BIOS 4460-D: Communicating Biological Research

Term: Fall 2022 (1 credit hour)

Time: Fridays from 9:30 am − 10:20 am

Instructor: Dr. G. Ozan Bozdag,
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Cherry Emerson building room 319
https://ozanbozdag.github.io

Class Location: Clough UG Learning Commons 325

Course summary: Biology students present seminars on recent research topics based on their own research experience and literature research. This course will be structured similarly to an academic lab meeting, where effective participation and the ability to provide constructive criticism to your colleagues are fundamental. The objectives for the course are for students to:
- develop oral and poster presentation skills on your own research
- learn to engage an audience in a scientific topic through presentation
- critically present and discuss your research results
- put your Biological findings in a broader 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: BIOS 4460 is a co-requisite for BIOS 4590 (Research Project Lab) because students will present their research from BIOS 4590 in the Communicating Biological Research course. Students who have chosen to take BIOS 4690 (Independent Research Project) or BIOS 4910 (Honors Research Thesis) as their Senior Research Experience will present their research from BIOS 4690/4910 in Communicating Biological Science, and may enroll in BIOS 4460 concurrently or after completion of BIOS 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 (5th or 6th edition), Bedford/St.Martin's, Boston/NY.

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:

Homework video assignment	5%
Mini oral presentation	15%
Major oral presentation	30%
Self-assessment of presentation	10%
Poster presentation	30%
Class participation	10%

Homework video assignment: Students will watch and discuss the strengths and weaknesses of two talks: a 5-min talk and a 12-min talk.

Oral presentations should include use of PowerPoint, Keynote, or a similar program, should be practiced ahead of time, and will be peer-reviewed and graded by the instructor according to the rubric included with this syllabus. Mini oral presentations (5 min: 4 min talk + 1 min Q&A) may be on a scientific topic of your choosing or framed around a recent primary literature journal article. Major oral presentations (12 min: 10 min talk + 2 min Q&A) will be based on your research from BIOS 4590, 4690, or 4910.

Self assessment: Students complete an evaluation of their own major oral presentations, due one 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 (from BIOS 4590, 4690, or 4910) in a poster session held at the end of the semester. The poster format is described at the end of this syllabus and will be further discussed in class during Week 8. The grading rubric is provided with this syllabus.

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). <u>Students are expected to ask a question or offer a comment at least once every class.</u>

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 http://osi.gatech.edu/content/honor-code. Plagiarism includes reprinting the words 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 your instructor for help.

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 (http://disabilityservices.gatech.edu).

Class calendar:

Week	Date	Topic
1	Aug 26	- Details regarding Senior Research Experience as well as what you can expect from this course **How to structure your talk** - Dr. Bozdag will give an introductory lecture on giving an effective talk - We will go through a presentation of scaffold slides that can be used as a template of your upcoming talks - Homework video assignment (we will critique an online talk)
2	Sep 2	**How to prepare effective slides** - Dr. Bozdag will go through slides from publicly available talks and share his ideas as to how to improve those slides - Homework video assignment (we will critique an online talk)
3	Sep 9	**Examples of well-structured, effective talks** - Dr. Bozdag will present slides from good talks, and we will discuss the content - Dr. Bozdag will share a presentation of a 5-min talk
4	Sep 16	**How to deliver a good talk?** - Dr. Bozdag will talk about the psychological aspect of delivering a talk **Mini presentations**: - Student 5-minute oral presentations & discussion for improvement
5	Sep 23	**Mini presentations**: - Student 5-minute oral presentations & discussion for improvement
6	Sep 30	**Class Discussion** - How to write an effective research manuscript
7	Oct 07	**No class** - mid-semester break from instruction - This is the time to start preparing your major oral presentations
8	Oct 14	**Class workshop**: - How to construct an effective poster
9	Oct 21	**Poster critique** - Groups of 3 provide a 5-minute critique of a poster found on the internet
10	Oct 28	**Student major oral presentations**: - Full 10-12 minute presentation of research results
11	Nov 4	**Student major oral presentations**: - Full 10-12 minute presentation of research results
12	Nov 11	**Student major oral presentations**: - Full 10-12 minute presentation of research results
13	Nov 18	**Student major oral presentations**: - Full 10-12 minute presentation of research results
14	Nov 25	**Thanksgiving Break**
15	Dec 2	**Poster practice** - Practice giving your poster presentation to your peers.

