BIOL109L- YEAST MOLECULAR GENETICS

UC Santa Cruz
Summer 2018 (5-week, session II), Course Syllabus

Instructor: Giulia J Gurun M.S. Ph.D.
Office: Sinsheimer 227
Office Hours: Thursdays 2-3pm in Sinsheimer 127, or by appointment.
Email: ggurun@ucsc.edu
Labs: Wednesday, Thursday and Friday 10am-2pm, Thimann Lab 285

Teaching Assistant:
Ofir Stefanson, ostefans@ucsc.edu
Office Hours: TBA

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. When taken during a 5-week summer session, students should anticipate this course will require many 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*. Students should assume the majority of the weekly preparation and homework assignments will be done on Mondays and Tuesdays when lab does not meet. Students should expect a high level of multitasking and multiple deadlines per week. Students should assume lab sections may run overtime by up to an hour depending on unforeseen circumstances. **Students are *strongly advised* to consider this and arrange their schedules accordingly prior to the first day of class.** *You can not get behind in summer session or you will not succeed.*

Please note the following Summer Session Deadlines:

Add Deadline for Summer Session II: August 2, 2018
Drop Deadline for Summer Session II: August 6, 2018 (tuition refund)
Withdraw Deadline for Summer Session II: August 17, 2018 (no tuition refund)

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 Canvas will be used, and all course materials (Power Point slides, handouts, lab manual, problem sets, etc.) will be made available in Canvas. Students are expected to know how to use and navigate Canvas, as well as check it regularly.

The "lab manual" (inclusive of background information, instructions, protocols, etc.) will be provided online through Canvas. 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). On occasion there may be binders/dividers available for reuse from previous quarters.

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 and Participation:

Attendance is mandatory, and only excused in the case of a proven emergency or legitimate excuse, as approved by the instructor at the time of occurrence.

If a student arrives more than 30 minutes late to lab it will be considered an unexcused absence (see below). 5% of the total points in the class will be deducted from the final grade *for each* unexcused absence (including those earned by excessive tardiness). If a student misses 3 or more lab meeting for *any reason (excused or not)*, they will fail or receive an incomplete in the course, as determined by the instructor. Up to 10% of the total points in the class will be deducted from a student's final grade for consistent tardiness to lab and/or lack of preparedness for lab. Parking and transportation issues are the responsibility of the student and not considered excusable in terms of tardiness or absence. Similarly, it is not appropriate or acceptable to deal with parking issues during lab.

Students are expected to be prepared for lab, follow all safety rules and lab rules, and behave respectfully and appropriately in the lab at all times. As such, inappropriate conduct in the lab will be brought to the attention of the student involved, and may result in a loss of up to 5% of a student's final grade for each occurrence and/or in a student being dismissed from lab.

Students should also expect that lab may occasionally run overtime due to unforeseen circumstances (this does not excuse students from having to complete lab, so plan accordingly).

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.

Important note: Please familiarize yourselves with new campus and departmental policies on letter grades, particularly the C- grade, and how that affects your major and graduation. In addition, familiarize yourselves with application requirements to graduate programs of interest, so you are aware of minimum grade requirements. Final grades will not be adjusted for any other reason than grading errors. It is assumed that you know the policies and that your final grade in this course is as important to you on the first day of class as the last.

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, 146 Hahn Student Services, 831-459-2089, drc@ucsc.edu. Please have Disability Resources contact your instructor by the end of week 1 of class with all necessary information.

Satisfaction of the Disciplinary Communication (DC) Requirement for Biology Majors

Successful completion of BIOL109L satisfies the Disciplinary Communications requirement for certain Biology Majors. The goal of the DC requirement at the University of California, is to ensure that students acquire the appropriate skills in writing and/or other modes of communication deemed appropriate for their chosen field of study.

Please see https://senate.ucsc.edu/committees/cep-committee-on-educational-policy/ge-requirements/disciplinary%20-communication.html for more information on the University's DC requirement and guidelines for DC courses.

Academic Honesty & Integrity:

Students are expected to be familiar with UCSC Academic Integrity Policy with (see 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.

<u>With respect to BIOL109L:</u>

Students will be collecting data in groups and are permitted to perform "number crunching" as a group. However, once a student has finished these tasks, all subsequent work must be competed independently. All thinking and writing must be done independently, collaboration with anyone when writing the paper is not allowed and violates the academic integrity policy. Therefore, students should NOT talk about the information that should be included in papers with their friends in the class, lab partners or previous students. Students are not allowed to ask friends, parents or anyone else to edit their work. Students are not allowed to use a current or former student's work as a model for their own. Students are not allowed to share electronic files of their work. Treat written assignments as take home exams. *If a student needs help the ONLY appropriate resources are the TA or the instructor, and students are expected to seek their help only.*

Everything written in a student's assignment must be in his or her own words. *Students should not copy or paraphrase passages from the lab manual or other texts, including the internet, even if it is cited.*

In addition, all references used must be appropriately cited.

Students will not receive credit for an assignment that have submitted in a previous quarter- all work must be original even if you have taken the class before.

Submission of Assignments and Turnitin.com:

To assist in enforcing this policy, students will be submitting all writing assignments through the plagiarism checker Turnitin.com. Registration information is available in Canvas.

All assignments are to be submitted hard copy in class for grading purposes. In addition, all assignments are required to be submitted to Turnitin.com within 24 hours of the in-class due date. The electronic file submitted to Turnitin.com must be identical in content and formatting to the one a student has submitted for grading, or a zero score will be logged for that assignment. Students will not receive credit for an assignment, or have the assignment returned to them until they have submitted the assignment to Turnitin.com. Late submissions to Turnitin.com will be

assessed a penalty of 1% of total point value for every calendar day they are late passed the 24 hour grace period. Students will not receive credit for an assignment that has been submitted in a previous quarter- all work must be original even if you have taken the class before.

Late papers will be assessed a penalty of 5% of the total point value of the assignment for every calendar day they are late, including weekends, and a day ends at 11:59pm. If a paper is turned in on the due date, but after the in-class due time, it will incur a late penalty of 2.5%. Late penalties are waived only in the case of a proven emergency or legitimate excuse, as approved by the instructor only by the time the paper is due.

Teaching assistants are not authorized to make exceptions for any rules applying to the writing, submission or late penalties associated with assignments in this course.