



Undergraduate Seminar, Spring 2026, BCHM 490

CRN: 11823

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* You're going to want to read this.

Prerequisites: BCHM 498

Credits: 1

Instructional modality: Face-to-face

Course Description

TL/DR: Discussion of individual student's research projects. Preparation of posters and public seminars based upon research results. Permission of instructor required for enrollment.

- This is a one-credit course and is part of the capstone research experience required for completion of the Biochemistry B.S. degree. The primary focus of this course is on scientific communication.
- Students will learn and practice effective means to communicate scientific information in both written and oral forms, focusing on their own research experience in BCHM 49800.
- A secondary focus will be on proper conduct of scientific research, including ethical and practical issues.

Course Resources*



Your research mentor!

***No textbook required (but you'll need to know where the library is)!**

Learning Outcomes

When you complete this course, you will be able to:

- Incorporate the scientific method in your communication exercises.
- Demonstrate the ability to develop hypotheses, design experiments, and analyze results to create new knowledge.
- Communicate scientific knowledge, experiments and conclusions effectively as speakers and writers.
- Discuss the ethical issues facing professionals in the life sciences.
- Explain the contributions of our discipline to society, including improvements to medicine, agriculture, the economy and the environment.

Learning Resources, Technology & Texts

Required Texts

There is no *required* textbook for this course. HOWEVER! You should expect to read a lot!

- **Textbooks:** Students should read "Slide:ology: The Art and Science of Creating Great Presentations" and Chapter 2 of "Resonate: Present visual stories that transform audiences" both by Nancy Duarte. They are both available online through the Purdue libraries at no cost.
- **Literature:** Various relevant reviews and internet resources on different aspects of communication will be provided on BRIGHTSPACE, and I will have some texts that you can reference throughout the semester.

Optional Additional Readings and/or Resources

There is no maximum reading. You are encouraged to seek out additional resources on science communication to various target audiences, and bring to class to discuss as a group.

Software/Web Resources

- You will need access to a computer to take this course. Course materials will be delivered via Brightspace, and you will need to submit your work, and complete surveys and reflections online.
- It is recommended, though not required, that you bring a laptop with you to class.
- You will need to be able to work on shared online files via Google Docs or similar with your team.

OBTAINING EXTRA HELP

If you are having trouble with the coursework, please reach out to me to chat about it!

Together you will create a strategy for overcoming obstacles and getting back on track.

Brightspace

Access the course via Purdue's Brightspace learning management system. Begin with the Start Here tab, which describes how the course Brightspace is organized. It is strongly suggested that you explore and become familiar not only with the site navigation but with content and resources available for this course. See the Student Services widget on the campus homepage for resources such as Technology Help, Academic Help, Campus Resources, and Protect

UNgrading

We're going to do something creative, disruptive, radical, and rebellious in this course:

This course will not have ANY graded assignments. it will, in fact be "ungraded". So, what does that mean?



If this is what you think it will be:

**Awesome I won't have any assignments!
Or deadlines!**

None of my work will count.

I don't need to show up to class.

I can just assign myself an A at the end of the semester.

I won't learn anything new.

The professor is just doing this so she has less work.

Here's how it will actually work:

Lol. There will be weekly assignments and tasks. And deadlines. **If you miss deadlines, it will impact your performance in the course, and your final grade in the course.**

Everything you do will contribute to your getting better at science communication.

If you don't show up to class, you will not be able to learn effectively or evaluate your own and/or your classmates' work.

The professor reserves the right to adjust any of your self-assigned grades if they cannot be justified.

You will do nothing BUT learn. And it will be because you think it will benefit you professionally, NOT because your GPA is being threatened.

Your work is still going to be evaluated by the professor, there just won't be a number next to it. Instead you will get feedback from her, and your peers, and engage in discussion about the decisions you made while completing your assignment.

Why Ungrading?

I don't like grades. A grade or "final mark" in a course standardizes learning such that students are measured or evaluated in a judgmental way. This is problematic because learning is not the same for everyone, and learning is most certainly not linear. People don't go from point A to point B in an uninterrupted, direct way when it comes to learning.

