

**BISP 194 BGGN 285 WINTER 2023  
GENOME EDITING: PAST, PRESENT, AND FUTURE**

**GENERAL COURSE INFORMATION**

**Instructor:** Professor Deborah Yelon; [dyelon@ucsd.edu](mailto:dyelon@ucsd.edu)

**Class Meetings:** Thursdays, 9:30–10:50 pm, York 3010

**Course Description:** In this course, we will learn about genome editing technologies and their applications. We will discuss how genome editing techniques were developed, the ways in which genome editing is currently being used, and the possible ramifications of future advances in this dynamic area.

**Prerequisites:** Our course focuses on reading, interpreting, and discussing primary research articles regarding techniques in genome editing and their applications. To understand the articles covered in our course, you will rely on your knowledge of the material covered in BICD 100, which is a prerequisite for our course. You may also find it helpful to draw on your knowledge of material covered in BIMM 100, even though it is not a formal prerequisite. Thus, success in our course will require a strong foundation in Genetics and will be further supported by a strong foundation in Molecular Biology. If your performance in BICD 100 and/or BIMM 100 was not strong, you are likely to have difficulty with this course.

**Course Website:** Information and materials for this course will be posted on our course website (<http://canvas.ucsd.edu>). All students who are enrolled in the course should be able to use their UCSD student email account login and password to access the website.

**Health and Safety:** It is important for all of us to work together to protect our health and the health of our community. In our classes, we will always carefully follow the UCSD health and safety guidelines. Specifically, everyone will complete a daily symptom survey on every day that they come to class. If you have symptoms, you should not attend class. Everyone will participate in COVID-19 testing if warranted by their symptoms. If you receive a positive test result, you should not attend class until you are cleared by campus health. Masking is not currently required in classrooms, but it remains recommended, and you are welcome to wear a mask in our class.

**Reading Articles and Commenting in Perusall:** This will be an interactive, discussion-based course. Each week, our discussion will focus on one research article as a representation of a topic related to the development and usage of techniques in genome editing (our “primary topic” for the week). Each week, we will also spend a short period at the end of class discussing a topic regarding the societal ramifications of genome editing (our “secondary topic” for the week), using a commentary or editorial article to catalyze our discussion. See our “Weekly Topics” document for the list of each week’s primary and secondary topics. The articles chosen for each week are listed in

our “Weekly Reading” document, and PDFs of these articles are posted on our course website. You can also access annotated versions of each PDF through the Perusall app, and you can receive 5 “Perusall Points” for each article that you comment on for this course using Perusall. Always enter Perusall through Canvas (as opposed to accessing the Perusall website directly) in order to get credit for your comments. In order to get credit for commenting in Perusall, you can ask a question about the reading, answer a question about the reading, leave a comment, or respond to a comment from another student. One meaningful contribution is all that is needed to obtain credit for commenting on a particular article. Participation in this type of virtual discussion should help to enhance your comprehension of the material.

You should read each week’s articles before class so that you will be prepared to participate in our in person discussion, and you need to add your comments to Perusall before class in order to receive Perusall Points. See our “Reading Guidelines” document for general guidance on how to approach these articles.

**Oral Presentations:** For each of our in-person classes, a group of students will work together to lead the class (except for the first two weeks of class, when Prof. Yelon will lead the class). These students will collectively prepare and deliver an oral presentation based on the week’s primary and secondary articles, and these students will also lead the rest of the class in a discussion of the material. Each student will participate in one oral presentation; each week, 3-5 students will work together. See our “Oral Presentation Guidelines” document for more information on how to prepare your presentation and on the criteria for grading presentations.

Prof. Yelon will design the presentation schedule and will assign each student to a group. The first draft of the presentation schedule will be available by January 19, and there will be an opportunity to reorganize the schedule if it is necessary for students to switch spots. Members of each group should be sure to consult with Prof. Yelon in advance of their specific presentation for customized guidance on how to approach the material. These consultations can take place after class during the week prior to the presentation, in office hours, or by appointment.

Please note that oral presentations are intended to be delivered in person in York 3010. If circumstances should arise that would interfere with your ability to deliver your presentation in person, please contact Prof. Yelon as soon as possible so that we can arrange for you to Zoom in to class for your portion of the presentation.

**Participation in Discussion:** Students in our course are expected to actively participate in our in-class discussions. During our in-person classes, you can ask questions, answer questions posed by the presenters, or add your opinion to the discussion. At a minimum, you should be present and attentive during class in order to receive points for participation in our in-class discussions.

