DEPARTMENT OF BIOCHEMISTRY

BCHM 601 Syllabus
Fall 2020

INSTRUCTOR: Dr. Elizabeth Tran
office: A343B Biochemistry
Phone: 496-3889
e-mail: ejtran@purdue.edu

Office hours: Immediately following class or by appointment.

LECTURE TA: NONE

LECTURE TIME AND PLACE

Tuesdays 9:00-10:50 am
Biochemistry (BCHM) Room 101

COURSE OBJECTIVES

This course will provide students with a basic understanding of scientific communication with a specific focus on biochemistry. This course will be taught from current primary literature, to enable comprehension of published scientific manuscripts. Students will learn how to read and interpret scientific literature through class presentations, discussions and take-home assignments. Additionally, students will learn to improve both oral and written communication skills through classroom presentations and written research reports.

LEARNING OUTCOMES

Basic understanding of essential graduate skills for independent research
Enhancement of oral and written communication skills
Mastery of reading and interpreting scientific literature in biochemistry
Development of critical thinking and creativity in scientific research

TEXTBOOK

The majority of the material from this course will be published scientific literature. Papers are accessible free of change and electronically through the Purdue Library. Links to these sources and the PDF files can also be downloaded from Blackboard. “At the Bench” is an essential guide to your first year in graduate school. It is recommended for all first year PhD students but will not be covered in the course. There will be short assignments on this book at the end of the course.
BRIGHTSPACE

The syllabus for the course, lecture notes, and grading keys for quizzes and exams will be available via the Purdue University Brightspace site at: https://purdue.brightspace.com

ASSESSMENT

IN CLASS ASSESSMENT/ASSIGNMENTS

Grades will be assessed based on class participation, presentations, and written assignments. This class is graded by percentage with each assignment having equal weighting. There will be multiple opportunities for students to present during this semester. Class participation points will be determined through active discussions, contribution to student presentations, asking questions, etc. Students are responsible for reading material prior to class. Dr. Tran will provide guidance regarding objectives for each reading assignment and key ‘take home’ messages or concepts.

NOTE: Failure to read an assignment before class will result in a zero for that class day.

HOMEWORK

During this course, students will learn to read and critically review publications. They will also learn the important, sometimes intangible skills that are necessary for graduate school success. The first assignment for this course is a one-page summary of two assigned papers on graduate education and selection of a grad school advisor. The first scientific homework assignment will require reading and describing an assigned paper using the standardized classroom format. Students will then use this format to present figures from a paper in class. Students will also give in class presentations on their own research (usually on a rotation project) and get feedback from the class and instructor. There will be a Powerpoint tutorial prior to presentations. Written assignments will involve writing one-page summaries of papers, research reports or reviews to assess written communication and critical thinking skills.

The grading for this course will be as follows:

10% attendance
50% written assignments (final assignment is 5% of final grade)
40% presentations/participation (60/40 split)

Note that participation in class is equally weighted to class presentations so make sure that you have read assignments ahead of time for each class so that you are FULLY engaged in the discussions. Also note that if you do not attend class, you will miss both participation and presentation credit.
Class Participation
To obtain participation points, students must ask or answer a question during class. Multiple questions in the same class period will count as one question. Full participation credit requires students to ask/answer questions in 14 of 16 classes. Attendance will be taken after the first week. 100% attendance is necessary for all attendance points after the first week.

The cutoff values for letter grades are as follows:

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Grade</th>
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<tbody>
<tr>
<td>100-90%</td>
<td>A</td>
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<tr>
<td>89-80%</td>
<td>B</td>
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<td>79-70%</td>
<td>C</td>
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<td>69-60%</td>
<td>D</td>
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<tr>
<td>59%- below</td>
<td>F</td>
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Absence from class will count against your class participation grade unless the absence is excused by the instructor. Missing your class presentation will result in 0 points unless the absence is excused with reasonable justification. Any request to be excused from class must include official documentation (doctor’s note, request from academic advisor, etc). Students are welcome to inform the instructor if they will be absent, but it will not be excused without a written note.

Student Presentations
All students will have multiple opportunities to present in class. Presentations of individual figures from a paper will be randomly assigned on the day of class. Students should understand all of the figures in a paper before class to ensure that they are prepared of selected to present. Prepared presentations will involve small groups which will be assigned well in advance.

Late Work Policy
There is no late work accepted in this class. Final written documents are due by the specified due date. Late papers will receive a zero.

If you have any disagreements with the way you have been graded, please consult the grading scale and then discuss them with me.

EXTRA CREDIT

Extra credit will be available under extenuating circumstances, on a case-by-case basis.

OBTAINING EXTRA HELP

Dr. Tran will be available to answer your questions immediately after class or by appointment (by e-mail). You are highly encouraged to submit questions by e-mail that will be promptly answered by return e-mail.

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

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.

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."

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**

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](http://www.purdue.edu/purdue/ea_eou_statement.html).

**MENTAL HEALTH**

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 or [http://www.purdue.edu/caps/](http://www.purdue.edu/caps/) 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.

