BIMM 122
Course syllabus

Fall 2023- Live Lectures: Tuesdays & Thursdays 9:30 AM - 10:50 AM. Tata 3201. Recordings of lectures will be posted on canvas.

This class is offered in person. That being said, I understand some of you may get sick during our quarter and will be unable to attend. You will not be penalized for not attending class. I cannot make promises for remote instruction as this class is in person, but I will be doing my best to teach all of you. I want you all to make the best decisions for your own, and others, safety. As described below, all assessments this quarter are online.

If I am sick, but still able to teach, we will have the class via zoom. I will update you all via canvas should this happen. If I am sick, and unable to teach, I will provide prior recordings for the class, but eventually will have a fallback plan where the material will be taught by another, qualified, professor.

Instructor: Alistair Russell, Ph.D. **Email**: a5russell@ucsd.edu
Pronouns : He/him/his
For all correspondence, please include BIMM122, your full name, and ID
Office: I will be holding in-person office hours, but can set a zoom meeting by appointment.

Office Hours: Alistair Russell, Thursday 6-6:50pm remote, in person TBD

Course Description: This course will discuss fundamental aspects of microbial genetics. We will cover genome organization, genome replication, and gene regulation in prokaryotes, and, critically, how these features influence the interaction of prokaryotes with their environment and one-another as they organize into complex, social, communities. We will also cover both classical and modern genetic tools, and how they have, and are currently, being used to understand the microbial world in which we live. For the last few lectures of the course we will touch on viral genetics, with a focus on bacteriophage and the application of genetics to modern epidemiology. The theory of evolution will apply to the concepts we study in this class, as it does to all of modern biology.

Course Website/Canvas: All materials for this course will be found on Canvas (https://coursefinder.ucsd.edu), and should automatically appear on your Canvas account as soon as you register for the class. Quizzes and exams will likewise be given through the Canvas interface. Please check the site regularly for announcements and assignments.

Office hours: Professor Russell will be holding a remote office hour during “section” time, except when covering a paper. An additional in-person office hour TBD.

Prerequisites: BIMM 100. Podcast is available (https://podcast.ucsd.edu)

Preparation and expectations: To succeed in BIMM 122 students should have a strong background in basic biology and a working understanding of molecular biology. We will not explicitly re-cover material from BIMM 100, so please brush up on any concepts with which you are unfamiliar. In addition to learning fundamental genetic processes, this course will emphasize the **application** of concepts to complex genetic problems. We will cover example problems in class, and it is highly recommended you follow along to understand the application of genetic tools to understand fundamental questions of microbial life.

Discussion sections: Given the reduction in IA support, Professor Russell will instead be using the section time as an optional, additional, office hour. We will also cover 3 papers in class, and these will be discussed in those remote sections by professor Russell. This will be stated in class, and these (and only these) “sections” will be recorded for future reference.

Textbook: There is not a required textbook for the course. However, for those who wish to supplement their learning, the following two textbooks provide a good overview of the topics we will learn: “Molecular Genetics of Bacteria” 5th edition by Dale & Park and “Moelcular Genetics of Bacteria” 4th edition by Snyder.

Final Grade: Your final grade will be determined by the following assignments:

- **Weekly Canvas quizzes**: 10% of final grade (20 points), divided amongst 8, multiple-choice quizzes. These quizzes will go “live” Friday morning and will be due Tuesday prior to class. They will be a short, multiple-choice quizzes. The purpose of these quizzes is to ensure you keep current with course material. Your highest 2 quiz grades will be doubled.
- **Exams**: 90% of final grade (180 points)
    - Midterm Exams and FInal: The best two scores of our two midterms and final will comprise 90% of your final grade. The final will remain longer than the midterms despite being of equal point value to allow students who better perform on comprehensive assessments a chance to excel.

Grading scale: Please assume this class is NOT curved and use your raw score (rounded up to nearest 0.01%) to calculate your final grade. We will use the standard UCSD grading scale for assigning letter grades.

