

Life Sciences 187B/C: Principles and Practices of Genomic Research (4 credits)

Fall 2008 Syllabus

This course is designed for undergraduate students interested research. This course has three hours of Lab/Journal Club meetings and six hours of laboratory research each week (for a total of 9 hrs/wk).

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LECTURE & LAB MEETINGS: Tu 2:00 pm – 3:00 pm (Journal Club) TBA
We 2:00 pm – 3:00 pm Group Meeting La Kretz 100

LABORATORY RESEARCH: WF 9:00am – 12:00pm
3336 Young Hall South

Course website: <http://www.lsic.ucla.edu/classes/fall08/>

Lab website: <http://lslab.lscore.ucla.edu/>

RESEARCH PROJECT.

Life Sciences 187 offers you the opportunity to participate in research in mouse genomics by genotyping genotypic variations of six homozygous mouse strains by using SNPs and microsatellites. As student researchers, you will be members of the UCLA Undergraduate Genomics Research Initiative (UGRI), a precedent-setting undergraduate education in which students conduct cutting-edge research in genomic biology and biotechnology. UGRI is a collaborative, cross-disciplinary effort among undergraduates in lower and upper division life science courses. The UGRI intends to be the first group of undergraduates to produce an annotated microbial genome.

RESEARCH REQUIREMENTS.

LS187B students are required to (i) conduct six hours of laboratory research per week (TR or WF as selected by the student), (ii) attend weekly Journal Club meetings on Tuesdays (2-3 PM) and (iii) laboratory meetings with LS187A students on Wednesdays (3-4 PM). Teamwork is essential for a successful DNA sequencing project. Accordingly you are expected to be professional, punctual, observant and alert to the day's activities, and willing to collaborate with your fellow researchers.

RESEARCH MATERIALS

- White lab coat worn at all times in lab
- Use same lab notebook from prior quarter
- Download assigned readings from UCLA library
- Download protocols from course website

IMPORTANT LAB RULES:

- Lab computers and printers may not be used for personal purposes
- No open toed shoes (i.e., no flip-flops, sandals, or bare feet)
- Punctuality
- Mentoring of LS187A students by LS187B students

IMPORTANT DUE DATES:

Deadline is 12:00 noon at the date specified delivered to 3336 YHS unless otherwise noted:

Quiz Preparation	Monday prior to quiz date
Presentation of Assigned Paper	2-2:25 PM on Journal Club meetings (Tuesdays)
Seminar Report	Nov 19, 2008

TIME COMMITMENT:

LS187B requires a considerable time commitment. You will be spending a lot of time outside of class on important research related projects for this course. Because of this, **there is NO midterm or final exam** for this class. However – and we cannot stress this enough - we strongly recommend that you mark your calendars and take advantage of any down-time in your work and class schedules to get a head start on:

- Preparing your 25-minute PowerPoint presentation of your assigned Journal Club reading. This work also involves: (1) conducting as-needed, self-directed research to augment your understanding of the material; and (2) sourcing visuals and other materials to enhance your PowerPoint presentation
- Preparing your single 20 point quiz that the Instructional Team will give to your colleagues.

INITIATIVE:

By enrolling in the course you have taken the initiative through research in a relatively unstructured setting. As for any research scientist, this opportunity is what you make of it. Thus you begin the quarter with 50 points for initiative. If the teaching team observes that you make poor use of your laboratory time or computer laboratory time, your 50 initiative points will be docked incrementally. Our progress depends on the quality and quantity of everyone's contribution.

MONDAY, WEDNESDAY MEETINGS and LAB RESEARCH

Journal Club (T 2-3PM see schedule below). Functioning as a research group, we will meet during this period to discuss the assigned reading for the week (a paper that relates to the field of microbial genomics). This will be a seminar style discussion moderated by member(s) of the instructional team. It will be, therefore, a student led discussion therefore it is critical that you read the papers ahead of time.

Laboratory Research (WF, 9AM – 12PM, 3336 YHS). This is when your research will be conducted, which primarily will be genotyping and finemapping of *the mouse* genome. LS187B student researchers will be evaluated on their abilities to **mentor** other students. You must be reliable, responsible, and a source of correct and helpful information. You are expected to set a good example both in the lab and in lab meetings.

Grading for 187B

Points

Lab Meetings and Journal Club (3 hours/week):	0 (mandatory)
Fulfillment of Required Research Hours (6 hours/week):	0 (mandatory)
Presentation of Assigned Paper	150
Quizzes	100
Participation	100
Seminar Report	50
TOTAL	400

Grades will be assigned by point totals: A, > 90%; B, >80% etc., and determined by the Instructor. Any behavior such as (without limitation), breaking equipment, repeated incorrect analyses of data, failure to cooperate, excessive tardiness, or absences will result in demerits that will lower your grade. If you incur a demerit, you will be notified.

Students are expected to be aware of the University of California policy on academic integrity pursuant to the UCLA Student Conduct Code (www.deanofstudents.ucla.edu). Please review sections on (1) plagiarism, (2) cheating and (3) use of unauthorized study aids. Violations are promptly referred to the Dean of Students. Penalties for violations are quite severe, will become a permanent part of your academic record, and will likely preclude entry to any graduate or professional school worth attending.

LAB NOTEBOOK

You will log your observations, findings, results of experiments, changes to protocol, formulas, and unusual and pertinent findings or observations in your lab notebook. You do not need to restate the protocol. Your lab notebooks will be checked periodically during the quarter. Your lab notebook may not leave the laboratory and thus must be updated in lab.

SEMINAR REPORT

An important aspect of scientific research is your ability to effectively communicate your results. You are expected to write a one page summary of a seminar you attend at UCLA (see “Events in Molecular Biology” link at course website). This is due no later than 12:00 noon on **Nov 19, 2008**.

QUIZZES

Quizzes will relate to each assigned reading. Quizzes are approximately 10 minutes long and taken by all students (except the presenter) during the last 10 minutes of the Journal Club (T 2-3 PM). Quizzes will relate to the paper to be presented that day. Each presenter will prepare a 20 point quiz consisting of multiple choice, true/false, and/or short answer questions based on the paper they are assigned to present. A blank master copy of this quiz, along with completed answer key, will need to be submitted to the Instructional Team on the Monday prior to the quiz date for feedback.

PRESENTATION OF ASSIGNED PAPER (Journal Club)

In the journal club, we will discuss articles from literature focusing on the broader aspects of genomic biology. Each student will present two papers. Students should be prepared for a question and answer session and a critique of the presentation. All students will be graded for participation.

Research paper presentations (Journal Club) will be graded based on the following 150 point breakdown. Each member of the Instructional Team will give you a 30 point assessment, for a maximum total of 120 points. Your peers will also evaluate you on a 6 point scale, for a maximum total of 30 points.

*Guidelines for your seminar presentation are available on the course website
We are happy to go through your slides with you, prior to your presentation.*

Important: Presentations should be 25 minutes long, expect a five minute question and answer period following. The speaker will arrive early, with Flashstick/laptop to set up for the presentation so that we can start promptly on the hour. Presentations should include Supporting Online Material when relevant. The remaining 20 minutes of class will be devoted to the quiz.