**ACCESSIBILITY AND ACCOMMODATIONS**

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](mailto:drc@purdue.edu) or by phone: 765-494-1247.
DISCLAIMER

This syllabus is subject to change.
**LECTURE SCHEDULE**

This course is scheduled for two hours. We will have a 10 min snack/walk break during class. Presenter is listed along with assignment for that day. Students are responsible for reading all assigned chapters and papers prior to class. **Please refer to Blackboard for instructions.**

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<thead>
<tr>
<th>Topic</th>
<th>Lecture</th>
<th>Date</th>
<th>Class Focus</th>
<th>Class Assignment</th>
<th>Reading Assignment (read BEFORE class)</th>
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<tbody>
<tr>
<td>How to be Successful in Graduate School</td>
<td>1</td>
<td>Aug 25</td>
<td>Intro to graduate school by Dr. Tran</td>
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<tr>
<td><strong>Adobe Illustrator workshop</strong></td>
<td>2</td>
<td>Sept 1</td>
<td>LOCATION TBD</td>
<td></td>
<td>Assigned Paper: “What’s in an Image”</td>
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<tr>
<td><strong>Adobe Photoshop workshop</strong></td>
<td>3</td>
<td>Sept 8</td>
<td>LOCATION TBD</td>
<td></td>
<td>Assigned Paper: “Incidence of Image Manipulation”</td>
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<tr>
<td><strong>Molecular Biology Boot Camp (Part 1 &amp; 2)</strong></td>
<td>4</td>
<td>Sept 15</td>
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<td>Chapters 1-3; Genes X</td>
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<tr>
<td><strong>Effective use of PowerPoint</strong></td>
<td>5</td>
<td>Sept 22</td>
<td>Effective use of PowerPoint (lecture and video)</td>
<td>TURN in one page summary of assigned papers in class (one page total, 1.5 space, 11pt font.)</td>
<td>Assigned Papers (2): Alon, U. How to Give a Good Talk, Mol Cell 2009 and St. James, Seven Deadly Speaker Sins. 2012</td>
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<tr>
<td>Class Presentations Day 1</td>
<td>6</td>
<td>Sept 29</td>
<td>Techniques (chosen technique due to me at least one week prior)</td>
<td>Group Presentations of Techniques (Purpose, pros and cons- make one figure in Illustrator)</td>
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<tr>
<td>Class Presentations Day 2</td>
<td>7</td>
<td>Oct 6</td>
<td>Techniques (chosen technique due to me at least one week prior)</td>
<td>Group Presentations of Techniques (Purpose, pros and cons- make one figure in Illustrator)</td>
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<tr>
<td>Read a Paper</td>
<td>8</td>
<td>Oct 13</td>
<td>How to Read a Paper</td>
<td>TURN in paper summary using “How to Read a Paper” guide in class</td>
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<td>Assigned Reading: Cho et al., 2001</td>
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<td>Use “How to Read a Paper” instructions</td>
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<tr>
<td>Read a Paper</td>
<td>9</td>
<td>Oct 20</td>
<td>Read a paper and present figures (random assignment)</td>
<td>TURN in paper summary using “How to Read a Paper” guide</td>
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<td>Assigned Paper: <a href="https://www.biorxiv.org/content/10.1101/2020.07.06.189761v1">https://www.biorxiv.org/content/10.1101/2020.07.06.189761v1</a></td>
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<td>***Special Class</td>
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<td>Virtual meeting after Tuesday seminar</td>
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<tr>
<td>Read a Paper</td>
<td>10</td>
<td>Oct 27</td>
<td>Read a paper and present figures (random assignment)</td>
<td>TURN in paper summary using “How to Read a Paper” guide</td>
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<td>Assigned Paper: Ingolia et al., 2009</td>
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<tr>
<td>Scientific Misconduct</td>
<td>11</td>
<td>Nov 3</td>
<td>Case Studies on Fraud (and NIH rigor and reproducibility videos)</td>
<td>TURN in one page summary of assigned papers in class (one page total, 1.5 space, 11pt font.)</td>
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<td>Assigned papers: PLoS One Retraction Study AND Science 2013 Peer Review test</td>
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<tr>
<td>What is CRISPR</td>
<td>12</td>
<td>Nov 10</td>
<td>CRISPR introduction (start researching for your debate!)</td>
<td>TURN in one page summary of assigned papers in class (one page total, 1.5 space, 11pt font.)</td>
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<td>Assigned Paper: Doudna Cell 2016 review</td>
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<tr>
<td>Genetic Engineering Class Debate</td>
<td>13</td>
<td>Nov 24</td>
<td>CRISPR: Medical Breakthrough or Ethical</td>
<td>Class Debate: Groups will debate the virtues or</td>
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<tr>
<td>NO CLASS</td>
<td>Dec 1</td>
<td>Two page research paper (with references) on current scientific controversy of your choice (other than CRISPR)</td>
<td>DUE by 5pm on Dec 13 to Traci Jordan or by email to Dr. Tran</td>
<td>FINAL ASSIGNMENT DUE IN LIEU OF EXAM</td>
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<tr>
<td>Conundrum</td>
<td>problems with CRISPR.</td>
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