

 FLORIDA ATLANTIC UNIVERSITY	NEW COURSE PROPOSAL Graduate Programs		UGPC Approval _____ UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner _____ Catalog _____	
	Department College (To obtain a course number, contact erudolph@fau.edu)			
Prefix PCB Number 6817	(L = Lab Course; C = Combined Lecture/Lab; add if appropriate) Lab Code	Type of Course	Course Title Molecular Mechanism of Aging and Age-Related Diseases	
Credits (Review Provost Memorandum) Effective Date (TERM & YEAR)	Grading (Select One Option) Regular Sat/UnSat	Course Description (Syllabus must be attached; see Guidelines)		
Prerequisites <i>Prerequisites, Corequisites and Registration Controls are enforced for all sections of course.</i>		Academic Service Learning (ASL) course Academic Service Learning statement must be indicated in syllabus and approval attached to this form.		
		Corequisites	Registration Controls (For example, Major, College, Level)	
Minimum qualifications needed to teach course: Member of the FAU graduate faculty and has a terminal degree in the subject area (or a closely related field.)		List textbook information in syllabus or here		
Faculty Contact/Email/Phone		List/Attach comments from departments affected by new course		

Approved by Department Chair _____ <i>Jane D. Robinson</i> College Curriculum Chair _____ <i>Marc Kantorow</i> College Dean _____ <i>[Signature]</i> UGPC Chair _____ UGC Chair _____ Graduate College Dean _____ UFS President _____ Provost _____	Date 1/19/2022 1/10/2022 1/20/2022 _____ _____ _____ _____ _____
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Email this form and syllabus to UGPC@fau.edu 10 days before the UGPC meeting.

PCB 6817 Molecular Mechanism of Aging and Age-Related Diseases

TBD-day 4:00-6:50 pm
3 credits

Fall/Spring/Summer 2022-23

Prof. Michael Lu

Office: BC71, Rm329

Office hours: TBD

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Course Catalog Description

Molecular Mechanism of Aging and Age-Related Diseases is designed to provide students contemporary knowledge of current concepts in aging and age-related diseases. The course will explore the molecular and cellular mechanisms underlying the aging process with an emphasis on aging mechanisms. Hallmarks of aging in multiple organisms will be emphasized with special emphasis on human aging.

More Course Information: Topics include but are not limited to: genomic instability, intercellular communication, telomere attrition, epigenetics, proteostasis, nutrient sensing, mitochondrial dysfunction, cellular senescence and stem cell exhaustion, age-related diseases and experimental senotherapeutics. Particular emphasis will be given to understanding of cellular and molecular aspects of cellular senescence in relation to multiple mechanisms of age-related diseases.

Instructional Method

Lectures will be accompanied by in class student-focused discussions. Lectures will be delivered in specific topic categories with contemporary applications in aging control. Students will participate in class presentations based on assigned journal article(s), reviews and research papers that supplement subject topics. The success of this class is dependent upon student participation in the discussions. To facilitate this participation, students are required to submit by email of PowerPoint (ppt) content of their assigned paper due one day (24 hr) before the presentation date. These presentations may be about technical aspects or general concept discussed in the paper. The main goal of this exercise is to familiarize students with reading and analyzing scientific literature in the biology of aging and to learn to evaluate data and methodology.

COVID-19 Statement

All students in face-to-face classes are required to wear masks during class, and students must sanitize their own workstations upon entering the classroom. Taking these measures supports the safety and protection of the FAU community. Students who do not adhere to these rules will be asked to leave the classroom and/or be removed from the course. Students experiencing flu-like symptoms (fever, cough, shortness of breath), or students who have come in contact with an infected person should immediately contact FAU Student Health Services (561-297-3512).

Course Objectives/Student Learning Outcomes

The aim of the course is to educate the students on the current advances in the field of aging biology. The goal is to promote students' proficiency in knowledge of evolving concepts and changing dogmas of modern aging research.

Texts/Readings:

Textbooks: Not required.