Students are conditioned to think of grades and marks as a reward and/or punishment given by an instructor. In this case, grades and marking invoke fear. I don't see it that way. I like to think that we engage in the learning process together. I create a safe and fun place in class, so why would working toward a judgmental grade "fit" with this kind of teaching environment and philosophy? Imagine if grades were based on a student's reading, thinking, speaking, listening, interaction, writing, growth/progress, curiosity, feelings and attitudes about the course, and so on. Imagine if your grade in this course will reflect how much a you, as a person and learner, has changed, grown, and genuinely learned. Usually, students often follow a grid to achieve the best grade possible. I have seen students lose their minds over grades: they've cried, blamed, thrown tantrums, etc. all while proclaiming an assignment and/or course to be entirely useless.

Instead, I seek to create an environment of openness, vulnerability, respect, trust, and a willingness to engage each other in our attempts to embrace the learning process. The most important thing that you can get from this class is to learn about new concepts in communication, wrestle with them, and engage with others (your

colleagues/peers and me). I also want to give you the opportunity to do a project the way you've always wanted to, and totally slay it.

To this end, I intend that the work that you do in class will be open and shared. You will help one another to reflect and engage. I won't be grading weekly assignments. I will read and offer comments on **EVERYTHING**, just not a grade. All assignments will be submitted via a shared class GoogleDrive folder.

I will provide to you information on all of the assignments for this course which includes deadlines and expectations. I will include the rubric that I used in the past so that you can see what you're not experiencing anymore. What I want is for you to be motivated from **WITHIN**, not by fear. I want you to want to learn from your own desire, and not be threatened by getting a bad grade.

At the end of term, I have to enter a grade into the university system that will go on your transcript. I have to do this. So I will give you a document that outlines again all of the assignments, and you will grade yourself. I want you to think about what you learned in the class. Did you learn how to incorporate storytelling into your communications? Did you do all of the readings and think about them in ways that helped you to grow? Did you write and enter your work into the GoogleDrive? Did you show up to class? Did you engage and participate with your peers? Did you complete a presentation project that is rigorous and meaningful? I will then ask you to explain what grade **YOU** think you deserve in the course and why.

BCHM 490 Policies

ATTENDANCE POLICY

TL/DR: If you are exhibiting any symptoms of COVID-19, are otherwise ill, or are advised to isolate/quarantine, do not come to campus.

CLASS ATTENDANCE

This course follows Purdue's academic regulations regarding attendance, which states that students are expected to be present for every meeting of the classes in which they are enrolled. Attendance will be taken at the beginning of each class and lateness will be noted. When conflicts or absences can be anticipated, such as for many University-sponsored activities and religious observations, the student should inform the instructor of the situation as far in advance as possible. For unanticipated or emergency absences when advance notification to the instructor is not possible, the student should contact the instructor as soon as possible by email or phone. When the student is unable to make direct contact with the instructor and is unable to leave word with the instructor's department because of circumstances beyond the student's control, and in cases falling under excused absence regulations, the student or the student's representative should contact or go to the [Office of the Dean of Students website](#) to complete appropriate forms for instructor notification. Under academic regulations, excused absences may be granted for cases of grief/bereavement, military service, jury duty, parenting leave, or emergent or urgent care medical care. For details, see the [Academic Regulations &](#)

[Student Conduct section](#) of the University Catalog website.

ACADEMIC GUIDANCE IN THE EVENT A STUDENT IS QUARANTINED/ISOLATED

If you must miss class at any point in time during the semester, please reach out to me via email so that we can communicate about how you can maintain your academic progress. If you find yourself too sick to progress in the course, notify me via email or Brightspace. We will make arrangements based on your particular situation. Please note how Purdue intends to handle positive cases in the webpage: [Fall 2022: What you need to Know](#).

PROTECT PURDUE

Any student who has substantial reason to believe that another person is threatening the safety of others by not complying with Protect Purdue protocols is encouraged to report the behavior to and discuss the next steps with their instructor. Students also have the option of reporting the behavior to the [Office of the Student Rights and Responsibilities](#). See also [Purdue University Bill of Student Rights](#) and the Violent Behavior Policy under University Resources in Brightspace.

