BMB/MMG/PSL 825
Spring 2023
Cell Structure and Function
TENTATIVE

Instructors

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Time:
Classes will be held from 1:00-2:20 p.m. Tuesday and Thursday throughout Spring Semester in Room 1420 BPS.

Office Hours:
Appointments will be scheduled as needed. Short questions can be answered by e-mail.

Readings:
Readings from the text and/or the current literature will be assigned by individual instructors. The recommended text is "Molecular Biology of the Cell", by Alberts et al., 6th Edition. You may want to purchase this book but it is not absolutely required.

Class participation:
Attendance/ participation is mandatory; missing more than three class periods results in a failing grade. This is an in-person class. However, for students in Grand Rapids or those feeling sick, you can use https://msu.zoom.us/j/98250983168; Passcode: BMB825; camera needs to be on.

Evaluation:
2 Exams (50%);
Term paper/proposal (30%);
Presentations and participation (20%);

Examination Times:
The examinations will be held at the following times. *Please mark these times on your calendar, as makeup exams will not be given except in MSU-approved emergencies.*

Exam 1	Tuesday, February 9 from 12:45 until 2:45pm in Room 1420 BPS Bldg. Note that we have scheduled extra time to allow students to have up to 2 hours.
Exam 2	Tuesday, April 5 from 12:45 until 2:45pm in Room 1420 BPS Bldg.
Presentations:	You will be expected to give a ten-minute presentation summarizing a publication assigned by the professor. This presentation is worth 15 points. There will be four presentation days of five presentations each. You will be expected to read the publications, provide one question/ comment per publication prior to the beginning of class (at least 3 questions per class day; less if you are presenting) and participate in the discussion. This participation is worth 1 point per question up to 15 points
Term Paper:	Topics for a potential term paper will be provided by each professor. **The paper must be delivered to the office of the appropriate professor by 4:00 p.m. on Thursday, April 14th** and must closely follow the guidelines provided in the syllabus**.** Points will be deducted if the paper is late. Instructions are attached.

Day	Date	Lecturer	Topic
T	Jan 10	SHB	The Diversity of Cells; Methods in cell biology
Th	Jan 12	SHB	Methods in cell biology
T	Jan 17	SHB	Lipids/The plasma membrane: How structure affects function
Th	Jan 19	SHB	The Endoplasmic Reticulum/ ER stress
T	Jan 24	SHB	The Secretory Pathway
Th	Jan 26	SHB	Signaling
T	Jan 31	SHB	Zoom lecture
Th	Feb 2	SHB	Zoom lecture
T	Feb 7	SHB	Mitochondria & Chloroplasts
Th	Feb 9	SHB	**Exam 1: 12:45-2:45, 1420 BPS**
T	Feb 14	RD	Cytoskeleton: Actin and Actin binding proteins
Th	Feb 16	RD	Cytoskeleton: Myosin and microtubules
T	Feb 21	RD	Cytoskeleton: Cell polarization and migration
Th	Feb 23	HS	Cell Adhesion: Cell-cell junctions
T	Feb 28	HS	Cell Adhesion: ECM
Th	Mar 2	HS	Cell Adhesion: Cell and ECM junctions
	Mar 6 - 10		**Spring Break**
T	Mar 14	RD/HS/	Presentations and discussion OR Lecture
Th	Mar 16	RD	Cancer: Critical pathways
T	Mar 21	RD	Cancer: Prevention and treatment
Th	Mar 23	HS	Developmental mechanisms and developmental timing
T	Mar 28	HS	Development: morphogenesis and growth
Th	Mar 30	RD/HS	Presentations and discussion OR Lecture
T	Apr 4	RD/HS	**Exam 2: 12:45-2:45, 1420 BPS**
Th	Apr 6	TBD	TBD – How to write a proposal; discussion of aims
T	Apr 11	TBD	Hasako Marada: Extracellular Vesicles
Th	Apr 13	TBD	TBD – Presentations and discussions (Four students)
T	Apr 18	TBD	TBD – Presentations and discussions (Four students)
Th	Apr 20	TBD	TBD – Presentations and discussions (Four students)
T	Apr 25	TBD	TBD – Presentations and discussions (Four students)
Th	Apr 27	TBD	TBD – Proposal due
Wed	May 4		**Proposal grading**

Instructions for the Preparation of a Term Paper

1. **Topic Selection:** Topics for the term papers will be provided by each instructor and you will be given a chance to select a topic of interest. Discuss your area of focus with the assigned instructor BEFORE beginning work. Provide the papers you have selected and an outline of your paper before beginning the writing process. You should contact the instructor **a month in advance** of the due date.

2. **Format:** The paper should be no more than 7-10 typewritten, double-spaced pages (excluding the references). The first page or two should be an introduction to the topic that assumes the reader has some knowledge of the material presented in class but not beyond. The middle 4-6 pages should focus on 3-4 experimental reports bearing directly on your specific topic. Figures (3-5) should be used to guide the reader. Unless there is an important exception, the papers cited should be from reputable journals from the 2006-2020 literature. For the most part, they should be original articles supported as needed by review articles. One aspect of this assignment may be to narrow the topic from that provided to focus on a specific subtopic. The last page or two of the paper is VERY important. It should be a summary or synthesis that reflects your assessment of the area presented in a mature, thoughtful manner. Discuss any controversies and be sure to provide your own ideas for future directions and experiments. **The summary and proposed future experiments MUST reflect the maturity of your thinking on this topic and will play a key role in the grade.**

3. Your reference list at the very end of the paper should include all the authors for each article, the title of the article, the volume and date of journal and all page numbers.

4. Plagiarism: Copying paragraphs or sentences from your cited or non-cited references constitutes plagiarism! Rephrasing sentences and paragraphs does not represent a scholarly effort. All writing must be your synthesis of the material presented in your own words. ***Any significant form of plagiarism will result in an automatic failing grade since it constitutes scientific misconduct.***

5. **The term paper is due in the appropriate professor's office by 4:00 p.m. Thursday, April 27.** Points will be deducted for papers turned in late. Papers can be turned in prior to this date.