

## Syllabus for BIOL4960 with Dr. Lewis

### Course Description

The student will carry out an independent research project to investigate the role of chromatin structure and modification in the maintenance of genome stability. Studies will be carried out using the model fungus *Neurospora crassa*. Students will be mentored directly by a senior member of the lab and will meet with me once a week. Students will initially learn basic lab techniques, and as the semester proceeds, students will be introduced to more advanced concepts and methods as they work toward the goals of their research project.

### Course Objectives

- Learn basic techniques in microbiology, molecular biology and genetics
- Understand the theoretical concepts behind these techniques
- Learn to read the primary literature to understand background information
- Work with a mentor to make progress on an independent research project
- Learn to maintain a laboratory notebook
- Learn to give a seminar to present your scientific findings
- Learn to write a “review” article to summarize the published literature

### Grading Policy

#### Attendance - 60%

- Student mentors devote valuable time to your training. Students will be expected to be in the lab a minimum of 12 hours each week (180 hours total).
- Students will be expected to schedule your research time with your mentor and will be expected to keep these scheduled appointments. If a change in schedule is absolutely necessary, myself and the mentor should be notified in advance by email or telephone.
- If possible, I encourage you to attend our weekly [lab meetings](#).

#### Journal Article Summary – 10 total%

- Students will be assigned a background article from the primary literature. They will be asked to provide an article summary using a provided template. I will discuss the article and summary with the student. The final grade will be based on scores from a rough draft and a final revision.

#### Maintenance of a lab notebook – 10%

- Students must keep a legally acceptable lab notebook and store all digital data in accordance with lab record keeping policies ([http://www.chromatinchronicles.com/wiki/index.php?title=Record\\_keeping\\_policies](http://www.chromatinchronicles.com/wiki/index.php?title=Record_keeping_policies))
- Notebooks should be current and can be inspected at any time.

## Final Presentation or Paper – 20%

- Students will present their work by giving a seminar in our group lab meeting at the end of the term. The seminar should include an introduction and rationale for the project, data slides, and a summary of major conclusions. (Slides will be due 1 week before the presentation). Alternatively, if attending lab meeting is not possible, students will summarize their work by writing a final research paper in the style of the journal, “Genetics”. Content will include an Introduction, Materials and Methods, Results, Discussion, and References. (Rough Draft due in week 12. Final draft due week 15).

January 21 <sup>st</sup>	Journal article assigned
January 28 <sup>th</sup>	Journal article discussion
Feb 4 <sup>th</sup>	Discussion of additional background reading
Feb 18 <sup>th</sup>	Article Summary Rough Draft Due
March 4 <sup>th</sup>	Article Summary Final Draft Due
April 18 <sup>th</sup>	Draft of Lab Meeting slides due
April 25 <sup>th</sup>	Lab Meeting Presentation

## Assigned Reading

Papamichos-Chronakis, M. & Peterson, C. L. Chromatin and the genome integrity network. *Nat Rev Genet* **14**, 62–75 (2012).