Time and location: Tuesday and Thursday 12:00 PM - 01:15 PM, Northwest B108
Instructors: Jeeyun Chung (jeeyunchung@fas.harvard.edu)
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Teaching fellow: Adam Strandberg (astrandberg@g.harvard.edu)
Office hours: Wednesday 11AM â€“ 12PM, Daniel Needleman (Northwest 469.20)
Friday 11AM â€“ 12:00 PM, Jeeyun Chung (Northwest 469.30)

Course objectives: This course is built upon and extends concepts introduced in LS1a and LS1b, exploring in depth the mechanisms by which cells compartmentalize specific functions into organelles and how their crosstalk shapes cellular metabolism and physiology. Additionally, the course will cover how dysregulation of organelle functions leads to the pathogenesis of various disorders and explore therapeutic strategies for modulating organelle regulation. It is designed to broadly attract students interested in careers in research and medical science.

Course structure: This course is structured by weekly in-depth lectures (Tuesdays) and discussions (Thursdays) on primary literature to promote an active learning experience.
- In-depth lecture Sessions: Engage in in-depth lectures that explore historical discoveries related to individual subcellular organelles, modern methodologies used to study organelles, and recent findings and controversies regarding organelles and their dysregulation.
- Primary Literature Discussion Sessions: Weekly discussions will cover 1-2 primary literature articles that have made key contributions to the discovery, functional annotation, and regulation of organelles. The goal of sessions is to familiarize students with reading and analyzing the primary literature and to provide a forum for students to share insights and debate hypotheses. Each student will be assigned a figure from the papers to present during the in-class discussion.Course structure: This course is structured by weekly in-depth lectures (Tuesdays) and discussions (Thursdays) on primary literature to promote an active learning experience.

Readings:
- The primary textbook for this course will be â€œCell Biology 4th editionâ€ by Tom Pollard (Elsevier).
- 1-2 primary literature articles per week, which will be discussed in class on Thursdays.
-â€œThe Song of the Cellâ€ by Siddhartha Mukherjee is additional recommend reading.

Assignments:
- Weekly reading report: Students will write weekly reports on the papers that will be discussed in the Thursday class. Write-ups will consist of four sections (up to 800 words): 1) the questions, 2) the findings, 3) the approaches, and 4) the interpretation and limitations of the study. The report is **due every Thursday at 12:00 PM** before the discussion begins. We encourage students to work together on the reports, but each student should submit their own written document.
- Final Project: Students will perform a final project that leverages knowledge gained throughout the course. In this project, they will find recent literature relevant to the themes of this course (i.e., a paper not discussed in class) and I) summarize the questions, findings, approaches, and interpretations/limitations; II) propose a follow-up question, along with approaches to address it. The project will consist of both **a written report** and **a short, in-class presentation**.
A written report (max 1500 words): Students will submit a project proposal, a draft, and final materials. Students will receive feedback from the instructor and their peers.
Final presentation (10 mins): presentations will be ten minutes long, with equal time devoted to summarizing the selected paper and describing proposed follow-up work.
Grades on the final project will be based on the clarity and persuasiveness of the final work (40%), the peer feedback they provide on other studentâ€™s projects (30%), and the extent of improvement/response to feedback provided by peers and instructors (30%).

Schedule At-A-Glance

Class	Day	Date	Topic	Note
1	Tue	Sep 3	Lecture: Course overview and definition of organelles	
2	Thu	Sep 5	Literature discussion	
3	Tue	Sep 10	Lecture: Nucleus	
4	Thu	Sep 12	Literature discussion	
5	Tue	Sep 17	Lecture: Endoplasmic Reticulum	
6	Thu	Sep 19	Literature discussion	
7	Tue	Sep 24	Lecture: Golgi and membrane trafficking	

8	Thu	Sep 26	Literature discussion	
9	Tue	Oct 1	Lecture: Lipid Droplet	
10	Thu	Oct 3	Literature discussion	
11	Tue	Oct 8	Lecture: Mitochondria	
12	Thu	Oct 10	Literature discussion	
13	Tue	Oct 15	Lecture: Peroxisome	
14	Thu	Oct 17	Literature discussion	
15	Tue	Oct 22	Lecture: Cytoskeleton	
16	Thu	Oct 24	Literature discussion	
17	Tue	Oct 29	Lecture: Lysosome	Submit a proposal
18	Thu	Oct 31	Literature discussion	
19	Tue	Nov 5	Lecture: Centrosome and Mitosis	Provide feedback
20	Thu	Nov 7	Literature discussion	
21	Tue	Nov 12	Lecture: Organelle crosstalk	
22	Thu	Nov 14	Literature discussion	Submit a draft
23	Tue	Nov 19	Draft discussion :group 1	
24	Thu	Nov 21	Draft discussion: group 2	
25	Tue	Nov 26	Final project presentations	Provide feedback
	Thu	Nov 28	Holiday (Thanksgiving)	
26	Tue	Dec 3	Final project presentations	
	Thu	Dec 12	Final written proposals due	

Grading:
- 40 % Weekly short reports (Thu discussion papers): There will be total 10 weekly reports, and we will use the 9 best reports for final grading.
- 20%: Class participation in discussions (20 points)
- 20%: Final presentation (20 points)
- 20% Final written report (20 points)

Course Logistics:
- Attendance Policy: Class attendance for the discussion session is required. If you are sick, email the instructors as soon as possible (at least 30 minutes prior to class), and they will arrange an alternative assignment for the discussion session. Failure to make arrangements in advance of class will result in no credit for the missed discussion session.