

BIBC 194 – Unsolved Problems in Cell Biology
Spring Quarter 2024
York 3010
Wednesday 3:00 to 4:30 pm

Jim Wilhelm
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Office Hours: Wednesday 4:30-5:30

Contacting me

It is much easier to explain concepts in person than by email. If you need to send me an email, please include “BICD 194” in the subject line and allow a business day for me to reply. If I have not replied in a business day, please send the email again. I don’t respond to email on weekends. I am also at the Art of Espresso coffee cart most days around 9am sitting at the shuttle stop thinking.

Course Description

After a review of how to use biochemistry and genetics to answer questions in cell biology, students will work in groups on their own solutions to a set of unsolved cell biological problems and present their proposals to the class. Students will then work on critiques and improvements to other group’s proposals and present their critique/improved proposal to the class.

Course Materials and Tools

Every article used in the class will be posted on Canvas, but most journals are behind paywalls. Download articles while on campus or use the [UCSD VPN](#). There will also be a set of templates for paper discussions to be submitted.

Grading Information

93-100%	A	77-80%	C+
90-93%	A-	73-77%	C
87-90%	B+	70-73%	C-
83-87%	B	60-70%	D
80-83%	B-	<60%	F

Assignment	Weight
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Attendance	40
Presentation	50
Participation	10
	100%

Attendance and Participation

This is an in-person course. Attendance accounts for 40% of your grade and there is a lot of in class time scheduled for group work. There is nothing more demoralizing to a group than absent group members. There is also no way to make up the group presentation. Unfortunately, this means that absences are likely to be unexcused and will affect your grade.

Course Format

BICD 194 assignments

Week 1(April 3) — One of the key skills in science (and life) is asking good questions. While you are walking around, pay attention to the world around you. Are there things that you have walked by before, but never thought to ask how they work?

Assignment: Take a picture of some piece of biology out in the world (not in the lab) that you are unclear how it works. Post your question as a caption to the picture on the Canvas Discussion Board. **Posts must be made by 5pm on April 2.** We will discuss the best posts in Class on April 3.

Lecture: Biochemical Reconstitution

Week 2 (April 10)- How to read a Biochemistry paper.

Assignment: Read Borisy et al PNAS 1972.

In 65 words or less for each question, answer the following for the article you read:

1. What, in your own words, is the knowledge problem the article is trying to solve?
2. Briefly define and explain one useful piece of technical info from the article.
3. Briefly define and explain one useful problem-solving concept you see the authors applying in this article? (Note: what we are looking for is not a technique but rather a more generalizable problem-solving approach.)
4. What in the article is NOT important for us in this class?

A template will be provided on Canvas for you to use. **Upload your answers to Canvas by 5pm on April 9.** Bring a copy to Class on April 10 for discussion.

Lecture: Genetics

Week 3 (April 17)- How to read a Genetics paper

Assignment: Read Nelms et al JCB 2017

In 65 words or less for each question, answer the following for the article you read:

1. What, in your own words, is the knowledge problem the article is trying to solve?
2. Briefly define and explain one useful piece of technical info from the article.

3. Briefly define and explain one useful problem-solving concept you see the authors applying in this article? (Note: what we are looking for is not a technique but rather a more generalizable problem-solving approach.)
4. What in the article is NOT important for us in this class?

A template will be provided on Canvas for you to use. **Upload your answers to Canvas by 5pm on April 16.** Bring a copy to Section on April 17 for discussion.

Week 4 (April 24)- Tool Kit Paper Discussion

Assignment: Each group of students has been assigned a paper. The groups are in an Excel spreadsheet on Canvas. Each of these papers has tools/concepts that are useful for one or more of the Research Proposal topics. I have created a GoogleDoc of questions about the paper that will allow us to aggregate all of the info from the papers. This will provide a common resource for everyone to use in preparing their Research Proposals.

Each Group needs to complete its section of the GoogleDoc by 5pm on April 24. The link to the GoogleDoc will be posted in the announcements on Canvas. Print out the entire Doc or bring a computing device to access in Class on April 24 for group work.

Week 5 (May 1)- Example Proposals: Why doesn't the lysosome digest itself?

Assignment: Read the three proposals on "Why doesn't the lysosome digest itself?" Use the template provided on Canvas to critique the three proposals. **Upload your answers to Canvas by 5pm on April 30.** Bring a copy to Class on May 1 for discussion.

Week 6 (May 8)- Assignment of problems to groups - In class practice problem solving.

Week 7 (May 15)- Groups work on in class practice problem solving

Week 8 (May 22)- 12 min Group Presentations

Week 9 (May 29)- Groups work on in class practice problem solving.

Week 10 (June 3)- Groups work on in class practice problem solving.

FINAL (June 12) - 12 min Presentations of critiques and improvements to other groups solutions.

Student Resources for Support and Learning

Library Help

For questions about eReserves and research tools:

<https://library.ucsd.edu/ask-us/triton-ed.html>

Learning Resources

[Writing Hub](#)

[Supplemental Instruction](#)

[Tutoring](#)

[Mental Health Services](#)

Community Centers

Learn about the different ways UC San Diego explores, supports and celebrates the many cultures that make up our diverse community.

<https://students.ucsd.edu/student-life/diversity/index.html>

Accessibility

Students requesting accommodations for this course due to a disability must provide a current Authorization for Accommodation (AFA) letter issued by the Office for Students with Disabilities (OSD) which is located in University Center 202 behind Center Hall. Students are required to present their AFA letters to Faculty (please make arrangements to contact me privately) and to the OSD Liaison in the department in advance so that accommodations may be arranged.

