



DEPARTMENT OF BIOCHEMISTRY

BCHM 60200-001 Syllabus
Spring, 2021
2 Cr

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Office hours: Immediately after class or by appointment.

COURSE OBJECTIVES

In this course, we will explore components of experimental design and research projects that help make experiments interpretable, informative, innovative and interesting. We will discuss aspects of critical thinking in relation to reading scientific papers, designing of a research study and interpreting experiments. We will cover components of grant applications, identification of and justification for research questions, strategies for designing grant (or prelim) applications, tips for writing accurately, clearly and convincingly. This course will draw from examples in primary literature plus federal, institutional, internal and external sources.

LEARNING OUTCOMES

Demonstrate proficiency in basic writing skills by applying appropriate and correct organization, structure, formatting, grammar, spelling and citation to scientific writing.

Demonstrate proficiency in scientific writing by demonstrating the ability think critically and to convey ideas clearly, concisely and convincingly.

Demonstrate an understanding that the best scientific writing and grant writing will include your scientific community and will require multiple drafts, collaboration, feedback, and reflection.

Demonstrate proficiency in scientific oral communication by demonstrating the ability to think critically and to convey ideas clearly, concisely and convincingly.

TEXTBOOK

No textbook is assigned for this course. All materials or links to materials are provided on Brightspace.

LECTURE TIME AND PLACE

M, 9:30 – 11:20 AM

Hybrid Course: First class period will be online. See LECTURE SCHEDULE below and Brightspace Course Page for more Information on course location each week. Links will be provided in Brightspace for Online class periods.

BRIGHTSPACE

The syllabus for the course, links to online class periods, lecture notes, reading materials and grading keys will be available via the Purdue University Brightspace site at: <https://purdue.brightspace.com>

ASSESSMENT

Assessment of student performance will occur through monitoring participation, group discussions, quality of presentations and performance on assignments.

Participation

Students are responsible for reading material prior to class. Participation points requires being FULLY engaged in the discussions and includes making comments, asking relevant questions, etc. To obtain participation points, students must ask or answer a question or make comments during class. (If pandemic issues arise, comments/questions outside of class on topic covered during class also count for participation points). Multiple questions in the same class period will count as one question. No points for attendance alone.

Presentations

Students will have multiple opportunities to present to the class.

NOTE: Failure to read an assignment before class will result in a zero for that class day. Make sure that you have read assignments ahead of time for each class so that you are FULLY engaged in the discussions.

The grading for this course will be as follows:

Participation	75 points
Presentation	120 points
Homework	430 points

The cutoff values for letter grades are as follows:

563 points	A
500 points	B
438 points	C
375 points	D
374 points and below	F

Late Work Policy

Assignments are due by **the designated time** on the specified due date (Thursdays: upload to Brightspace or Mondays: upload to Brightspace). **Late assignments will not receive full credit. (Exception:** Assignments turned in late due to COVID-19-related issues are eligible for full credit).

Requests for re-grades must be submitted no later than the end of the class period after the graded assignment has been returned. **(Exception:** Request deadline may be extended due to COVID-19-related issues on a case by case basis).

EXTRA CREDIT

There will be no opportunity for extra credit.

OBTAINING EXTRA HELP

Dr. Kirchmaier will be available to answer your questions immediately after class, or by appointment (arranged in class or by e-mail).

PURDUE HONORS PLDGE

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

<https://www.purdue.edu/provost/teachinglearning/honor-pledge.html>

CLASS ATTENDANCE

Attendance Policy during COVID-19: Students should stay home and contact the Protect Purdue Health Center (496-INFO) if they feel ill, have any symptoms associated with COVID-19, or suspect they have been exposed to the virus. In the current context of COVID-19, in-person attendance will not be a factor in the final grades, but the student still needs to inform the instructor of any conflict that can be anticipated and will affect the submission of an assignment or the ability to take an exam. Only the instructor can excuse a student from a course requirement or responsibility. When conflicts 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 conflict, when advance notification to an instructor is not possible, the student should contact the instructor as soon as possible by email, through Brightspace, or by 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 of bereavement, quarantine, or isolation, the student or the student's representative should contact the Office of the Dean of Students via email or phone at 765-494-1747. Our course Brightspace includes a link on Attendance and Grief Absence policies under the University Policies menu.

ACADEMIC GUIDANCE IN THE EVENT A STUDENT IS QUARANTINED/ISOLATED

If you become quarantined or isolated at any point in time during the semester, in addition to support from the Protect Purdue Health Center, you will also have access to an Academic Case Manager who can provide you academic support during this time. Your Academic Case Manager can be reached at acmq@purdue.edu and will provide you with general guidelines/resources around communicating with your instructors, be available for academic support, and offer suggestions for how to be successful when learning remotely. Importantly, if you find yourself too

sick to progress in the course, notify your academic case manager and notify me via email or Brightspace. We will make arrangements based on your particular situation. The Office of the Dean of Students (odos@purdue.edu) is also available to support you should this situation occur.

