



Course Subject, Number and Title
BIOCHEM 721, "Biochemical Communication"

Credits
2

Canvas Course URL
<https://canvas.wisc.edu/courses/220745>

Course Designations and Attributes
Graduate level course

Meeting Time and Location
Fall semester, MW, 8:50am to 9:40am

Instructional Mode
In person

Specify how Credit Hours are met by the Course

This class meets for two 50-minute class periods each week over the fall semester and carries the expectation that students will work on course learning activities (reading, writing, peer review, etc.) for about 2 hours out of the classroom for every class period. The syllabus includes additional information about meeting times and expectations for student work. Note that, some full-class sessions may be shortened or replaced with peer review group meetings.

INSTRUCTORS

Primary Instructors

Prof. Katie Henzler-Wildman
henzlerwildm@wisc.edu

Prof. Bob Landick
rlandick@wisc.edu

Prof. Ann Palmenberg
acpalmen@wisc.edu

Mock Study Section Leaders

Prof. Wes Pike
jpikew@wisc.edu

Prof. Judith Kimble
jekimble@wisc.edu

Prof. Hazel Holden
hmholden@wisc.edu

Instructor Availability

Please contact instructors to arrange a meeting time, either in person or virtually.

OFFICIAL COURSE DESCRIPTION

Course Description

Designed to introduce students to written and visual communication of biochemical research, both to other scientists and to general audiences, including: how to recognize and adapt work to different audiences; how to construct a scientific argument and the different strategies used for research reports, reviews, and proposals; and how to create figures and posters that clearly convey scientific data and concepts. Students will also be introduced to the peer review process and revision of scientific writing. An intensive writing component requires students to produce multiple written and visual documents on the topic of their thesis research. Required of second-year IPiB students.

Requisites

Declared in Biochemistry PhD graduate program

LEARNING OUTCOMES

- Differentiate different types of scientific writing, including the goals, audience and components of research papers, review articles, and proposals.
- Analyze the structure of scientific arguments.
- Evaluate the audience and appropriately target a particular scientific work.
- Write about their own research and field of science, both retrospectively (research papers and review articles) and prospectively (proposal), utilizing the strategies previously identified to synthesize data or the literature, organize the work, and construct a convincing scientific argument at the appropriate level for the target audience to demonstrate mastery of these concepts.
- Create figures that clearly, accurately, and concisely convey scientific information to support the written words.
- Revise scientific writing to improve clarity, organization, language, and to better achieve the rhetorical goals of a particular piece of work.
- Verbally communicate the importance of their thesis project in a concise manner that is accessible to a general scientific audience.

GRADING

- Analysis and critique of published work (15%)
 - *Analysis of types of journals in your field (10%)*
 - *Analysis of logical structure in a scientific paper (in-class) (5%)*
- Writing assignments (45%)
 - *Abstract (10%)*
 - *Written proposal (35%)*
- Visual assignments - two figures (10%)
- Oral presentation – three-minute thesis (10%)
- Peer Review – written critiques and participation in mock study sections (15%)
- In class assignments – biosketch sections, 75-word writing prompts (5%)

- Class will be graded on a curve
 - 90-100% A
 - 85-90% AB
 - 80-85% B
 - 75-80% BC
 - 70-75% C

REQUIRED TEXTBOOK, SOFTWARE & OTHER COURSE MATERIALS

- “Writing in the Life Sciences: A Critical Thinking Approach” by Laurence Greene
- “Writing in the Sciences: Exploring Conventions of Scientific Discourse” by Ann Penrose and Steven Katz (optional)
- American Chemical Society Style Guide (optional)

HOMEWORK & OTHER ASSIGNMENTS

- Activities required for class preparation are clearly noted on the Canvas course page. Assigned readings, short writing assignments, and selection of articles and posters for in-class evaluation should be completed before class so that you can actively participate in class discussions and analysis of scientific communication and in-class practice in producing written and visual work to communicate scientific results and ideas.
- Homework assignments will be submitted online through the canvas course page (abstract, mini-review, critiques & analyses, figures), via dropbox (grant proposals to be shared for mock study section, piece for non-scientists), or through in-person presentation during class (three-minute thesis) depending on the assignment.
- This course has no exams.