Contact the OSD for further information: <https://disabilities.ucsd.edu/>.
osd@ucsd.edu | 858. 534.4382

Inclusion

I am committed to creating a learning environment that supports diversity of thought, perspective, experience, and identity. This will be key to our success. Science is all about pooling insight and seeing problems from as many perspectives as possible. So, please share your thoughts.

I am also open to anonymous feedback am fully willing to facilitate it.

Office of Equity, Diversity, and Inclusion:

858.822.3542 | diversity@ucsd.edu | <https://diversity.ucsd.edu/>

<https://students.ucsd.edu/student-life/diversity/index.html>

<https://regents.universityofcalifornia.edu/governance/policies/4400.html>

Basic Needs

Any student who has difficulty accessing sufficient food to eat every day, or who lacks a safe and stable place to live, and believes this may affect their performance in this course, is encouraged to contact:

foodpantry@ucsd.edu | basicneeds@ucsd.edu | (858)246-2632

Technical Support

For help with accounts, network, and technical issues:

<https://acms.ucsd.edu/contact/index.html>

For help connecting to electronic library resources such as eReserves and e-journals:

<https://library.ucsd.edu/computing-and-technology/connect-from-off-campus/>

For help installing Zoom for video conferencing, virtual office hours, synchronous lectures:

<https://blink.ucsd.edu/technology/file-sharing/zoom/index.html>

UC San Diego Academic Policies

Academic Integrity

Academic Integrity is expected of everyone at UC San Diego. This means that you must be honest, fair, responsible, respectful, and trustworthy in all of your actions. Lying, cheating, or any other forms of dishonesty will not be tolerated because they undermine learning and the University's ability to certify students' knowledge and abilities. Thus, any attempt to get, or help another get, a grade by cheating, lying or dishonesty will be reported to the Academic Integrity Office and will result in sanctions. Sanctions can include an F in the class and suspension or dismissal from the University. So, think carefully before you act. Before you act, ask yourself the following questions: a) is my action honest, fair, respectful, responsible, and trustworthy, and b) is my action authorized by the instructor? If you are unsure, don't ask a friend, ask your instructor, instructional assistant, or the Academic Integrity Office. You can learn more about academic integrity at academicintegrity.ucsd.edu.

(Source: Bertram Gallant, T. (2017). Teaching for integrity. UC San Diego Academic Integrity Office.)

Refer to:

[UCSD Student Conduct Code](https://students.ucsd.edu/_files/student-conduct/ucsandiego-student-conduct-code_interim-revisions1-16-18.pdf)

(https://students.ucsd.edu/_files/student-conduct/ucsandiego-student-conduct-code_interim-revisions1-16-18.pdf)

[Principles of Community](https://ucsd.edu/about/principles.html)

(<https://ucsd.edu/about/principles.html>)

Religious Accommodation

It is the policy of the university to make reasonable efforts to accommodate students having bona fide religious conflicts with scheduled examinations by providing alternative times or methods to take such examinations. If a student anticipates that a scheduled examination will occur at a time at which his or her religious beliefs prohibit participation in the examination, the student must submit to the instructor a statement describing the nature of the religious conflict and specifying the days and times of conflict.

For final examinations, the statement must be submitted no later than the end of the second week of instruction of the quarter.

For all other examinations, the statement must be submitted to the instructor as soon as possible after a particular examination date is scheduled.

If a conflict with the student's religious beliefs does exist, the instructor will attempt to provide an alternative, equitable examination that does not create undue hardship for the instructor or for the other students in the class.

Discrimination and harassment

The University of California, in accordance with applicable federal and state laws and university policies, does not discriminate on the basis of race, color, national origin, religion, sex, gender, gender identity, gender expression, pregnancy (including pregnancy, childbirth, and medical conditions related to pregnancy or childbirth), physical or mental disability, medical condition, genetic information, ancestry, marital status, age, sexual orientation, citizenship, or service in the uniformed services (including membership, application for membership, performance of service, application for service, or obligation for service in the uniformed services). The university also prohibits harassment based on these protected categories, including sexual harassment, as well as sexual assault, domestic violence, dating violence, and stalking. The nondiscrimination policy covers admission, access, and treatment in university programs and activities. If students have questions about student-related nondiscrimination policies or concerns about possible discrimination or harassment, they should contact the Office for the Prevention of Harassment & Discrimination (OPHD) at (858) 534-8298, ophd@ucsd.edu, or reportbias.ucsd.edu.

Campus policies provide for a prompt and effective response to student complaints. This response may include alternative resolution procedures or formal investigation. Students will be informed about complaint resolution options.

A student who chooses not to report may still contact CARE at the Sexual Assault Resource Center for more information, emotional support, individual and group counseling, and/or assistance with obtaining a medical exam. For off-campus support services, a student may contact the Center for Community Solutions. Other confidential resources on campus include Counseling and Psychological Services, Office of the Ombuds, and Student Health Services.

CARE at the Sexual Assault Resource Center
858.534.5793 | sarc@ucsd.edu | <https://care.ucsd.edu>

Counseling and Psychological Services (CAPS)
858.534.3755 | <https://caps.ucsd.edu>

Subject to Change Policy

The information contained in this course syllabus, other than the grade and absence policies, may be—under certain circumstances such as mutual agreement to enhance student learning—subject to change with reasonable advance notice.