Importantly, no one is required to attend all of our in-person classes. You can receive the maximum number of points for discussion participation if you are engaged in 6 of

our class sessions. Since our class meets 9 times during the quarter, this means that all students can miss 3 classes without losing any points. Also, our in-person classes will be recorded as podcasts and will be available for you to view after each class is complete.

If you need to miss more than 3 classes, you can make up for the missed points by watching the podcast of the missed class and writing a two-paragraph response to the presentation. The first paragraph should comment on what you think are the major strengths and weaknesses of the primary article (incorporating information from the presentation). The second paragraph should comment on what you think is particularly intriguing about the secondary article (incorporating information from the presentation). Your two-paragraph response must be emailed to Prof. Yelon by 11:00 am on the Saturday after the missed class (~48 hours after the missed class).

**Written Assignments:** All BISP 194 students are expected to complete 3 written assignments (Assignments #2-#4). Each of these will be a critique of one of the articles or topics discussed in class. For each written assignment, there are at least 4 choices for your topic, including both “primary” and “secondary” topics. The choice of topic is yours. However, for Assignment #2 and Assignment #3, you must submit one primary article critique and one secondary article critique. That is, if you select a primary critique for Assignment #2, you must select a secondary critique for Assignment #3. If you select a secondary critique for Assignment #2, you must select a primary critique for Assignment #3. Each written assignment needs to be submitted by its specific deadline. (See “Assignments” document for a list of the deadlines.) See our “Written Critique Guidelines” document for more information on how to prepare your critiques and on the criteria for grading these assignments.

All BGGN 285 students are expected to complete the 3 assignments described above, as well as an additional assignment (Assignment #5). In this additional assignment, due at the end of the course, each student will suggest a new primary article to be used in a future edition of this course.

**Introductory Assignment:** All students must complete a simple introductory assignment (Assignment #1), which involves attending a 30 minute discussion with Prof. Yelon and a few other students. Please sign up for a time slot using this link: <https://www.signupgenius.com/go/8050C44ADAB2CAAF94-bisp>

During this discussion, Prof. Yelon will ask each of you to introduce yourself and to explain your motivation for taking this course. These discussions will be hybrid: you can choose to attend in person in Prof. Yelon’s office (Natural Sciences Building room 6113) or on Zoom. The Zoom links for these discussions can be found in our course calendar on Canvas. If none of the available time slots work with your schedule, please email Prof. Yelon to discuss alternatives.

**Contact Information:** If you have questions that have not been answered in class or in office hours, you can contact Professor Yelon by email (dyelon@ucsd.edu). Please include “BISP 194” or “BGGN 285” in the subject line of your email.

**Office Hours:** Professor Yelon's office hours will be held on Tuesdays from 9:30-10:30 am, beginning on January 24. Office hours will be hybrid, so you can choose to attend in person in Prof. Yelon's office (Natural Sciences Building room 6113) or on Zoom. Additional office hours, either via Zoom or in person, can be arranged by appointment.

**Grading:** Your grade will be based on your performance with our four major course components: (1) your oral presentation, (2) your written assignments, (3) your commenting on reading assignments in Perusall, and (4) your participation in class discussions. Your final grade will be determined by what percentage of the total available points (400 points) you earn. Points are available as follows:

120 points for written assignments  
90 points for oral presentation  
80 points for completing reading assignments on Perusall  
90 points for discussion participation (attained by participating in 6 classes)  
20 points for initial assignment (Assignment #1)  
400 points total

These guidelines will be used to assign grades:

≥340 points (85%) A (A-, A or A+)  
≥300 points (75%) B (B-, B or B+)  
≥240 points (60%) C (C-, C or C+)  
≥200 points (50%) D

**Academic Integrity:** Academic dishonesty will not be tolerated in this course.

According to UCSD policy, academic dishonesty includes:

- completing assignments for another student
- allowing another student to complete an assignment for you
- copying another student's work on an assignment
- allowing another student to copy your work on an assignment
- incorporating plagiarized material into an assignment

Any issues with academic dishonesty will be reported to the UCSD Academic Integrity Coordinator and the Dean of the student's college. Confirmed cases of academic dishonesty will result in the student receiving an F as their final grade and other disciplinary actions determined appropriate by the Academic Integrity Coordinator.