Course Schedule				
INTRO				
Date	Instructor	Topic	Reading	Homework
W 9/8/21	Henzler-Wildman	Audience, Journals, Voice	Ch.1	Types of journals – due 9/15.
M 9/13/21	Henzler-Wildman	Constructing a scientific argument	Ch.2, Ch.3 p.172-179	Write an abstract – Meet with Peer Review Group by 9/20. Due 9/27.
W 9/15/21	Henzler-Wildman	Peer Review	Ch5 p.248-253	
VISUAL COMMUNICATION - <i>Not required but highly recommended: attend PyMOL, Illustrator or Photoshop workshop</i>				
M 9/20/21	Mike Sheets	Designing effective figures – communicating ideas and results clearly	Ch.4 p.188-202	Make two figures for your research proposal – due 10/13.
W 9/22/21	Judi Simcox	Scientific Animations		
M 9/27/21	Phil Romero	Designing an effective figure – large data sets		
W 9/29/21	Jim Keck	Designing an effective figure – quantitative and structural data and representations		
M 10/4/21	Katie	Graphical Abstracts		
W 10/6/21	Liz Wright	Designing an effective figure –images		
PROPOSALS				
Date	Instructor	Topic	Reading	Homework
M 10/11/21	Landick	Specific Aims	P&K Ch.7	Draft aims – due 10/20.
W 10/13/21	Landick	Significance, Innovation, Premise & Preliminary Results		
M 10/18/21	Landick	Approach – Rigor & Reproducibility		

W 10/20/21	Landick	Biosketches & other parts of the proposal		Critique of your two assigned (for which you are reviewer 1 or 2) is due 10/27.
M 10/25/21	Landick	Funding Agencies – Reading an RFP/FOA		
W 10/27/21	Landick	How does study section work: Guidelines and Ethics		Review all Aims and Critiques in preparation for mock study section.
M 11/1/21		<i>Mock study section #1</i> , critique Aims		Revise Aims, draft Significance - due 11/15.

SCIENTIFIC REPORTS AND PAPERS

Date	Instructor	Topic	Reading	Homework
W 11/3/21	Henzler-Wildman	Rhetorical goals and scientific argument	Ch.3, Ch.4 p. 149-171	In-class paper analysis
M 11/8/21	Henzler-Wildman	Structure of a paper	Ch.4 p.172-188, Ch.8 p. 379-452	
W 11/10/21	Henzler-Wildman	Reviewing papers, writing a critique	Peer review guidelines (see Canvas)	
M 11/15/21	Henzler-Wildman	Revising scientific writing (1 of 2) – logic, paragraphs, sentences, scientific conventions	Ch.5-7	Critique of your two assigned proposals are due 11/19.
W 11/17/21	Henzler-Wildman	Revising scientific writing (2 of 2) – logic, paragraphs, sentences, scientific conventions		Review all proposal drafts and critiques before mock study section.
M 11/22/21		<i>Mock study section #2</i> , critique Aims and Significance		Revise Significance, draft Approach for ONE Aim, due 12/6

POSTERS, TALKS, AND NON-ACADEMIC WRITING				
M 11/29/21	Beth Werner Kieran Furlong <i>Not yet confirmed</i>	Industrial and translational reading/writing: Memos, patents, project reports		
W 12/1/21	Rick Amasino <i>Not yet confirmed, just reached out to Beth and Rick to confirm dates</i>	Communicating with non-scientists	P&K Ch.6	Three-minute thesis – due in class 12/15.
M 12/6/21	Henzler-Wildman	Giving talks	P&K Ch.6	Critique of your two assigned proposals are due 12/10.
W 12/8/21	Henzler-Wildman	Poster design and presentation	P&K Ch.6	Review all proposal drafts and critiques before mock study section.
M 12/13/21		<i>Mock study section #3, critique Significance and Approach</i>		
W 12/15/21		Three-Minute Thesis presentations in class		