Examinations: We will have 2 midterm exams and 1 final exam: 1) Midterrm Exam 1 - October 19th. 2) Midterm Exam 2 - November 16th. Final Exam, December 14th. Midterm and final exams will be open book. Students will take the exams on Canvas, and will have 80 minutes to

complete midterm exams, and 3 hours for the final exam, unless otherwise arranged with OSD as described below. While examinations will be open note, they are to be undertaken alone. Communicating exam answers or questions to your classmates, or any other individual, during the time the examination is open on canvas will be a breach of academic integrity as outlined below. In the event that cheating is identified, you will be reported for academic misconduct and will likely be given a failing grade for the course.

Exams will consist of short answer, fill in the blank, and multiple choice questions. Regrade policy for the exams is discussed under the folder “Regrade Policy” on Canvas.

This class is **not** asynchronous. Exams will **only** be open on canvas during the time in which they would be offered in class. If you prefer to take the exam in-person, I will be in the lecture hall. If you want a written copy of the exam to take in-person, please let me know no later than 1 week prior to the exam date such that I can make sure to have them printed for you.

Class participation: Students who attend in-person, will be able to ask questions and get immediate feedback.

Weekly Canvas Quizzes: Weekly quizzes are meant to be a low-stakes means of keeping students up-to-date with course material. They will solely consist of multiple-choice questions on the material from the prior week. Students will have from Friday morning to the following Tuesday at 9:30am to complete their weekly quiz.

Scientific articles: You will be assigned several scientific papers over the course of the class. As you are mostly new to reading papers, I will cover these papers in section, focusing on points that you are responsible for knowing. I will cover:
1. What were the main goals this paper? What was/were the hypothesis/es?
2. What experiments were performed to test the hypothesis/es?
3. Did the results confirm or refute the hypothesis/es?
4. What were the main conclusions of the paper?
Do not worry overmuch about understanding every little detail in the papers, or that you need to read them on your own, this is to introduce you to those actually doing science, and application of the concepts we cover in class.

Statement on Office for Students with Disabilities (OSD): To receive accommodation, students must present or email their “Authorization for Accommodation” (AFA) form provided by the Office for Students with Disabilities (OSD) to the instructor. Extended exam times will overlap with the regular exams and usually start at the same time as the regular exams.

Statement on Academic Integrity: Integrity of scholarship is essential for an academic community. The University expects that both faculty and students will honor this principle and in so doing protect the validity of University intellectual work. For students, this means that all

academic work will be done by the individual to whom it is assigned, without unauthorized aid of any kind. The consequences of being caught cheating can be severe. Information can be found here: http://www.ucsd.edu/current-students/academics/academic-integrity/index.html Students are expected to do their own work, as outlined in the UCSD Policy on Integrity of Scholarship: http://senate.ucsd.edu/Operating-Procedures/Senate-Manual/Appendices/2 Academic misconduct will NOT be tolerated. Any student who engages in suspicious conduct will be confronted and subjected to the disciplinary process. Cheaters will receive a failing grade on the exam or assignment, and/or in the course. They may also be suspended from UCSD pursuant to University guidelines. All class material, such as syllabus, readings, homework, scientific articles, lecture slides, etc. are copyrighted and cannot be posted to websites and/or distributed without instructor's approval for any reason. Students that sell and/or distribute course materials not only violates the student code of conduct, but also violates UC's 2005 policy on the Use of Recordings of Course Presentations: http://copyright.universityofcalifornia.edu/resources/ recorded-presentations.html .

Academic misconduct includes but is not limited to:

1. Cheating, such as copying answers from another student during the exam, or forging assignments.
2. Plagiarism, such as using the writings or ideas of another person, either in whole or in part, without proper attribution to the author or the source. Copying anything from any source is plagiarism if the source is not clearly cited. Plagiarism is stealing someone else's ideas and presenting them as your own.
3. Collusion, such as engaging in unauthorized collaboration on exams or assignments, completing for another student any part or the whole of an exam or assignment, or procuring, providing or accepting materials that contain questions or answers to an exam or assignment to be given at a subsequent time.
4. Use of AI tools to answer questions. Answers should be in your own words.