

BIMM 101 Recombinant DNA Techniques | Fall 2015

Sections D01 and D02

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Lecture: Monday, Wednesday, Friday at 8:00-8:50 am in SEQUO 147

Laboratory: Wednesday and Friday at 9:00 am - 1:00 pm in York 4318 (D01) or York 4332 (D02)

Office Hours: Friday 1:00-2:00pm in NSB 3205 or by appointment

Required materials

1. BIMM 101 Lab Manual from **Soft Reserves** (available on campus at the Soft Reserves office)
2. From Genes to Genomes chapters by Dale, electronic version available on TED and through library
3. Other readings occasionally posted on TED
4. i>clicker 2 (the newest version of i>clicker), registered on TED
5. Lab Coat (must be to knees)
6. UV-blocking safety glasses
7. Long pants or equivalent, close-toed and closed-heel shoes
8. Fine point Sharpie (dark color) for labeling
9. Carbon copy or carbonless copy notebook (bookstore) for taking lab notes
10. Calculator (cell phones are not allowed during quizzes)

Calendar: Please see the condensed calendar at the bottom of the syllabus. A more detailed calendar is found separately on TED. Note that this calendar is subject to change - although I aim to stick to the posted calendar it is possible we will deviate from it. If the schedule changes, I will let you know.

Learning goals:

- Learn the theory behind molecular techniques, and the applications of the methodologies in biological research
- Become proficient at basic molecular biology techniques
- Learn the importance of proper controls in designing experiments and interpreting results
- Improve lab math skills and ability to graph data correctly
- Learn to make logical conclusions from experimental data
- Become familiar with bioinformatics databases and applications
- Learn to find, read, and evaluate primary literature
- Become aware of the implications of the technology for society

Grading

There are three components of grading in this course: Participation, Lab Mini Reports, and Quizzes

Participation: 20%

- a. Pre-lab/lecture quizzes on TED, 7% (14 highest quiz scores, 0.5% each)

Instructions on what to read before taking the quiz are posted on TED for each quiz.

These quizzes are meant to test low-level knowledge of the content and lab procedures.

You get two attempts at the quiz, and your final score is the higher of the two attempts.

I recommend you do the reading, try the quiz, then go back to the reading if there were questions you got wrong.

b. Lab notebooks, 10% (10 highest scores, 1% each)

Before each lab you are expected to create a drawing or flow-chart of the things you need to do in the lab that day (an example will be posted on TED). The purpose of this drawing is to keep track of the various parts of different projects that are going on in any given lab. It is not supposed to be a detailed protocol list (that is what the lab manual is for). More of a “where were we in our project, what are we doing today, where as we headed” type of plan. This should be page 1 of your lab entry for that given day – and nothing else should go on that page (aside from your name and student ID). You will be asked to tear out the carbon copy page containing your drawing at the start of each lab. Then, at the end of each lab, you will be asked to tear-out and hand in the carbon copies of the lab pages you made entries on that day. When taking lab notes, if you make a mistake, simply cross it out. You can also put a note about why you crossed out a particular entry.

The purpose of these lab book collections is to monitor participation and for me to get a sense of the type of notes you keep. If your notes are sufficient (rubric will be provided on TED) then you will get 100%. If there are important details missing from your plan or notes, we will let you know.

c. Clicker participation (not for correctness), 3%

A note about clickers: you can purchase an iClicker 2 at the bookstore. iClicker 1 has had issues with “remembering” class settings even within the course of a lecture (you can use iClicker 1, but please be aware of these issues). If you participate in 85% of clicker questions in class, you will get full points. Because you only need 85% participation for full points, if you forget your clicker one day do not worry about it.

Laboratory mini reports and assignments: 25%

Guidelines and rubrics for each of the mini reports and assignments will be posted on TED and due dates are on the calendar (below) and on TED. Reports will be submitted to Turnitin on TED and hard-copies must be submitted in person within 10 minutes of the start of your lab.

There are 5 mini reports and a barcoding assignment:

Gel electrophoresis – 2%

PCR variations – 5%

LuxAB – 5%

Synthetic Bio – 5%

RNAi – 6%

Barcoding – 2%

Quizzes: 55%

There are nine quizzes, each worth 5%, your top 7 scores will be used → $7 \times 5\% = 35\%$

The final quiz, during the last lab, is cumulative and worth 20%.

Quizzes are open book (lab manual + class notes) no electronic devices.

Absences: Lab attendance is required – if you miss one lab with no excuse, you will lose 5% from your final grade. If you miss two labs, you will be asked to drop the course. If you are ill, you must leave a message with your instructor, not your IA, and make up the lab in a way that we will determine. You must be on time for lab. Two late arrivals to lab will be counted as one absence.

