

## **BIOL109L- YEAST MOLECULAR GENETICS**

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UC Santa Cruz

Summer 2016 (5-week session), Course Syllabus

**Instructor:** Giulia JG Ruben M.S. Ph.D.

**Office:** Sinsheimer 127

**Office Hours:** Wednesdays 3-4pm in Sinsheimer 127, or by appointment.

**Email:** [gruben@ucsc.edu](mailto:gruben@ucsc.edu)

**Labs:** Wednesday, Thursday and Friday 11am-3pm, Thimann Lab 285

**Teaching Assistant:**

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Office Hours: Tuesdays 9:30-11:30am, Thimann Lab 285

**Prerequisites:** BIOL 100 or BIOC 100A; and BIOL 100K or BIOL 20L or BIOL 101L, and BIOL 105 (Genetics).

BIOL109L is an upper division laboratory course designed for biology majors with an interest in laboratory genetics and molecular biology, and yeast as a eukaryotic model organism in genetics and epigenetics. Laboratory modules will experimentally reinforce fundamental genetic principles (Mendel's laws of segregation and independent assortment, gene mapping and linkage and complementation), and provide experience in common and advanced molecular biology techniques (DNA extraction, PCR, Agarose gel electrophoresis, gene replacement and chromatin immunoprecipitation). In addition, data from several modules will build toward a final paper where students explore the nature of epigenetics in *Saccharomyces cerevisiae*. The development of strong scientific writing skills will be stressed in this course, by way of several writing assignments targeted to develop specific aspects of scientific writing.

The prerequisites to this course indicate the level of preparation that is assumed and expected of students enrolling in this course.

**\* Important note for summer session students:** BIOL109L is a challenging course that most students find needs more of their time and attention than they originally thought. When taken during a 5-week summer session, students should anticipate this course will require several hours per week of reading and working on written assignments in addition to attending lab in order to succeed- *it will be extremely fast paced (literally double the speed as in a normal quarter)*. Students are strongly advised to consider this, and arrange their schedules accordingly from the first day of class. Getting even one day behind in summer session can be extremely costly.

Drop Deadline for Summer Session II: August 1, 2016

Withdraw Deadline for Summer Session II: August 12, 2016

## **Course Materials:**

There is no textbook for this course, and there is no reader/lab manual that can be purchased as a text ahead of time. The online course management program eCommons will be used, and all course materials (Power Point slides, handouts, lab manual, problem sets, etc.) will be made available in eCommons. Students are expected to know how to use and navigate eCommons, as well as check it regularly.

The “lab manual” (inclusive of background information, instructions, protocols, etc.) will be provided online through eCommons. Students are expected to download, print, read, bring and keep the provided laboratory handouts for the duration of the quarter.

Students are expected to obtain a binder, binder paper, and tabbed dividers for use as their lab notebook (see Lab Notebook Guidelines for instructions).

Occasional email notifications may be sent out by the instructor or teaching assistant (schedule changes, corrections etc.)- students are expected to check their email regularly.

## **Course Format:**

This course will go through 8\* Modules by topic (named Modules A-H). All modules will involve working with the budding yeast *Saccharomyces cerevisiae*, thus getting technically familiar with the organism in a laboratory setting. Several modules focus on reinforcing fundamental genetic principles, while others incorporate molecular biology techniques commonly used in yeast. Some modules will have an associated worksheet to assess data collection and analysis skills, and others will have more in depth assignments to help students strengthen their scientific communication and writing skills. 2 modules will culminate in one formal final lab report. Laboratory notebooks will be checked during the quarter and be handed in and graded at the end of the quarter. There will be one journal club style reading/presentation of a relevant scientific research publication.

Oftentimes activities for multiple modules will be occurring simultaneously in a given lab or week. Students are expected to keep a well-organized lab notebook at all times (see details in handout Lab Notebook Guidelines) with all relevant material for each Module, in addition to notes, protocols, assigned papers etc.. Students should be prepared to multitask.

*\* 7 Modules in Summer Session*

## **Attendance:**

Attendance is mandatory, and only excused in the case of a proven emergency or legitimate excuse, as approved by the instructor. When reasonably possible, a student should contact the instructor PRIOR to missing class, even if just by email in order to inform the instructor there is a current problem.

Students are expected to arrive to lab **on time** (like really, actually on time) and **be prepared** (having read the material provided for the day, done calculations etc.). Failure to do so will affect a student's participation score.

There are *no make-up labs*.

If a student is experiencing extreme circumstances that are severely impacting their academic performance, they should notify the instructor immediately, and seek the guidance of the Disability Resource Center (see below).

## **Grading:**

Participation- 30 points (2 pt per lab meeting)

Assignments- 60 points (6 assignments x 10pts each)

Lab Notebook- 20 points (3 notebook checks x 2pts each, final check 14pts)

Journal Club Presentation- 20 points

Final Lab Report- 40 points

Total Points- 170 points

Final course grades will be assigned based on a modified curve. Typically, achievement of the mean would be reflected in a C grade. Grading disputes must be brought to the attention of the instructor within 7 days of the assignment or exam being handed back.

## **Disability Accommodations:**

To request academic accommodations for a disability, *students must provide documentation of a disability prior to receiving accommodations*. Contact the Disability Resource Center for appropriate testing and documentation: [drc.ucsc.edu](http://drc.ucsc.edu), 146 Hahn Student Services, 831-459-2089, [drc@ucsc.edu](mailto:drc@ucsc.edu). Please have Disability Resources contact your instructor by the end of week 1 of class with all necessary information.

## **Academic Honesty & Integrity:**

Students are expected to be familiar with UCSC Academic Integrity Policy with (see [http://www.ue.ucsc.edu/academic\\_integrity](http://www.ue.ucsc.edu/academic_integrity)). Academic misconduct includes but is not limited to cheating, fabrication, plagiarism, or facilitating academic dishonesty

or as further specified in the Student Policies and Regulations Handbook [Section 102.01](#).

In the event a student is found in violation of the UCSC Academic Integrity policy, he or she may face both academic sanctions imposed by the instructor of record and disciplinary sanctions imposed either by the provost of his or her college or the Academic Tribunal convened to hear the case. Violations of the Academic Integrity policy can result in dismissal from the university and a permanent notation on a student's transcript.

*Academic misconduct will NOT be tolerated. The instructor is responsible for determining the academic sanctions to be imposed in the event of misconduct. Academic sanctions may include reduced scores on assignment(s), a reduced grade in the course or failure of the course for all students involved.*

With respect to BIOL109L:

Although students will be working with lab partners throughout the quarter, all assignments are to be developed and written *independently*. Partners will inherently possess identical data in some cases, and sometimes analyze and discuss their data together during lab. But there should be no sharing of electronic files or copying of any kind- all assignments submitted must be *entirely your own work*.

In addition, all references used must be appropriately cited.

Turnitin.com

To assist in enforcing this policy, students will be submitting all written assignments through the plagiarism checker Turnitin.com.