PROTECT PURDUE PLAN

The Protect Purdue Plan, which includes the Protect Purdue Pledge, is campus policy and as such all members of the Purdue community must comply with the required health and safety guidelines. Required behaviors in this class include: staying home and contacting the Protect Purdue Health Center (496-INFO) if you feel ill or know you have been exposed to the virus, wearing a mask in classrooms and campus buildings, at all times (e.g., no eating/drinking in the classroom), disinfecting desk/workspace prior to and after use, maintaining proper social distancing with peers and instructors (including when entering/exiting classrooms), refraining from moving furniture, avoiding shared use of personal items, maintaining robust hygiene (e.g., handwashing, disposal of tissues) prior to, during and after class, and following all safety directions from the instructor.

Students who are not engaging in these behaviors (e.g., wearing a mask) will be offered the opportunity to comply. If non-compliance continues, possible results include instructors asking the student to leave class and instructors dismissing the whole class. Students who do not comply with the required health behaviors are violating the University Code of Conduct and will be reported to the Dean of Students Office with sanctions ranging from educational requirements to dismissal from the university.

Any student who has substantial reason to believe that another person in a campus room (e.g., classroom) is threatening the safety of others by not complying (e.g., not wearing a mask) may leave the room without consequence. The student is encouraged to report the behavior to and discuss 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.

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"

Students can report issues of academic integrity that they observe through the Office of the Dean of Students website (www.purdue.edu/odos), or 765-494-8778 or integrity@purdue.edu.

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 and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances. To get information about changes in this course consult the class Blackboard site or e-mail or phone the instructor.

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 STATEMENT

Purdue University’s non-discrimination policy will be upheld in this classroom. Purdue University is committed to maintaining a community which 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 own 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.

Purdue University views, evaluates, and treats all persons in any University related activity or circumstance in which they may be involved, solely as individuals on the basis of their own personal abilities, qualifications, and other relevant characteristics.

In this course, each voice in the classroom has something of value to contribute. Please take care to respect the different experiences, beliefs and values expressed by students

and staff involved in this course. We support Purdue's commitment to diversity, and welcome individuals of all ages, backgrounds, citizenships, disability, sex, education, ethnicities, family statuses, genders, gender identities, geographical locations, languages, military experience, political views, races, religions, sexual orientations, socioeconomic statuses, and work experiences

For more information, see http://www.purdue.edu/purdue/ea_eou_statement.html.

MENTAL HEALTH INFORMATION:

If you find yourself beginning to feel some stress, anxiety and/or feeling slightly overwhelmed, try WellTrack, <https://purdue.welltrack.com/>. 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 see the Office of the Dean of Students, <http://www.purdue.edu/odos>, for drop-in hours (M-F, 8 am-5 pm).

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 support, services are available. For help, such individuals should contact Counseling and Psychological Services (CAPS) at (765)494-6995 and <http://www.purdue.edu/caps/> during and after hours, on weekends and holidays, or by going to the CAPS office of the second floor of the Purdue University Student Health Center (PUSH) during business hours.

STUDENTS WITH DISABILITIES

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 welcome 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." <http://www.purdue.edu/drc/faculty/syllabus.html>

DISCLAIMER

This syllabus is subject to change.

If you are ill with flu-like symptoms, please do not attend class. Course materials will be provided to you.