ACADEMIC MISCONDUCT

Academic misconduct of any kind will not be tolerated in any course offered by the Department of Biochemistry. Information on Purdue's policies with regard to academic misconduct can be found at http://www.purdue.edu/studentregulations/student_conduct/regulations.html

Any incidence of academic misconduct will be reported to the Office of the Dean of Students. Academic misconduct may result in disciplinary sanctions including expulsion, suspension, probated suspension, disciplinary probation, and/or educational sanctions. In addition, such misconduct will result in punitive grading such as:

- receiving a lower or failing grade on the assignment, or
- assessing a lower or failing grade for the course

Punitive grading decisions will be made after consultation with the Office of the Dean of Students. Please note reported incidences of academic misconduct go on record for reference by other instructors. Further, a record of academic misconduct is likely to influence how current/future situations are handled.

To provide you with an unambiguous definition of academic misconduct, the following text has been excerpted from "Academic Integrity: A Guide for Students", written by Stephen Akers, Ph.D., Executive Associate Dean of Students (1995, Revised 1999, 2003), and published by the Office of the Dean of Students in cooperation with Purdue Student Government, Schleman Hall of Student Services, Room 207, 475 Stadium Mall Drive West Lafayette, IN 47907-2050.

"Purdue prohibits "dishonesty in connection with any University activity. Cheating, plagiarism, or knowingly furnishing false information to the University are examples of dishonesty." [Part 5, Section III-B-2-a, Student Regulations] Furthermore, the University Senate has stipulated that "the commitment of acts of cheating, lying, and deceit in any of their diverse forms (such as the use of substitutes for taking examinations, the use of illegal cribs, plagiarism, and copying during examinations) is dishonest and must not be tolerated. Moreover, knowingly to aid and abet, directly or indirectly, other parties in committing dishonest acts is in itself dishonest." [University Senate Document 72-18, December 15, 1972]

More specifically, the following are a few examples of academic dishonesty which have been discovered at Purdue University.

- substituting on an exam for another student
- substituting in a course for another student
- paying someone else to write a paper and submitting it as one's own work
- giving or receiving answers by use of signals during an exam
- copying with or without the other person's knowledge during an exam
- doing class assignments for someone else
- plagiarizing published material, class assignments, or lab reports

- turning in a paper that has been purchased from a commercial research firm or obtained from the internet
- padding items of a bibliography
- obtaining an unauthorized copy of a test in advance of its scheduled administration
- using unauthorized notes during an exam
- collaborating with other students on assignments when it is not allowed
- obtaining a test from the exam site, completing and submitting it later
- altering answers on a scored test and submitting it for a regrade
- accessing and altering grade records
- stealing class assignments from other students and submitting them as one's own
- fabricating data
- destroying or stealing the work of other students

Plagiarism is a special kind of academic dishonesty in which one person steals another person's ideas or words and falsely presents them as the plagiarist's own product. This is most likely to occur in the following ways:

- using the exact language of someone else without the use of quotation marks and without giving proper credit to the author
- presenting the sequence of ideas or arranging the material of someone else even though such is expressed in one's own words, without giving appropriate acknowledgment
- submitting a document written by someone else but representing it as one's own”

ACADEMIC INTEGRITY

Academic integrity is one of the highest values that Purdue University holds. Individuals are encouraged to alert university officials to potential breaches of this value by either emailing integrity@purdue.edu or by calling 765-494-8778. While information may be submitted anonymously, the more information that is submitted provides the greatest opportunity for the university to investigate the concern. More details are available on our course Brightspace under University Policies.

Purdue's Honor Pledge was developed by students to advance a supportive environment that promotes academic integrity and excellence. It is intended that this pledge inspires Boilermakers of all generations to stay "on track" to themselves and their University.

“As a boilermaker pursuing academic excellence, I pledge to be honest and true in all that I do. Accountable together - we are Purdue.”