16	Dec 6	**Poster Session**
		- Tuesday, December 6, from 4:30-6:30 PM

ORAL PRESENTATION GRADING RUBRIC, BIOS 4460

ORAL PRESENTATION

The scoring system is as follows: 3 - excellent, 2 - good, 1 needs considerable improvement. 0- element missing

1. **Structure.** Following an exciting and clear narrative path (keep folks interested in the topic) (18 pts)

    a. started the talk out with big picture context   _____
    b. clearly identified either a 'critical need' or 'gap in the knowledge'   _____
    c. stated the research questions that, when answered, address (**b**)   _____
    d. briefly but clearly described the research methodology   _____
    e. results answer the questions raised in (**b**)*   _____
    f. explained how the answers to the questions in (**b**) affect our
    current understanding of the big picture context (**a**)   _____

2. **Presentation**. How was your delivery? (24 pts)
    <u>General presentation topics</u>
    a. projected enthusiasm and interest in the topic   _____
    b. used adequate speaking volume   _____
    c. maintained eye contact with audience   _____
    d. knew the presentation well (evidence of rehearsal)   _____
    e. had appropriate pacing throughout the talk   _____
    f. Talk was an appropriate length   _____
    g. used notes sparingly (outline: ok, reading from print-out: not ok) _____
    h. answered questions appropriately   _____

    3. <u>Technical points </u>(12 pts)
    i. minimal use of text on slides   _____
    j. visual aids (pics, graphs, etc.) complemented spoken narrative   _____
    k. slides were not cluttered (thus no laser pointer needed)   _____
    l. transitions between topics were smooth   _____

    Subtotal _   _____ / 54 pts

4. Overall, the presentation was told as a well-integrated story.
You kept your audience on the wagon, and they were interested the
whole way through!   _____/ 5 pts

    TOTAL: _____ / 59 points

* It's ok if your results don't answer the questions you raise in (**b**), research isn't always conclusive. The important thing here is that you **connect** your results to those questions, regardless of the outcome.

Poster Guidelines

Content, layout, and formatting will be discussed in class.

Poster Submission: You must submit the poster to Canvas prior to the poster session (April 22nd at 4:30-6pm), and will have to upload your poster to the platform we use for hosting the poster session.

Poster Session: The poster session will be in-person. You should arrive ~10-15 minutes early to set up your poster, and are expected to attend the entire session unless you have a scheduled class during part of the time (in which case, please consult with the instructor PRIOR to the day of the poster session). For most of that time you will need to "stand" near your poster to answer questions, but you should take the opportunity to circulate and support your classmates by asking about their work. Refreshments will have to be self-provided, unfortunately (but we certainly recommend having some snacks available).

Poster Presentation: Be prepared to tell a poster viewer your research story including the salient points of your poster (focusing especially on your results and their implications) by practicing a 1-2 minute summary ahead of time. However, allow viewers who would prefer to read the content of your poster quietly to do so, and then ask them if they have any questions for you to answer.

Grading: Your poster will be graded for content, formatting, and presentation by your instructor.

Co-authorship: If you have student co-authors who are all registered in BIOS 4460 during the same semester, 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.

The rubric for poster presentations is on canvas.

Campus Resources for Students

Academic support
- Office for Minority Educational Development (OMED) https://omed.gatech.edu
- Communication Center http://www.communicationcenter.gatech.edu
- Career Center https://career.gatech.edu
- International Students and Scholars Services https://isss.oie.gatech.edu

Personal Support
Counseling Center http://counseling.gatech.edu; 404-894-2575;
Graduate Student Resources
- https://omed.gatech.edu/graduate-student-resources-0
- https://grad.gatech.edu/resources

The Office of the Dean of Students https://studentlife.gatech.edu/content/dean-students
Students' Temporary Assistance and Resources (STAR): https://studentlife.gatech.edu/content/star-services

Stamps Health Services https://health.gatech.edu; 404-894-1420

Office of Disability Services https://disabilityservices.gatech.edu 404-894-2563 (voice), (404) 894-1664 (TDD)

Women's Resource Center http://www.womenscenter.gatech.edu; 404-385-0230

LGBTQIA Resource Center http://lgbtqia.gatech.edu/; 404-385-2679

Veteran's Resource Center: http://veterans.gatech.edu/; 404-385-2067

VOICE: sexual violence prevention and victim-survivor support https://healthinitiatives.gatech.edu/well-being/voice; (404) 894-1000

Georgia Tech Police: 404-894-2500

Suicide Prevention:

- Visit the Center for Assessment Referral and Education, 1st floor of Smithgall Student Services, walk-in M-F from 8am-4pm
- National Suicide Prevention Lifeline: 1-800-273-8255, 24/7
- Text HOME to Crisis Text Line at 741741 to communicate 24/7 with a trained counselor