(Approximate) LECTURE SCHEDULE

Date	Day	Location	Topic
1/25	M	Online	Introduction. Designing Experiments that Are Interpretable and Informative. Overview, Controls, Correlation.
2/1	M	Online	Hypotheses. Designing Studies that Are Interpretable, Informative and Interesting. Necessity, Sufficiency.
2/8	M	Online	Categories of Experiments.
2/15	M	Online	Grant Writing Overview, Project Summary
2/18	Th		Homework I Due 9 AM: Deciphering NIH Abstracts PPT SLIDE
2/18	Th		Homework II Due 9 AM: Proposal Topic
2/22	M	Online	Presentation: 5 min. In Class Presentations of NIH Abstracts Identifying and Addressing Important Questions: Specific Aims Peer Reviewing
2/25	Th		Homework III Due 9 AM: Draft Specific Aims
3/1	M	Online	Research Strategy, Significance Innovation, Approach
3/1	M		Homework IV Due 9 AM: Peer Review of Specific Aims
3/8	M	Online	Presentation: 8 min. In Class Presentations of Specific Aims Research Strategy, Significance Innovation, Approach
3/15	M	Online	Expressing Ideas Clearly & Convincingly: Reading & Writing
3/15	M		Homework V Due 9 AM: Revised Specific Aims
3/18	Th		Homework VI Due 9 AM: Draft Significance and Innovation
3/22	M	Online	Expressing Ideas Clearly & Convincingly: Reading & Writing
3/22	M		Homework VII Due 9 AM: Peer Review of Significance and Innovation
3/25	Th		Homework VIII Due 9 AM: Revised Significance and Innovation, Homework IX Due 9 AM: Draft Approach
3/29	M		Homework X Due 9 AM: Peer Review of Approach
3/29	M	Online	Proposal Reviewing Giving Credit Where Credit Is Due: Original Work, Citing Sources, Plagiarism & Image Processing
4/5	M	Online	One on One Meetings
4/5	M		Homework XI Due 9 AM: Draft Abstract/Project Summary
4/8	Th		Homework XII Due 9 AM: Peer Review of Abstract/Project Summary
4/12	M	TBA (In Person?)	Mock Panel Orientation Applying for Fellowships, Personal Statements Presentation: 5 min In Class Presentations of Graduate Student Fellowship & Grant Opportunities
4/12	M		Homework XIII Due 9 AM: Final Proposal (give to Peer Reviewers, Review Panel)
4/15	Th		Homework XIV Due 9 AM: Peer Reviewer Comments (give to Review Panel)
4/19	M	TBA (In Person?)	Presentation: In Class Mock Review Panel
4/26	M		Homework XV Due 9AM: Responses to Peer Reviews
4/26	M	TBA (In Person?)	Grad Student Panel on Prelims



EMERGENCY PREPAREDNESS SYLLABUS ATTACHMENT

EMERGENCY NOTIFICATION PROCEDURES are based on a simple concept – if you hear a fire alarm inside, proceed outside. If you hear a siren outside, proceed inside.

- **Indoor Fire Alarms** mean to stop class or research and immediately evacuate the building.
- Proceed to your Emergency Assembly Area away from building doors. **Remain outside** until police, fire, or other emergency response personnel provide additional guidance or tell you it is safe to leave.
- **All Hazards Outdoor Emergency Warning Sirens** mean to immediately seek shelter (**Shelter in Place**) in a safe location within the closest building.
 - “Shelter in place” means seeking immediate shelter inside a building or University residence. This course of action may need to be taken during a tornado, an active threat including a shooting or release of hazardous materials in the outside air. Once safely inside, find out more details about the emergency*. **Remain in place** until police, fire, or other emergency response personnel provide additional guidance or tell you it is safe to leave.

**In both cases, you should seek additional clarifying information by all means possible...Purdue Emergency Status page, text message, Twitter, Desktop Alert, Albertus Beacon, digital signs, email alert, TV, radio, etc....review the Purdue Emergency Warning Notification System multi-communication layers at http://www.purdue.edu/ehps/emergency_preparedness/warning-system.html*

EMERGENCY RESPONSE PROCEDURES:

- Review the **Emergency Procedures Guidelines** https://www.purdue.edu/emergency_preparedness/flipchart/index.html
- Review the **Building Emergency Plan** (available on the Emergency Preparedness website or from the building deputy) for:
 - evacuation routes, exit points, and emergency assembly area
 - when and how to evacuate the building.
 - shelter in place procedures and locations
- additional building specific procedures and requirements.

EMERGENCY PREPAREDNESS AWARENESS VIDEOS

• **"Run. Hide. Fight.®"** is a 6-minute active shooter awareness video that illustrates what to look for and how to prepare and react to this type of incident. See: https://www.youtube.com/watch?v=5mzI_5aj4Vs (Link is also located on the EP website)

MORE INFORMATION

Reference the Emergency Preparedness web site for additional information:
https://www.purdue.edu/ehps/emergency_preparedness/

Emergency preparedness is your personal responsibility. Purdue University is actively preparing for natural disasters or human-caused incidents with the ultimate goal of maintaining a safe and secure campus. Let's review the following procedures:

- For any emergency call 911.
- There are nearly 300 Emergency Telephone Systems throughout campus that connect directly to the Purdue Police Department (PUPD). If you feel threatened or need help, push the button and you will be connected to the PUPD.
- If we hear a fire alarm we will immediately evacuate the building and proceed to lawn south of BCHM.
 - **Do not use the elevator.**
 - Go over evacuation route...see specific Building Emergency Plan.
- If we are notified of a Shelter in Place requirement for a tornado warning we will shelter in the lowest level of this building away from windows and doors. Our preferred location is __BCHM basement__.
- If we are notified of a Shelter in Place requirement for a hazardous materials release we will shelter in our classroom shutting any open doors and windows.
- If we are notified of a Shelter in Place requirement for an active threat such as a shooting we will shelter in a room that is securable preferably without windows. Our preferred location is __Classroom__.