

# BIMM 194/BGGN 283 – Gene Regulation in Disease

Winter 2024

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Please use 'BIMM 194' or 'BGGN 283' in the subject line

**Office hour:** Mondays 2-3 PM, in 4138 Bonner Hall.

## Goal of the class:

The primary goal of the BIMM194 *Gene Regulation in Disease* class is to learn to read primary research papers and evaluate how experimental observations lead to scientific conclusions. The focus will be on recent cutting-edge research papers on gene regulatory mechanisms that relate to human infectious and genetic disease.

## Weekly schedule:

Each week will focus on one specific research paper listed in the posted class schedule. The following is the weekly schedule (note, some specifics of the schedule could change over the quarter):

**Before Tuesday 11:59 PM: Read the week's paper.**

**Tuesday 11:59 PM: Pre-class quiz due.** All students submit a pre-class quiz in Canvas no later than Tuesday 11:59 PM, the evening before class. The quiz will focus on identifying figure panels of the week's paper that best support key conclusions (see more detail below).

**Wednesday 12:30-1:50 PM: In-class paper discussion.** Discussion of the week's paper will focus around the key conclusions of the paper that serve as the basis for the pre-class quiz.

**Sunday 11:59 PM: Post-class quiz due.** All students will submit a post-class quiz, which focuses on one of the key conclusions (randomly assigned to each student) of the week's paper and the figure panel that best supports it (see instructions below). Please carefully follow instructions below and use the uploaded pre-class quiz template for your quiz.

## Pre-class quiz instructions:

A list of 3 conclusions from the paper (randomly selected from 5-6) will be provided, and each student will select the figure panel (e.g. Fig. 2B, i.e. only one panel from one

figure) that best supports this conclusion. Sometimes more than one panel could apply, but select only one. No written explanation is needed for your selection and the answer will never include a supplemental figure. The link to the quiz will be found in each week's module in Canvas.

This quiz serves to reward those students who carefully read each paper.

### **In-class paper discussion instructions:**

The specific method we use to discuss each paper may change during the quarter. In the initial approach, as an attempt to make the class interactive, the class will be divided into groups of 3-4 students each, who will discuss each key conclusion from the paper, one at a time.

For each conclusion, first the group will identify the key figure panel supporting the conclusion and then discuss among each other:

- 1) What scientific question is addressed by the experiment,
- 2) What is the experiment that was performed,
- 3) What controls were used in the experiment, and
- 4) How does the observation(s) from the experiment support the conclusion?

Upon completion of discussion, student(s) selected at random will be asked to explain each of these points to the class with the instructor's help. Note: Students' willingness to participate in these discussions will contribute to the class participation grade, but there is no evaluation of how well students explain the figure panels and the instructor is always there to help with the explanations.

### **Post-class quiz instructions:**

Each student will, after completion of each class, be randomly assigned one key conclusion from the paper. For that conclusion, the student will select the one figure panel that best supports the conclusion and answer the following questions:

- A) *What is the scientific question addressed by the experiment?*  
(Please answer in form of a question!).
- B) *What experiment was performed?*  
(This should be the bulk of your quiz. Provide sufficient detail such that a reader could look at the figure panel and read your text and be able to interpret the experiment without reading the paper).
- C) *What is/are the control(s) in the experiment and for each, why is it important?*
- D) *What is the key observation from the experiment and how does that observation support the conclusion?*

For these quizzes, use the uploaded quiz template. Use no more than one page, font size 12, 1-inch margins, single-spaced lines.

Make sure to write these in your own words and to not use the words of any other person, any sentences from the paper, or have anyone else edit your wording (see academic integrity below).

This quiz serves to reward those students who carefully read the paper and actively participated and followed along in class where each of the key figure panels were discussed.

**Scoring of pre- and post-class quizzes:**

Pre-class quizzes are scored on a 0-3 scale based on the correct identification of the most important figure panels for the listed conclusions. Partial credit will be given for partially correct answers.