Grades will be based on your percentage in the course:

97+ = A+	80 up to 83 = B-
93 up to 97 = A	76 up to 79 = C+
90 up to 93 = A-	72 up to 75 = C
87 up to 90 = B+	67 up to 71 = C-
83 up to 87 = B	63 up to 66 = D
	Below 60 = F

This course is not graded on a curve (i.e. 20% of students getting A, B, C, and such), and the ability to do well in the course is not dependent on others doing poorly. You must have an average passing score on assignments and quizzes in order to pass the course (an average of 60 on your assignments and an average of 60 on the quizzes).

Laboratory safety

Safety precautions are crucial in the laboratory setting. As such, appropriate personal protective equipment (PPE), including laboratory coats that cover to the knees, UV-blocking safety glasses or goggles, long pants or equivalent, and closed-toe and closed-heel shoes, are required. You must take the lab safety module quiz prior to the start of Lab 2. You can find the safety module here:

<http://biology.ucsd.edu/education/undergrad/course/ug-labs.html>

Academic integrity (<https://students.ucsd.edu/academics/academic-integrity/index.html>)

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(s) to whom it is assigned, without unauthorized aid of any kind. Anyone caught cheating (includes plagiarizing lab reports, cheating on a test, or changing an answer for a re-grade) will be reported to the Academic Integrity Office.

Late and missed assignments and quizzes

Late assignments will be subject to a 5% deduction per day (note that assignments handed in after the first 10 minutes of lab are considered late) up to a maximum of 3 days late (after which you will receive a 0). There are no make-up quizzes offered except in the case of a medical or family emergency (in which case the instructor will decide how to go about the make-up testing).

Inclusion and accessibility (<http://disabilities.ucsd.edu>)

Any student with a disability is welcome to contact us early in the quarter to work out reasonable accommodations to support your success in this course. Students requesting accommodations for this course due to a disability must provide a current Authorization for Accommodation (AFA) letter issued by the Office for Students with Disabilities (OSD), which is located in University Center 202 behind Center Hall. Students are required to present their AFA letters to faculty and to the OSD Liaison in the Division of Biological Sciences in advance so that accommodations may be arranged. For further information, contact the OSD at 858-534-4382 or osd@ucsd.edu.

Letters of recommendation: Lab courses can offer an opportunity for students and instructors to become better acquainted compared to large lecture classes. Often, students from lab courses will request letters of recommendation for program applications, etc. Although I am happy to write letters of recommendation, I will only write them if I actually know how you have participated in class and lab, beyond what your grades in the course were. This means that I need to know who you are because you have come to office hours, or that you have asked and answered questions in class, etc. If I don't know

you well enough to comment on your performance in class *beyond* your grades, then I may decline your request for a letter (please don't take this personally – a letter from someone who cannot say much about you is not going to help you get into your desired program). I also recommend that you keep your graded assignments, because if you ask me for a letter I will want to see them.

Course Calendar (see more detailed calendar on TED)

Date	Lab #	Lecture	Pre-quiz?*	Due in Lab:	Date	Lab #	Lecture	Pre-quiz?*	Due in Lab:
Sep. 25	Lab 1	Intro to course and Lab 1	no	drawing	Nov. 2		Quiz 5 + other	no	
28-Sep		LuxAB operon	yes		Nov. 4	Lab 12	Re: Lab 12	yes	drawing
Sep. 30	Lab 2	Re: Lab 2	yes	drawing	Nov. 6	Lab 13	Re: Lab 13	yes	drawing
Oct. 2	Lab 3	Re: Lab 3	yes	drawing	Nov. 9		Quiz 6 + other	no	
Oct. 5		Quiz 1 + other	no		Nov. 11	No classes or labs - Veteran's Day			
Oct. 7	Lab 4	Re: Lab 4	yes	drawing; AGE(Lab 2) mini report due	Nov. 13	Lab 14	Re: Lab 14	yes	drawing; Syn. Bio mini report due
Oct. 9	Lab 5	Re: Lab 5	yes	drawing	Nov. 16		Quiz 7 + other	no	
Oct. 12		Quiz 2 + other	no		Nov. 18	Lab 15	Re: Lab 15	yes	drawing
Oct. 14	Lab 6	Re: Lab 6	yes	drawing	Nov. 20	Lab 16	Re: Lab 16	yes	drawing
Oct. 16	Lab 7	Re: Lab 7	yes	drawing	Nov. 23		Quiz 8 + other	no	
Oct. 19		Quiz 3 + other	no		Nov. 25	Lab 17	Open office hours	no	drawing; RNAi mini report due
Oct. 21	Lab 8	Re: Lab 8	yes	drawing; PCR variations mini report due	Nov. 27	No classes or labs - Thanksgiving			
Oct. 23	Lab 9	Re: Lab 9	yes	drawing	Nov. 30		Quiz 9 + other	no	
Oct. 26		Quiz 4 + other	no		Dec. 2	Lab 18	Review	yes	Barcoding report.
Oct. 28	Lab 10	Re: Lab 10	yes	drawing; Lux AB cloning mini report due	Dec. 4	Lab 19	Open office hours	no	Final quiz in lab (cumulative)
Oct. 30	Lab 11	Re: Lab 11	yes	drawing					