

MCB 3895 – CELL BIOLOGY & GENETICS OF AGING Syllabus (Fall 2023)

Course Description

The molecular, cellular, and genetic bases of aging and age-associated diseases. Emphasis on the research literature and experimental approaches for studying the biology of aging.

Course and Instructor Information

Format:	In-person
Meeting Times:	Tu/Th 11:00a-12:15p
Meeting Location:	MCHU 111
Credits:	3
Prerequisites:	Cell Biology - MCB 2210 or MCB 2215 <i>(With Instructor's consent; 'B' or above recommended)</i>
Target Audience:	Advanced MCB or BIO students interested in pursuing research careers
Instructor:	Kenneth Campellone, PhD (kenneth.campellone@uconn.edu)
Teaching Assistant:	Nadine Lebek (nadine.lebek@uconn.edu)
Availability:	In-person or online by appointment (include MCB 3895 in email subject)

Course Materials

Required Book(s):

None

Required Materials (posted to HuskyCT by the instructor):

1. Review articles
2. YouTube video tutorials
3. Primary research papers

Technical Requirements

- Laptop computer or tablet
- Reliable access to high-speed internet
- HuskyCT/Blackboard online course platform
- Adobe Acrobat Reader
- WebEx video conferencing platform (if a class meeting is held online)

Course Format

Tuesdays: Q&A (~25min) + Quiz (~25min) + Review (~25min)
Thursdays: Participate in research paper discussions and presentations
Outside of Class: Read paper assignments + view video lectures/tutorials + study

Course Assessments and Grading

1. Quizzes (weekly)
Format: multiple choice, fill-in-the-blank, short answer
2. Exams (mid-semester, end-of-semester)
Format: short answer
3. Participation/Discussion (weekly)
Format: asking and answering questions, presenting figures
4. *Optional: Writing Assignments (for Honors or Graduate students)*

Expected Basis for Course Grading:

Quizzes (10) = 50%
Exams (2) = 40%
Participation (weekly) = 10%

Weekly Time Commitment:

Expect to dedicate 6-9 hours per week to this course *outside of the classroom*. This expectation is based on the course reading assignments, viewing assignments, and UConn's credit hour policy: policy.uconn.edu/2012/08/22/credit-hour/.

Estimated Grading Scale

Numerical	Letter
94-100	A
90-93.9	A –
87-89.9	B +
84-86.9	B
80-83.9	B –
77-79.9	C +
74-76.9	C
70-73.9	C –
67-69.9	D
<67	F

Assignment due dates and late policy: The submission dates and times for your quizzes, exams, and other assessments will be listed in advance. If justified, some flexibility will be allowed for missed quizzes/exams/assignments or for assessments turned in after the designated deadline. However, some late work may also be subjected to grade deductions. The instructor reserves the option to change due dates if necessary as the semester progresses.

Course Objectives

Students in this course will:

- Advance their understanding of the molecular, cellular, and genetic bases of aging
- Acquire experience reading research review articles
- Gain familiarity with modern experimental approaches and techniques
- Develop their skills in critically evaluating the primary research literature
- Improve their scientific communication abilities
- Become better prepared for a potential career in research

Course Outline

1. Introduction to the 'Hallmarks of Aging' and Geroscience
 2. Tutorials on key Molecular, Cellular, Genetic, and Biochemical concepts and techniques
 3. Organismal Models and Diseases of Aging
 4. Genetic Mutations and Nuclear Organization
 5. Telomeres and Epigenetic Remodeling
 6. Nutrient Sensing and Metabolic Signaling
 7. → Exam Oct.12
 8. Inflammation and Infection
 9. Mitochondria and Lysosomes
 10. Senescence and Apoptosis
 11. Proteostasis and Autophagy
 12. Stem Cells and Regeneration
 13. Behavioral and Pharmacological Extension of Healthspan/Lifespan (The Fountain of Youth)
 14. → Exam Dec.7
- Final Exam: NONE

Students with Disabilities

UConn is committed to protecting the rights of individuals with disabilities and assuring that the learning environment is accessible. If you anticipate or experience physical or academic barriers based on disability or pregnancy, please inform the instructor so that options can be discussed. Students who require accommodations should contact the Center for Students with Disabilities, Wilbur Cross Building Room 204, (860) 486-2020, csd.uconn.edu.

Student Health Resources

UConn is committed to supporting students in their mental health, their psychological and social well-being, and their connection to their academic experience and overall wellness. The

university believes that academic, personal, and professional development can flourish only when each member of our community is assured equitable access to mental health services. The university aims to make access to mental health attainable while fostering a community reflecting equity and diversity, and understands that good mental health may lead to personal and professional growth, greater self-awareness, increased social engagement, enhanced academic success, and campus and community involvement. Students who want to speak with a mental health professional can find support and resources at the Student Health and Wellness-Mental Health (SHaW-MH) office. Through SHaW-MH, students can make an appointment with a mental health professional and engage in confidential conversations or seek recommendations or referrals for any mental health or psychological concern. Even if you do not have UConn's student health insurance, most major insurance plans are accepted.

Students can contact the Student Health and Wellness-Mental Health office in Storrs on the 4th Floor of the Arjona Building, (860) 486-4705, studenthealth.uconn.edu.

Student Responsibilities and Misconduct

As a member of the UConn student community, you are held to certain standards and academic policies. Review these important UConn community standards at community.uconn.edu, which include information about The Student Code, Student Behavior, and Academic Integrity.

Misconduct: Academic misconduct in any form is in violation of the UConn Student Code and will not be tolerated. This includes copying or sharing answers on assignments, having someone else do your work, and plagiarism. If submitted work is deemed to be in violation of this policy, that assignment will be given a grade of zero points. Subsequent violations will be dealt with according to the guidelines given in The Student Code. Depending on the act, a student could receive an F grade on the assignment, an F for the course, or be suspended.

Plagiarism: It is never appropriate to copy anything written or created by someone else (including from other students, published materials, or internet resources). Do not use chatbots to write things for you. The work that you turn in must be your own. If evidence of plagiarism is found on any assignment, that assignment will receive a grade of zero points.

The up-to-date policy on Academic, Scholarly, and Professional Integrity and Misconduct (ASPIM) can be found here: <https://policy.uconn.edu/2023/07/11/academic-scholarly-and-professional-integrity-and-misconduct-aspim-policy-on/>

Evaluation of the Course

Students will be provided an opportunity to evaluate instruction in this course using the University's standard procedures, which are administered by the Office of Institutional Research and Effectiveness (OIRE).