

BIMM 122

Course syllabus

Fall 2021- Live Lectures: Tuesdays & Thursdays 8:00 AM - 9:20 AM. Tata 3201. Recordings of lectures will be posted on canvas.

I will be attempting to allow live zoom-in. I will provide details on canvas with a zoom link, but be warned that our first class using zoom may be a bit rough as I navigate this format. I will get it sorted out eventually,

IA sections will be in person, but we will also attempt to record those sections and post on canvas.

This class is offered in person. That being said, I understand not everyone will be comfortable attending in person. Not only that, but, unfortunately, some of you may get sick during our quarter and will be unable to attend. You will **never** be penalized for not attending your section or your 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.

If you are attending in person, **masks are required**. You may **not** remove them for eating or drinking. I will be following the same rules myself. You may step out for a moment if you need to drink or eat. As I am providing lectures as recording, if you cannot wear a mask for the duration of our lectures, you can view them online. If you violate this rule I will be asking you to leave class. If you do not, or I need to remind you more than once, I will escalate with the university, and will be seeking the **maximum** possible punishment. My background is in infectious disease, and I do not take any violations of this lightly. We do this to protect each other.

Instructor: Alistair Russell, Ph.D.

Email: a5russell@ucsd.edu

Pronouns : He/him/his

For all correspondence, please include BIMM122, your full name, ID, and IA name.

Office: I will largely be holding virtual office hours, but will meet students outside by appointment.

Office Hours: TBD.

Instructional Assistants:

Amy Prichard (aprichar@ucsd.edu)

Blaine Safir (bsafir@ucsd.edu)

Discussion Section Hours:

Discussion A01: Wednesday 6:00-6:50 PM SOLIS 110, Amy Prichard

Discussion A02 : Wednesday 7:00-7:50 PM SOLIS 110, Amy Prichard

Discussion A03: Friday 1:00-1:50 PM APM 2301, Blaine Safir

Discussion A04: Wednesday 8:00-8:50 AM. SEQUO 148, Blaine Safir

No discussion section in the first week of class. Only attend your assigned section.

Instructional Assistant Office Hours: 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, Amy Prichard, and Blaine Safir will all hold outdoor office hours/zoom sessions at a date and time to be determined. In zoom we will use waiting rooms in order to respect student privacy as they ask questions. If you are waiting to be admitted we will get to you as soon as we can.

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: You are highly encouraged to take advantage of discussion sections. While these sections are **not required**, they are a great opportunity to ask for clarification and discuss course content. IAs will review class material, answer questions, and review for exams. I ask that students attend the section to which they are assigned, such that IAs may give their full attention to those students. Several scientific papers will also be assigned as reading over the course of the class, and while we will touch on major concepts in lecture, IAs will provide additional explanation of the work in these papers. IAs will additionally spend time going over correct exam answers after our midterm exams—we will not spend time in class going over correct answers so this is your only chance to learn why certain answers were correct. IA's will attempt to record their sections for those who are unable to attend.

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 "Molecular Genetics of Bacteria" 4th edition by Snyder. Notes outlining concepts provided in lecture will be provided on Canvas, however they will be complementary to listening or attending to lecture, and will not serve as replacements.

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

- **Weekly Canvas quizzes:** 10% of final grade (20 points), divided equally amongst 10, 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 lowest 2 quiz grades will be dropped.
- **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) Midterm Exam 1 - October 14th. 2) Midterm Exam 2 - November 9th. Final Exam, December 7th. 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.

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 2 weeks prior to the exam date such that I can make sure to have them printed for you.

Class participation: Students who attend in-person, or, if we work out the logistics, via zoom will be able to ask questions and get immediate feedback.

Canvas discussions: Our Canvas page should work as a message board: students may post/answer questions on that page. Students who have a specific question about the course/course material are encouraged to post it. Other students may wonder the same and the answers will provide an instant clarification to the entire class. These discussions will provide opportunities for questions and clarification above-and-beyond the normal office hours.

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 Monday at 5pm to complete their weekly quiz.

Scientific articles: We will read several articles throughout the course and they are fair game for the exams, unless otherwise instructed. As you read the scientific papers, focus on the big picture and look for the following points:

1. What were the main goals of 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?

If there is something that you do not understand, skip it temporarily, you can return to it later.

Do not worry overmuch about understanding every little detail in the papers, 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 using "crib notes", copying answers from another student during the exam, or forge 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.

A note on COVID: We are living in challenging times. I am empathetic to unique challenges each of you are facing while you are taking my class. My goal is to provide the best possible environment, within my power to do so, for you all to learn microbial genetics. It is sadly the

case that the topics we will cover in this course have become increasingly relevant. As our course continues throughout the quarter, with potentially volatile and rapidly-changing situations, I will do my best to adapt accordingly. No student will be docked points for staying home if they are uncomfortable, have experienced a potential exposure, or themselves may be sick. No doctor's notes are needed. While dropping the lowest exam grade will hopefully provide sufficient flexibility, if you face particular or hardship we can always talk to see if we can find a resolution that fits your needs. My goal is to teach you all, and the assessments should reflect your command of the material, nothing more.