Main Reference Recommended:

Biology of Aging. Roger B. McDonald, by Garland Science; ISBN-13: 978-0815342137

Class Reading:

Original research and review Journal articles will be distributed by Instructor.

Course Schedule and Topics (Fall/Spring/Summer 2022-23):

Meet once weekly

1. Basic Concepts in the Biology of aging
Introduction to Hallmarks of Aging
2. Cell Biology Basic: Cell Structure (Cell/Cell membrane, organelles, nucleus, cytoskeleton), Growth Regulation (Cell cycle and division)
3. Function/Signal Transduction, Energy and Metabolism
4. Integrative Genomics, Genomic Instability, Epigenetic Alteration
5. Cellular senescence, Stem cell exhaustion
6. Telomeres and Telomerase, Telomere Attrition
7. Mitochondrial Dysfunction, Altered intracellular Communication
9. Loss of Proteostasis, Deregulated Nutrient Sensing
10. Microbiome Changes in Aging; Lipidomics of Aging
11. The aging immune system: Dysregulation, Compensatory Mechanisms, and Prospects for Intervention
12. Aging of the Neuro/Sensory Systems, Cardiac System and Muscular System
13. Senotherapeutics, Experimental Therapy of Cellular Senescence, Senomorphics and Sennolytics

14. Contemporary Practices in Modulating Aging Process. Aging Delay, Anti-Aging Rejuvenation (Reverse Aging)

Course Evaluation Method and Course Grading Scale

Students will be graded on attendance, classroom discussions/presentation assignment (graduate students only) and two written exams at mid-term and the end of term covering the lectures topics and reading assignments. Make up exams will only be allowed with prior consent by the Instructor. Each unexcused class absence will result in a 2 point deduction from FINAL GRADES with a maximum 5 points.

Different evaluation method for undergraduates compared to graduates: For undergraduate students, the Class Presentation is not needed. Undergraduate students will be evaluated with different weighted grade points (listed below) on the basis of participation, midterm exam and final exam.

Grading criteria:

Standard letter grading (A,B,C,D and F)

Final grades will be assigned based on the following criteria (Dependent upon enrollment, the percent weight subjected to change):

Attendance and participation: 5% (all students)

Presentation 20%: Graduates only (Undergrads Exempted)

Midterm exam (written test): 40% (Graduates), 50% (Undergrads).

Final exam (written test): 35% (Graduates), 45% (Undergrads)

Scale:

94 - 100% = A

90 - 93% = A-

87 - 89% = B+

84 - 86% = B

80 - 83% = B-

77 - 79% = C+

74 - 76% = C

70 - 73% = C-

67 - 69% = D+

64 - 66% = D

60 - 63% = D-

< 60% = F

Policy on Makeup Tests, Late Work, and Incompletes

Students will not be penalized for absences due to participation in University-approved activities, including athletic or scholastics teams, musical and theatrical performances, and debate activities. Instructors will allow these students to make up missed work without any reduction in the student's final course grade, *given that the instructors are informed ahead of the absence or anticipated late work*. Reasonable accommodation will also be made for students participating in a religious observance. Also, note that grades of Incomplete ("I") are reserved for students who are passing a course but have not completed all the required work because of exceptional

circumstances. Make up exam only allowed with prior consent by the Instructor. Instructor reserves the right to impose penalties to late work or assignment.

Attendance Policy

Students are expected to attend all scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance. Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations or participation in University-approved activities. Examples of University-approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances, and debate activities. It is the student's responsibility to give the instructor notice *prior to any anticipated absences and within a reasonable amount of time after an unanticipated absence*, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work missed without any reduction in the student's final course grade as a direct result of such absence.

Counseling and Psychological Services (CAPS) Center

Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to <http://www.fau.edu/counseling/>

Disability Policy

In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses – Boca Raton, Davie and Jupiter – however disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edu/sas/.

Code of Academic Integrity

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see [University Regulation 4.001](#).

