**Seminar in Cell Biology**

**BIOL 649, Fall 2019**

**Tuesday 9:30-10:45 Genome Sciences 4101**

**Course Description**

This section of BIOL 649 Seminars in Cellular and Developmental Biology is an advanced course that covers how developments in light microscopy have led to discoveries in how cells divide, covering the fundamental experiments and primary literature that have built up humankind's understanding of these topics to date.

**Target audience**

BIOL 649 is targeted to advanced undergraduate and graduate levels. This class involves reading journal articles of primary research, digesting the material, and discussing it among the class. Students should be familiar with basic lab technologies and cell biology. Students who are interested in developing critical reading/thinking skills, understanding the history of cell biology of mitosis and light microscopy, as well as hypothesis driven experimental design are the target audience.

**Prerequisites**

Students must have completed Biol 205 or Biol 205H.

**Instructor**

Dr. Paul Maddox

Office location: Fordham Hall 307

Office hours: by appointment

pmaddox@unc.edu

**General** **Course Policies**

This class is an interactive class and as such much of your grade will be determined by participation. We will focus not necessarily on “correct vs. incorrect” but rather on depth of analysis. We will cover some of the most important papers in the field of cell division and cell biology generally, the goal is not to memorize the results, but to understand the scientific process that led to these discoveries. As the material demands, I will present limited lectures to clarify technologies, normally the remainder of the class will be student run discussions.

**Course Materials**

Course materials that I provide (lecture slides, journal articles, etc) are copyrighted and may not be distributed to third parties including web-based course material collections. You are of course encouraged to download copies of the course materials that we provide onto your own computer. Lecture materials will be uploaded to Sakai before each class meeting.

**Required Texts**

Journal articles, to be provided.

**Course Goals and Student Learning Objectives**

This course will help you ask questions in a quantitative, hypothesis driven fashion, design experiments to test questions, extract conclusions from the results, and communicate the sum total. We will focus on Cell Division and Light Microscopy.

Specific topics we will cover:

The history of cell division research (1880-1920)

Microscopy developments that drove discovery in cell division (1920-1980)

Biochemical and Genetic advances in cell division (1930-1980)

Modern experiments in cell division (1990-present)

Super-resolution microscopy and its impact

Therapeutic applications of cell division research

**Course requirements and grades**

Your final grade will be determined by your performance on the final exam (40%) and by in class participation (60%). The final exam will be individual presentations of journal articles to the class, a rubric will be provided as well as an example presentation.

Your course grade will be determined as follows. Course instructor may curve final grades upwards.

A final course average of 93 or above will earn you an A

A final course average of 90 to 92 will earn you a grade no lower than A-

A final course average of 87 to 89 will earn you a grade no lower than B+

A final course average of 83 to 86 will earn you a grade no lower than B

A final course average of 80 to 82 will earn you a grade no lower than B-

A final course average of 77 to 79 will earn you a grade no lower than C+

A final course average of 73 to 76 will earn you a grade no lower than C

A final course average of 70 to 72 will earn you a grade no lower than C-

A final course average of 67 to 69 will earn you a grade no lower than D+

A final course average of 63 to 66 will earn you a grade no lower than D

A final course average of 60 to 62 will earn you a grade no lower than D-

**Exam dates**

TBD by the College of Arts and Science

The professor reserves to right to make changes to the syllabus, including project due dates and test dates. These changes will be announced as early as possible.