BIMM 101 Recombinant DNA Techniques - Winter 2019 Sections D01, D02

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Instructional Assistants:

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Lecture: M/W/F; 1:00-1:50pm SEQUO 148

Laboratory: W/F, 2:30-6:20 pm in York 4318 (D01) or York 4332 (D02)

Office Hours: Tuesday 2.00 -3.00 pm - we often have time in lab or at the end of lab when they end early, so please take advantage of these times to discuss things with me too.

Required materials:

1. BIMM 101 Lab Manual
2. Carbon copy or carbonless copy notebook (bookstore) for taking lab notes
3. Other readings occasionally posted on TED
4. Lab Coat (must be to knees)
5. UV-blocking safety glasses
6. Long pants or equivalent, close-toed and closed-heel shoes
7. Fine point Sharpie (dark color) for labeling tubes
8. Calculator or cell phone calculator (can not use cell phone in exam)
9. iClicker

Computers: We will often use computers for data analysis and other exercises. We have access to some computers, however if you have your own laptop computer it is recommended you bring it to use on days when we have scheduled computer activities.

Learning goals:

• Apply knowledge of the theory behind molecular techniques, and the applications of the methodologies in biological research, to explain experimental steps and troubleshoot results

• Apply knowledge of molecular biology concepts relevant to our work to explain and troubleshoot results

• Demonstrate proficiency at basic molecular biology techniques

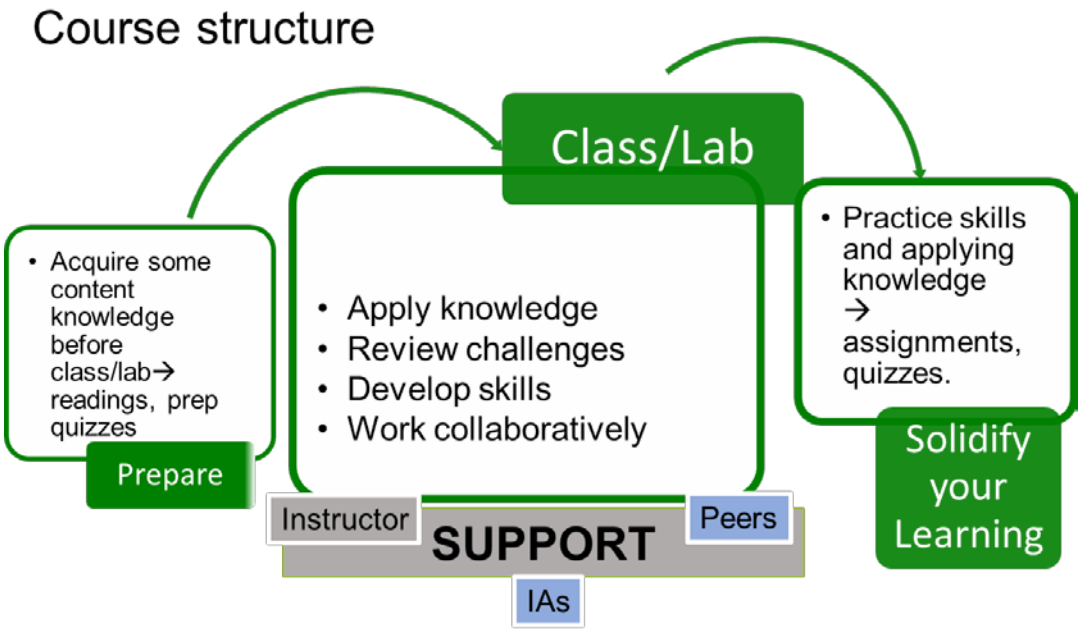
• Explain the importance of proper controls in designing experiments and interpreting results

• Perform basic lab math skills, statistical analysis, and graphing

• Draw logical conclusions from experimental data and justify conclusions • Use basic bioinformatics databases and applications

• Learn to find, read, and evaluate primary literature

Learning in this course:



This course is designed to be a collaborative environment for everyone to learn together and construct a shared understanding of the material. Active participation both in class and lab is expected. Being able to communicate understanding, and confusion, is critical to success in any discipline, and is very useful for learning[1]. To encourage communication and collaboration, we will frequently use class time to work on problems in groups.

We like to use class time to work on applying knowledge, troubleshooting difficult topics, and practice solving problems. Hence, it is expected that you will prepare before coming to class, reviewing basic background information about the lab and/or relevant content. This will be encouraged through targeted readings and in-class quizzes. The more prepared you are for class and lab, the more fruitful our discussions can be.

Instead of memorization, we will focus on developing an understanding of fundamental concepts and as they apply to the experiments. Therefore, tests will include questions that are based on solving problems in new contexts or data interpretation and not necessarily on memorizing facts.

[1] Smith et al., 2009. http://www.sciencemag.org/content/323/5910/122.short

Grading:

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

Component	Percentage of Grade
Participation	15
Mini Reports and Assignment	35
Quizzes and Final	50

Participation: 15%

a. Lab notebooks, 10% (10 randomly graded, 1% each)

Instructions about what to include in your notes will be posted on TED and discussed in lectures.

b. Lab efficiency and professionalism (5%):

It is important to be diligent when working in the lab: make sure you are following protocols, pay attention to supplies, and use your time effectively. It is also very important to work collaboratively and effectively with others, including dividing tasks equally (one person should not do all tasks).

Your lab efficiency and professionalism score will be based on two components:

i. For efficiency and effectiveness.