Post-class quizzes are scored on a 0-10 scale based on your complete and accurate answer to questions A-C. Handing in late quizzes and/or not meeting format requirements (i.e. page limit, font size, margins) will cause a reduction in the score or a score of 0 depending on the severity.

**BGGN 283 students only: Final exam.**

For those of you taking this class for graduate student credit (i.e. BGGN 283 students), a 2-page final project write-up is due on **Tuesday March 19, 11:59 PM**, during finals week. Please see specifics in the BGGN 283 Final Write-Up Guideline document available on Canvas.

**Grading:**

- 30% Pre-class quizzes. Based on your 7 highest scored pre-class quizzes (of 9 total).
- 60% Post-class quizzes. Your 7 highest scored post-class quizzes (of 9 total).
- 10% Class participation. Your class attendance and willingness to participate in paper discussions (*Note: participation makes up part of the grade in this class because the majority of learning happens during in-class discussions of papers*).

For BIMM 194 students: The grade components listed above will make up 100% of your overall grade.

For BGGN 283 students: The grade components listed above will make up 80% of your overall grade. The Final exam write-up will make up the remaining 20%.

Letter grades are assigned as follows:

- A: 93-100%
- A-: 90-92%
- B+: 88-89%
- B: 83-87%

B-:	80-82%
C+:	78-79%
C:	73-77%
C-:	70-72%
D:	60-69%
F:	Below 60%

A note on grading: Your own grade is not influenced in any way by how your classmates perform. Working together with your classmates will only help everyone involved. Studying in groups is highly recommended!

### **COVID-19 and other accommodations**

In case of COVID exposure or symptoms, make sure to follow UCSD campus guidelines regarding quarantine from campus (<https://returntolearn.ucsd.edu/campus-guidelines/testing-and-screening/student-screening-and-testing/index.html>) and contact me prior to class start so I can help with possible accommodations. Please also contact me prior to class if anything comes up outside your control that prevents you from attending class.

Since the majority of learning in this class happens during in-class discussion of papers, for any class that you cannot attend for reasons other than outside your control, you will be unable to receive participation points.

### **Academic integrity:**

All suspicions of academic misconduct will be reported to the Academic Integrity Office according to University policy.

For this class, the primary behaviors to avoid is to:

- 1) Never use any wording other than your own for post-class quizzes (i.e. no wording from other students or copied from the papers),
- 2) Never copy answers to pre-class quizzes from other students, and
- 3) Never attempt to get credit for attendance if you did not actually attend class.

Any students found to have committed academic misconduct will face administrative sanctions imposed by their college Dean of Student Affairs and academic sanctions imposed by the class instructor. The standard administrative sanctions include: the creation of a disciplinary record (which will be checked by graduate and professional schools); disciplinary probation; and attendance at an Academic Integrity Seminar (at a cost). Students can also face suspension and dismissal from the University; those sanctions are not at the instructor's discretion. Academic sanctions can range from a score of zero on a quiz to an F in the class. The appropriate sanctions are determined by the egregiousness of the Policy violation. Students who assist in or are complicit with cheating are also in violation of the Policy. Thus, students who become aware of their

peers either facilitating academic misconduct or committing it should report their suspicions to the instructor for investigation.

Please review UCSD's Policy on Academic Integrity, which can be found on this website: <https://students.ucsd.edu/academics/academic-integrity/>

**Disabilities:**

If you qualify for accommodations because of a disability, please submit an AFA letter from the Office for Students with Disabilities (OSD) to the instructor as soon as possible, and no later than the second week of class, so that your needs may be addressed. The OSD determines accommodations based on documented disabilities. Please see guidelines at: <http://disabilities.ucsd.edu/>

Hope you enjoy the class! You will explore the exciting frontiers of research into gene expression in human disease and become an expert reader of scientific research papers!