system is as follows: 4 - excellent, 3 - good, 2 - fair, 1 - needs considerable improvement.

- 1. The talk was well presented because the speaker: (28 pts)
 - a. projected enthusiasm and interest in the topic _____
 - b. effectively controlled distracting behaviors _____
 - c. used adequate speaking volume _____
 - d. maintained eye contact with audience _____
 - e. used visual aids effectively _____
 - f. used notes sparingly _____
 - g. answered questions adequately. _____

- 2. The content well-organized and clearly explained because the speaker: (32 pts)
 - a. was easy to follow. _____
 - b. presented adequate background to understand the topic. _____
 - c. explained the methodology clearly. _____
 - d. presented persuasive evidence. _____
 - e. related own data to other studies/published literature. _____
 - f. included in-talk citations and a literature cited slide _____
 - g. covered the topic adequately, considering time limitations. _____
 - h. appropriate pacing throughout talk & appropriate length _____

TOTAL: _____ / 60 points

COMMENTS:

Poster Guidelines

Content and layout will be discussed in class.

Formatting: To print in Biology, format your poster for 40" X 48" or smaller (36" X 48" is a nice working size). The poster boards provided for the poster session are 42"x48". Font sizes can vary, but a rule of thumb is title at 60 pt, Headers at 46 pt, text at 30-36 pt. Images should be mid- to high-resolution so they don't pixelate when printed.

Poster Submission: The School of Biology will print your poster, in which case it must be submitted as a pdf, ppt, or pptx document. If you plan to print your own poster, then you must still submit an electronic copy for grading purposes. Note that posters are printed at no cost to the student when using the Biology printer. However, the School of Biology will not pay to have your poster printed elsewhere.

Poster Session: You are expected to arrive ~5-10 minutes early to set up your poster and to attend the entire session. For most of that time you will need to stand with your poster to answer questions, but you should take the opportunity circulate and support your classmates by asking about their work. The School of Biology will provide refreshments and the faculty will circulate through to hear about your research!

Presentation: Be prepared to walk a poster viewer through the salient points of your poster in a rehearsed ~1–2 minute spiel.

Grading: Your poster will be graded for content, formatting, and presentation by each author's instructor.

Co-authorship: If you have student co-authors, you may share a single poster, but each of you should be able to present independently. Each student will be graded using the rubric and standards of his or her instructor.

Drafts: If you'd like feedback on your poster before you print, email your instructor a pdf draft of your poster and give 48 hours to provide comments.

POSTER GRADING RUBRIC

The scoring system is as follows: 4 - excellent, 3 - good, 2 - fair, or 1 - needs considerable improvement

- 1. The poster was well presented because the poster: (24 pts)
 - a. was aesthetically pleasing, with a balance of text & graphics, etc. _____
 - b. title was clear & inviting for a general biology audience _____
 - c. referenced and acknowledged appropriate sources. _____
 - d. presenter effectively explained the poster's key points. _____
 - e. presenter encouraged discussion and questions. _____
 - f. presenter successfully answered questions. _____

- 2. The content was well organized and clearly explained because the poster: (28 pts)
 - a. made the science easy to follow. _____
 - b. presented adequate background to understand the topic. _____
 - c. hypotheses were clearly stated. _____
 - d. methodology presented was adequate to understand the results. _____
 - e. presented data clearly in a readily understandable format. _____
 - f. summarized and generalized the results. _____
 - g. related the conclusions to the goals & hypotheses of the study. _____

TOTAL: _____ / 52 points