



DEPARTMENT OF BIOCHEMISTRY

**BCHM 601 Syllabus
Fall 2016**

INSTRUCTOR: Dr. Elizabeth Tran
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Office hours: Immediately following class or by appointment.

LECTURE TA: NONE

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

NONE

The majority of the material from this course will be published scientific literature. Papers are accessible free of charge and electronically through the Purdue Library. Links to these sources and the PDF files can also be downloaded from Blackboard.

LECTURE TIME AND PLACE

Tuesdays 9:00-10:50 am
Biochemistry (BCHM) Room 109

BLACKBOARD

The syllabus for the course, lecture notes, and assignment instructions will be available by 5pm the day before the next class on the Purdue University Blackboard site:
<https://blackboard.purdue.edu/webct/logonDisplay.dowebct>

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. At the end of class, we will write specific aims pages from the assigned papers as if the paper is the result of a proposal. The final assignment will involve writing a 3 page mock proposal from an assigned, published paper.

The grading for this course will be as follows:

- 10% attendance
- 50% written assignments
- 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 and Attendance

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:

100-90%	A
89-80%	B
79-70%	C
69-60%	D
59%- below	F

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.

Late Work Policy

There is **no late work** accepted in this class. Final written documents are due by **the end of class** on 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 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.

ACADEMIC MISCONDUCT

Academic misconduct of any kind will not be tolerated in any course offered by the Department of Biochemistry. Assignments with evidence of academic misconduct will **receive zero credit**. The student will also be reported to the Dean of Student Affairs. Information on Purdue's policies with regard to academic misconduct can be found at http://www.purdue.edu/studentregulations/student_conduct/regulations.html

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"

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.

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

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.

NOTE: There is a one page summary, research write up or critique due for almost every class. These are due IN CLASS on the day of the paper discussion, no exceptions. Please refer to Blackboard for instructions.

Topic	Lecture	Date	Class Focus	Class Assignment	Reading Assignment (read BEFORE class)
How to be Successful in Graduate School	1	Aug 23	Discussion of Reading Assignments	TURN in Retreat and Grad Handbook assignments	Assigned Papers (2): Parker, R. Skill Development in Graduate Education. Mol Cell 2012 and Barres, How to Pick a Graduate Advisor, Neuron 2013
<i>Intro to Molecular Biology Part I</i>	2	Aug 30	Tools Part I: Model Systems, Genetics, RNAi	TURN in one page summary of assigned papers	Chapters 1-3; Genes X
<i>Intro to Molecular Biology Part II</i>	3	Sept 6	Tools Part II: Molecular Biology Techniques		Chapters 1-3; Genes X
<i>Genetic Engineering Class Debate</i>	4	Sept 13	CRISPR methodology	Class Debate: Groups will debate the virtues or problems with CRISPR.	Assigned Paper: Doudna Cell 2016 review and student-selected references
	5	Sept 20	Meet A Scientist	<i>Jef Boeke, Special Guest (1.5-2 page summary of discussion, and presentations due Sept 27)</i>	Class discussion
<i>Effective use of Powerpoint</i>	6	Sept 27	Effective use of PowerPoint (and video)	Boeke summary <u>due in class</u>	Assigned Papers (2): Alon, U. How to Give a Good Talk, Mol Cell 2009 and St. James, Seven Deadly Speaker Sins. 2012
<i>Class Presentations</i>	7	Oct 4	Techniques	<i>Group Presentations of</i>	<i>In class reviews of presentations.</i>

				<i>Techniques (Purpose, pros and cons- draw in Photoshop or Illustrator)</i>	
NO CLASS		Oct 11	FALL BREAK		
<i>How to Read a Paper</i>	8	Oct 20	"How to read a scientific paper" Intro/Discussion: "FISH" Figures: "QTCR"		Assigned Papers (2): Ribosome profiling review and How to Read a paper instructions
<i>How to Read a Paper</i>	9	Oct 25	Ribosome Profiling	Individuals present FISH/QTCR and we will discuss results (FISH/QTCR due in class)	Assigned paper: Ingolia et al., Science 2009 (can work in groups for this assignment)
<i>Numbers in Science</i>	10	Nov 1	Key Numbers in Biology Bring a LAPTOP to class!	In class bionumbers.org project (handed out in class Nov 1)	Assigned paper: Key Numbers in Biology cheat sheet
<i>Importance of Communication</i>	11	Nov 8	Meet Angela DePace	Group Discussion	Assigned paper: Importance of Yearly Meetings (IDPs)
<i>How to Read a Paper</i>	12	Nov 15	Guest discussion leader: Sujith Puthiyaveetil		Assigned paper: TBD
<i>Cryo-EM Class Debate</i>	13	Nov 22	Cryo-EM		Assigned Paper: Cryo-EM and student-selected references
<i>How to Read a Paper</i>	14	Nov 29	CTD phosphorylation and transcription	Individuals present FISH/QTCR and we will discuss results (FISH/QTCR due in class)	Assigned paper: Gene-specific CTD code
<i>Meet with a Scientist</i>	15	Dec 6	Meet David Bentley	Group Discussion (1.5-2 page summary of reviews)	Bentley papers (2): History of Transcription and Processing Coupling And Coupling of mRNA processing and transcription review
NO CLASS		Dec 13	Two page essay (1-1.5 space) on a field of science and current paper and why this is important to science and the general public.	DUE by 5pm on Dec 13 in Dr. Tran's office	FINAL ASSIGNMENT DUE IN LIEU OF EXAM