Responsible Use of AI in Completing Coursework

Advancements in Artificial Intelligence (AI) provide students with unparalleled access to information and problem-solving capabilities. However, with these advantages come the responsibilities of ethical use and academic integrity. This statement outlines the expectations and guidelines for the responsible use of AI in our course.

Objectives:

By adhering to these guidelines, students aim to:

1. Uphold academic honesty and personal integrity.
2. Ensure equitable access and opportunities for all students.
3. Develop skills for critical thinking and independent reasoning.
4. Understand the strengths and limitations of AI tools.

Guidelines for Responsible Use:

1. **Original Work:** Students should ensure that assignments submitted are original and based on their understanding. While AI can assist in research or provide general guidance, it should not produce work on behalf of the student.
2. **Citation:** Any content, ideas, or assistance obtained through AI tools must be appropriately cited, similar to any other reference or source. You will need to go and find the relevant citations from the primary literature (journal articles)!
3. **Collaboration:** If a student collaborates with AI tools, (And you are encouraged to do so in this course!) they must specify the nature and extent of this collaboration in their submission. This includes providing details of the prompts used to generate the AI responses.
4. **Prohibited Uses:** AI should not be used to complete quizzes, exams, or any other assessments unless explicitly permitted by the instructor.
5. **Accessibility:** All students must have equal access to AI tools. If a particular tool is used in a course, it should be free of cost for all users.
6. **Data Privacy:** Students must be cautious when sharing personal or sensitive information with AI platforms and should be familiar with the terms of service of any third-party AI tools.

Consequences for Misuse:

Misuse of AI tools in coursework, which includes but is not limited to producing unoriginal work, uncited use of AI-generated content, or unauthorized assistance on assessments, will be considered a breach of academic integrity. Consequences will follow the Purdue's policies on academic dishonesty as detailed in this syllabus, which may include grade penalties, course failure, or more severe disciplinary actions.

Reflection & Discussion:

Students are encouraged to reflect on their experiences using AI tools and to discuss openly any ethical or academic concerns. Periodic class discussions or forums might be held to address advancements in AI and their implications in academia.

The promise of AI in enhancing learning and research is vast, but it must be used judiciously. Responsible use not only ensures academic honesty but also maximizes genuine learning and skill development. Students are urged to approach AI as a supplementary tool, not a replacement for their unique intellectual capacities and insights.

NOTICE OF COPYRIGHT PROTECTION OF COURSE MATERIALS

Among the materials that may be protected by copyright law are the lectures, notes, and other material presented in class or as part of the course. Always assume the materials presented by an instructor are protected by copyright unless the instructor has stated otherwise. Students enrolled in, and authorized visitors to, Purdue University courses are permitted to take notes, which they may use for individual/group study or for other non-commercial purposes reasonably arising from enrollment in the course or the University generally.

Notes taken in class are, however, generally considered to be “derivative works” of the instructor’s presentations and materials, and they are thus subject to the instructor’s copyright in such presentations and materials. No individual is permitted to sell or otherwise barter notes, either to other students or to any commercial concern, for a course without the express written permission of the course instructor. To obtain permission to sell or barter notes, the individual wishing to sell or barter the notes must be registered in the course or must be an approved visitor to the class. Course instructors may choose to grant or not grant such permission at their own discretion, and may require a review of the notes prior to their being sold or bartered. If they do grant such permission, they may revoke it at any time, if they so choose.

EMERGENCY PREPAREDNESS

In the event of a major campus emergency, course requirements, deadlines are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor’s control. Relevant changes to this course will be posted onto the course website or can be obtained by contacting the instructors or TAs via email or phone. You are expected to read your @purdue.edu email on a frequent basis. The entire policy can be found through the “Emergency Preparedness” Statement on Brightspace.

ON-LINE COURSE EVALUATIONS

During the last two weeks of the semester, you will be provided an opportunity to evaluate this course and your instructor(s). To this end, Purdue has transitioned to online

course evaluations. On Monday of the fifteenth week of classes, you will receive an official email from evaluation administrators with a link to the online evaluation site. You will have two weeks to complete this evaluation. Your participation in this evaluation is an integral part of this course. Your feedback is vital to improving education at Purdue University. I strongly urge you to participate in the evaluation system.

