

Chromatin Structure and Function is a very broad course title that could potentially include thousands of different lectures. Because of this, we will not even begin to fully address a fraction of the possible topics in the field. This course is designed to highlight some of the fundamental research areas related to chromatin, and lectures will introduce some of the breakthrough discoveries and methodologies from the past few decades. Each lecture (Thurs) will be accompanied by a discussion of selected recent primary literature (Tues).

Course Objective:

By the end of this course, you should be able to intelligently address what chromatin is, how chromatin influences nuclear process in eukaryotic organisms, and what kinds of methods are used to understand chromatin structure and function. You should also learn to read, understand, and discuss primary scientific research articles related to chromatin biology.

Grading

Pre-class Summaries (and quizzes)	15%
Participation & Attendance	25%
Exam	25%
Presentation	20%
Final Paper	15%

Pre-Class Summaries (15%)

Before each paper discussion (at the beginning of class), you are required to turn in a hard copy of a "Pre-Class Research Summary" **for each paper to be discussed**. These summaries are to make sure you have read the assigned papers before class, and will be graded based on whether they display evidence that you spent adequate time reading and trying to understand the material. You will not necessarily be graded on how well you comprehend the research articles, particularly earlier in the course. Each summary will be worth a maximum of 1 point. *If the class is unable to sustain informed discussion of assigned readings, announced quizzes will be also given at the beginning of each discussion class.*

Participation (25%)

It is required that you will regularly attend and participate in lectures and that you attend and contribute significantly to each paper discussion. Successful discussions can only occur if you read and try to understand each assigned research article. If you have difficulty understanding these assigned readings, please be prepared to ask any questions that you have during the relevant discussion. If you have questions about any topics related to the assigned readings, or just want to talk about concepts that the assigned reading made you think about, these are appropriate contributions to class discussion and participation.

Exam (25%)

The exam will consist of two parts. The first will be an in-class written exam that will test basic knowledge of the major concepts we have discussed in the course and whether you can accurately read and interpret a scientific research article in class. The second will be a series of take-home questions related to one or two research articles that will test your ability to more deeply understand scientific literature.

Presentation (20%)

To make up for the inability to cover all of your favorite potential topics in chromatin biology, you will have the (required) “opportunity” to present a chosen topic to the class. For this presentation, you will select (and get approval for) a topic of your choosing and you will pick 1-2 primary research articles related to this topic. You will be expected to develop a relatively brief presentation for the class that will introduce your topic and discuss the scientific paper(s) that represent your chosen topic. You may focus specifically on the research article or more broadly on your chromatin topic (as long as you discuss the relevance of your selected articles as well). You may work individually or in pairs. If working in pairs, each participant is required to speak for roughly 50% of the presentation.

Guidelines for the presentation are as follows:

	Individual	Pairs
Presentation Length	15 minutes	25 minutes
Number of Articles	1-2	2-3
Approvals Required	Topic Choice, Selected Article(s)	Topic, Articles, and Partner
Deadline for Approval	Feb 8	Feb 8
Presentation Date	Mar 8, 13 or 15	Mar 8, 13 or 15

Final Paper (15%)

You will be required to write a 3-4 page critique of your chosen research article(s) as your final examination. For this critique, you must discuss the following: what motivated the research, why the work was important, what methods were employed, what were the major findings and conclusions, how well do the results support the conclusions, what major or minor concerns do you have with the methods or conclusions, and what kinds of follow-up experiments may be appropriate future research directions. This will be due no later than the university-scheduled time of final exam. Reasonably proper grammar is expected. If you worked in pairs on the presentation, these reports must still be completed individually.

Other Notes

It is expected that all students will be courteous and open to all points of view during discussions. If you have concerns with scheduled exam/presentation dates, please let me know as soon as possible. If you have other concerns regarding the course, do not hesitate to contact me.

All students are welcome to meet with me if they have any questions or concerns throughout the course - either by appointment or drop-in at my office (Streisinger 316). I am also very responsive to emails (jmcknig2@uoregon.edu).

Scheduled Meetings

Date	Class Topic
Jan 9	Intro, Expectations and Chromatin Background
Jan 11	Lecture 1 - Chromatin Structure
*Jan 16	Scientific Literature Discussion 1
Jan 18	Lecture 2 – Chromatin Modifications and Histone Variants
*Jan 23	Scientific Literature Discussion 2
Jan 25	Lecture 3 – Impact of Chromatin on DNA Processes
*Jan 30	Scientific Literature Discussion 3
Feb 1	Lecture 4 – Chromatin Remodeling [1]
*Feb 6	Scientific Literature Discussion 4
**Feb 8	Lecture 5 – Chromatin Remodeling [2] / Chromatin Genomics [1]
*Feb 13	Scientific Literature Discussion 5
Feb 15	Lecture 6 – Chromatin Genomics [2]
*Feb 20	Scientific Literature Discussion 6
Feb 22	Lecture 7 – Chromatin Engineering [1]
*Feb 27	Scientific Literature Discussion 7
Mar 1	Lecture 8 – Chromatin Engineering [2] Take-Home Exam Assigned
Mar 6	Special Topics Class Presentations
Mar 8	Special Topics Class Presentations
***Mar 13	Special Topics Class Presentations
Mar 15	Special Topics Class Presentations

*Pre-Class Research Summaries Due

**Deadline to Choose Topic/Articles/*(partner)* for Class Presentations

***Take-home Exam Due