This is not to say that mistakes are not permitted, mistakes happen, and you are expected to freely admit a mistake. Dr B probably made the same mistake when she was first learning. However, if you chronically make mistakes, misuse supplies, perform unsuccessful work, you will be docked points.

ii. For professionalism and collaboration.

This mark is based on observations of your behavior in the lab. Professionalism can be demonstrated through individual and community efforts. By default, every student is assumed to be professionally mature. Hence, this component is awarded to every student at the beginning of the quarter. During the quarter, based on observations by the teaching team, which includes but is not limited to one-on-one interactions, electronic communication, and follow-up conversations on grades, your professionalism credit may be deducted in steps of 0.5%.

Example interactions with meaningful benefits:

- Developing deeper insight into course material, concepts, biology, and/or society in general
- Working collaboratively to improve in skill building and future opportunities
- Learning conceptually and meaningfully why full credit was not awarded for an assignment
- Clarifying course material that facilitates deeper learning
- Reporting errors or problems in class, on assignments, or for other course material
- Arriving late to lab

Example interactions that have no meaningful benefits and thus should be avoided:

- Contributing inequitably to team work in class, in discussion section, or on exams
- Harassing and/or bullying the instructional team or other students, either in person or online
- Asking questions when the information is already available or will eventually be known
- Ignoring the directions or requests from the instructional team
- Being disruptive to fellow students in class, in discussion section, or on exams
- Shirking responsibilities in lab such as completing exercises and maintaining a clean and fully-stocked bench

Laboratory mini reports and assignments: 35%

Guidelines and rubrics for each of the mini reports and assignments will be posted on TED and due dates announced on TED and in class. Reports will be submitted to Turnitin on TED.

There are 5 mini reports and an assignment:

Assignment TBA- 4%

Gel electrophoresis mini report– 3%

PCR variations mini report – 5%

Ligation efficiency – 5%

Promoter Mutagenesis – 9%

RNAi – 9%

Quizzes and Final: 50%

Starting in Week 2, there will be a short quiz at the start of Wednesday labs. This will be on material covered the prior week and on upcoming material (this should encourage you to read ahead!). There will be 8 quizzes, your top 6 scores will be used à 6 x 4% each = 24%.

The final quiz, during the last lab, is cumulative and worth 26%. Quizzes will be 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 get in touch with me, 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+	94 up to 97 = A	90 up to 93= A-
87 up to 89 = B+	83 up to 86 = B	80 up to 82 = B-
76 up to 79 = C+	72 up to 75 = C	67 up to 71= C-
60 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.

Late and missed assignments and quizzes

Late assignments will be subject to a 10% deduction per day (note that assignments handed in after the first 10 minutes of lab are considered late) up to a maximum of 2 days late (after which you will receive a 0). There are no make-up quizzes offered except in the case of a documented medical or family emergency (in which case the instructor will decide how to go about the makeup testing).

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 googles, 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 students and faculty 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.

In this course, we need to establish a set of shared values. Following are values* adopted from the International Center for Academic Integrity (http://www.academicintegrity.org/icai/home.php), which serve as the foundation for academic integrity. These values include:

	As students we will……..	**As the teaching team we will…..**
Honesty	• Honestly demonstrate your knowledge and abilities according to expectations listed in the syllabus or in relation to specific assignments and exams • Communicate openly without using deception, including citing appropriate sources	• Give you honest feedback on your demonstration of knowledge and abilities on assignments and exams • Communicate openly and honestly about the expectations and standards of the course through the syllabus and in relation to assignments and exams
Responsibility	• Complete assignments on time and in full preparation for class • Show up to class on time and be mentally and physically present • Participate fully and contribute to team learning and activities	• Give you timely feedback on your assignments and exams • Show up to class on time and be mentally and physically present • Create relevant assessments and class activities
Respect	• Speak openly with one another while respecting diverse viewpoints and perspectives • Provide sufficient space for others to voice their ideas	• Respect your perspectives even while we challenge you to think more deeply and critically • Help facilitate respectful exchange of ideas
Fairness	• Contribute fully and equally to collaborative work, so that we are not freeloading off of others on our teams • Not seek unfair advantage over fellow students in the course	• Create fair assignments and exams and grade them in a fair and timely manner • Treat all students and collaborative teams equally

Trustworthiness	• Not engage in personal affairs while on class time • Be open and transparent about what we are doing in class Not distribute course materials to others in an unauthorized fashion	• Be available to all students when we say we will be • Follow through on our promises • Not modify the expectations or standards without communicating with everyone in the course
Courage	• Say or do something when we see actions that undermine any of the above values • Accept the consequences of upholding and protecting the above values	• Say or do something when we see actions that undermine any of the above values • Accept the consequences of upholding and protecting the above values

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.

Lecture Podcast:

http://podcast.ucsd.edu/

Whenever possible, lectures will be recorded and available online as videos as a resource for review. However, attendance and participation are highly encouraged, as substantial portions of lectures will be interactive. Please see participation in the grading section for more details.

Writing center:

https://writingcenter.ucsd.edu/

The Writing Center provides support for undergraduates working on course papers (i.e. laboratory reports and the research proposal) and independent writing projects. Writing mentors can help at any stage of the writing process, from brainstorming to final polishing.

The Writing Center offers: one-on-one appointments for undergraduates with peer writing mentors; group workshops addressing a variety of writing projects, genres, and issues; and Drop-In Zone for quick questions, targeted assistance, and a comfortable writing space.