NON-DISCRIMINATION POLICY

Purdue University is committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life. A link to [Purdue's Nondiscrimination Policy Statement](#) is included in the Brightspace template under University Policies.

MENTAL HEALTH

If you find yourself beginning to feel some stress, anxiety and/or feeling slightly overwhelmed, try [WellTrack](#). Sign in and find information and tools at your fingertips, available to you at any time.

If you need support and information about options and resources, please contact or see the [Office of the Dean of Students](#). Call 765-494-1747. Hours of operation are M-F, 8 am- 5 pm.

If you find yourself struggling to find a healthy balance between academics, social life, stress, etc. sign up for free one-on-one virtual or in-person sessions with a [Purdue Wellness Coach at RecWell](#). Student coaches can help you navigate through barriers and challenges toward your goals throughout the semester. Sign up is completely free and can be done on BoilerConnect. If you have any questions, please contact Purdue Wellness at evans240@purdue.edu.

If you're struggling and need mental health services: Purdue University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of mental health support, services are available. For help, such individuals should contact [Counseling and Psychological Services \(CAPS\)](#) at 765-494-6995 during and after hours, on weekends and holidays, or by going to the CAPS office on the second floor of the Purdue University Student Health Center (PUSH) during business hours.

BASIC NEEDS SECURITY

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact the [Dean of Students](#) for support. There is no appointment needed and Student Support Services is available to serve students 8 a.m.-5 p.m. Monday through Friday. Considering the significant disruptions caused by the current global crisis as it related to COVID-19, students may submit requests for emergency assistance from the [Critical Needs Fund](#).

ACCESSIBILITY AND ACCOMODATIONS

Purdue University strives to make learning experiences as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, you are encouraged to let me know so that we can discuss options. You are also encouraged to contact the [Disability Resource Center](#) at: drc@purdue.edu or by phone: 765-494-1247.

CLASS SCHEDULE

Week	Topic	Assignment / Task Due (before class)
1	Creating goals and expectations • Introduction to storytelling in science • What makes a research project <i>coherent</i>	—
2	Dr. Martin Luther King Jr. Day – No Class	—
3	Science advocacy and ethics: what do you care about? • From broad area → research question • Background vs motivation vs impact • Discussion groups: BCHM 498 stories	Research Framing Document (1–1.5 pages) • Broad research area (context) • Specific research question • Background & key gap(s) in knowledge • Why this question mattered at the start
4	Small-group presentations: science advocacy & ethics • Situating scientific work in context • Reflection and peer feedback	Mentor Framing Meeting & Summary • Meet with your research mentor to discuss your background, gap, and question • Submit a brief summary (½–1 page): – What feedback did you receive? – What became clearer or changed?
5	What are scientific posters? • Posters as structured scientific arguments • Where background and questions live on a poster	Poster Planning Timeline • Timeline for BCHM 490 poster completion • Confirm poster expectations with PI
6	What is an elevator pitch? • Condensing a research story without losing logic • Discussion groups: story arcs & the scientific method	Poster Storyboard • Explicitly identify: – background section – research question – hypothesis / guiding idea
7	Elevator pitch presentations (small groups) • Prioritizing background vs results • Helping your audience orient quickly	Formatted figure for poster Reflection : prioritizing information and maintaining coherence
8	The rubric • Aligning communication with the scientific method	—
9	Maximizing visual impact • Using visuals to support (not replace) explanation	Draft poster
10	Spring Break – No Class	—
11	Abstracts: concise scientific framing • What readers need to know first	Abstract

Week	Topic	Assignment / Task Due (before class)
12	Small-group poster presentations • Explaining background, question, and results clearly	Poster presentation (5–7 min PowerPoint/Prezi/similar)
13	Small-group poster presentations • Responding to questions and feedback	Poster presentation (5–7 min PowerPoint/Prezi/similar)
14	No in-person meeting • Final formatting: affiliations, QR codes, layout, clarity	—
15	Practice poster session • Simulated conference environment	Printed poster
16	Poster session	—

*Class schedule is subject to change