HOW TO SUCCEED IN THIS COURSE

- All information, assignments, due dates and links to other materials will be available on the Canvas Course page. Please follow the course page closely.
- Announcements will be posted on the Canvas course page and sent out via email.
- If you have any questions, please contact Katie Henzler-Wildman at henzlerwildm@wisc.edu

PRIVACY OF STUDENT RECORDS and the USAGE of AUDIO RECORDED LECTURES

See information about [privacy of student records and the usage of audio-recorded lectures](#).

Usage of Audio Recorded Lectures Statement

Lecture materials and recordings for [insert class name] are protected intellectual property at UW-Madison. Students in this course may use the materials and recordings for their personal use related to participation in this class. Students may also take notes solely for their personal use. If a lecture is not already recorded, you are not authorized to record my lectures without my permission unless you are considered by the university to be a qualified student with a disability requiring accommodation. [Regent Policy Document 4-1] Students may not copy or have lecture materials and recordings outside of class, including posting on internet sites or selling to commercial entities. Students are also prohibited from providing or selling their personal notes to anyone else or being paid for taking notes by any person or commercial firm without the instructor's express written permission. Unauthorized use of these copyrighted lecture materials and recordings constitutes copyright infringement and may be addressed under the university's policies, UWS Chapters 14 and 17, governing student academic and non-academic misconduct.

STUDENTS' RULES, [RIGHTS & RESPONSIBILITIES](#)

During the global COVID-10 pandemic, we must prioritize our collective health and safety to keep ourselves, our campus, and our community safe. As a university community, we must work together to prevent the spread of the virus and to promote the collective health and welfare of our campus and surrounding community.

This course does not meet in person. Small groups (mock study sections, peer review groups) may choose to meet in person only if all individuals are able to wear a face covering. Face coverings will be required for all in-person meetings of mock study sections or peer review groups. If any individual is unable or refuses to wear a face covering for any reason, the in-person meeting will be suspended and reconvened on-line.

Quarantine or Isolation Due to COVID-19

Student should continually monitor themselves for COVID-19 [symptoms](#) and get [tested](#) for the virus if they have symptoms or have been in close contact with someone with COVID-19. Student should reach out to instructors as soon as possible if they become ill or need to isolate or quarantine, in order to make alternate plans for how to proceed with the course. Students are strongly encouraged to communicate with their instructor concerning their illness and the anticipated extent of their absence from the course (either in-person or remote). The instructor will work with the student to provide alternative ways to complete the course work.

Digital Course Evaluation (AEFIS)

UW-Madison now uses an online course evaluation survey tool, [AEFIS](#). In most instances, you will receive an official email two weeks prior to the end of the semester when your course evaluation is available. You will receive a link to log into the course evaluation with your NetID where you can complete the evaluation and submit it, anonymously. Your participation is an integral component of this course, and your feedback is important to me. I strongly encourage you to participate in the course evaluation.

ACADEMIC INTEGRITY

By enrolling in this course, each student assumes the responsibilities of an active participant in UW-Madison's community of scholars in which everyone's academic work and behavior are held to the highest academic integrity standards. Academic misconduct compromises the integrity of the university. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these acts are examples of academic misconduct, which can result in disciplinary action. This includes but is not limited to failure on the assignment/course, disciplinary probation, or suspension. Substantial or repeated cases of misconduct will be forwarded to the Office of Student Conduct & Community Standards for additional review. For more information, refer to studentconduct.wiscweb.wisc.edu/academic-integrity/.

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

McBurney Disability Resource Center syllabus statement: "The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform faculty [me] of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. Faculty [I], will work either directly with the student [you] or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA." <http://mcburney.wisc.edu/facstaffother/faculty/syllabus.php>

DIVERSITY & INCLUSION

Institutional statement on diversity: "Diversity is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals.

The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world." <https://diversity.wisc.edu/>