

Survey of BMB Literature

BMB411 (Section 001)

Fall 2018

Autophagy

Monday 12:20 - 1:10 p.m.

005 Ferguson Bldg.

Instructor: Dr. Craig E. Cameron
Professor of Biochemistry & Molecular Biology
Office: 201 Althouse Laboratory
Telephone: 863-8705
E-mail: cec9@psu.edu
Office hours: By appointment

Course Description and Objectives

This course will serve as a capstone course by requiring the application of your knowledge of the fundamental principles of biochemistry and molecular biology to current problems and/or trends in our discipline. This goal will be achieved by reading, evaluating, presenting, and discussing the primary, scientific literature. A body of literature will be selected for review. In the past, topics have included: mitochondrial molecular biology, mitochondrial disease, and mitochondrial medicine. This year the topic is autophagy. Students in the course will have the opportunity to participate as learning assistants (LA) in my section of BMB 401. As an LA, you will serve as facilitators of discussion of four papers (one paper in each of four sessions over the course of the semester). Often graduate students and postdoctoral students with an interest in the topic discussed will sit in this course and contribute to the discussion, thus providing a unique networking and professional-development opportunity for undergraduate students. Only 20 students can be accommodated given the format used.

Schedule

1	Aug.	20	Autophagy: An Introduction
2		27	Structural Basis of Cargo Selection; BMB 401 Paper 1 (9/6)
.	Sep.	3	Labor Day (no class)
3		10	Mammalian Autophagy: How Does It Work?
4		17	Biological Membrane Fission Mechanisms
5		24	Membrane Dynamics by High-speed Atomic Force Microscopy
6	Oct.	1	Membrane Constriction; BMB 401 Paper 2 (10/4)
7		8	Protein-lipid Interactions
8		15	Protein Lipidation
9		22	Influence of Lipidation of Protein-membrane Interactions
10		29	Regulation of Atg8/LC3 Lipidation; BMB 401 Paper 3 (11/1)
11	Nov.	5	Autophagy in Aging and Disease
12		12	Therapeutic Targeting of Autophagy in Disease
.		19	Fall Break
13		26	Targeting Autophagy in Diabetes; BMB 401 Paper 4 (11/29)
14	Dec.	3	Reflections

Presentation and Discussion of the Literature

Each student will be responsible for presenting the paper(s) covering one of the topics scheduled above. The presentation should take 30 min and accurately and clearly summarize the assigned reading. Presentations should be prepared in power point. Power point presentations should be delivered to me no later than 5 p.m. on the Sunday preceding the presentation. Each student is encouraged to meet with me prior to their presentation to clarify any issues prior to presentation in class. The final grade on the presentation will reflect both instructor and peer evaluations.

During each presentation, at least one student will serve as discussion leader. This student should know the paper(s) that are being presented as thoroughly as the presenter for the day. The discussion leader should submit a list of questions to me no later than 5 p.m. on the Sunday preceding the discussion. The final grade for the discussion leader will reflect development of the questions for discussion, as well as the discussion leader's contribution to a lively discussion in class.

Grading

Grades will be based on class participation (25%), the in-class presentations (50%) and the in-class facilitation of the discussion (25%).

Academic Integrity

Academic dishonesty is not limited to simply cheating on an exam or assignment. The following is quoted directly from the "PSU Faculty Senate Policies for Students" regarding academic integrity and academic dishonesty: "Academic integrity is the pursuit of scholarly activity free from fraud and deception and is an educational objective of this institution. Academic dishonesty includes, but is not limited to, cheating, plagiarizing, fabricating of information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students." All University and Eberly College of Science policies regarding academic integrity/academic dishonesty apply to this course and the students enrolled in this course. Refer to the following URL for further details on the academic integrity policies of the Eberly College of Science:

<http://www.science.osu.edu/academic/Integrity/index.html>. Each student in this course is expected to work entirely on her/his own while taking any exam, to complete assignments on her/his own effort without the assistance of others unless directed otherwise by the instructor, and to abide by University and Eberly College of Science policies about academic integrity and academic dishonesty. Academic dishonesty can result in assignment of "F" by the course instructors or "XF" by Judicial Affairs as the final grade for the student.

The Eberly College of Science Code of Mutual Respect and Cooperation

<http://science.psu.edu/climate/support-and-resources/code-of-mutual-respect-and-cooperation/Code-of-Mutual-Respect%20final.pdf>) embodies the values that

we hope our faculty, staff, and students possess and will endorse to make The Eberly College of Science a place where every individual feels respected and valued, as well as challenged and rewarded.

The Eberly College of Science is committed to the academic success of students enrolled in the College's courses and undergraduate programs.

When in need of help, students can utilize various College and University wide resources for learning assistance.

(<http://www.science.psu.edu/advising/success>)

Penn State welcomes students with disabilities into the University's educational programs.

If you have a disability-related need for reasonable academic adjustments in this course, contact the Office for Student Disability Resources (SDR) at [814-863-1807](tel:814-863-1807) (V/TTY). For further information regarding SDR, please visit their website at <http://equity.psu.edu/student-disability-resources/>. In order to receive consideration for course accommodations, you must contact SDR and provide documentation (see the documentation guidelines at <http://equity.psu.edu/student-disability-resources/guidelines>). If the documentation supports the need for academic adjustments, SDR will provide a letter identifying appropriate academic adjustments. Please share this letter and discuss the adjustments with your instructor as early in the course as possible. You must contact SDR and request academic adjustment letters at the beginning of each semester.”

Many students at Penn State face personal challenges or have psychological needs that may interfere with their academic progress, social development, or emotional wellbeing. The university offers a variety of confidential services to help you through difficult times, including individual and group counseling, crisis intervention, consultations, online chats, and mental health screenings. These services are provided by staff who welcome all students and embrace a philosophy respectful of clients' cultural and religious backgrounds, and sensitive to differences in race, ability, gender identity and sexual orientation.

Counseling and Psychological Services at University Park (CAPS)

(<http://studentaffairs.psu.edu/counseling/>) : 814-863-0395

Penn State takes great pride to foster a diverse and inclusive environment for students, faculty, and staff.

Acts of intolerance, discrimination, or harassment due to age, ancestry, color, disability, gender, gender identity, national origin, race, religious belief, sexual orientation, or veteran status are not tolerated and can be reported through Educational Equity via the Report Bias webpage (<http://equity.psu.edu/reportbias/>).