Anti-aging Interventions
Course Syllabus

Course Number: GMS 6487

Credit Hours: Three (3) credit hours

Course Format: This online course is tailored for distance learners in an asynchronous format.

Course Description:
Aging is a complex process determined by both genetic and environmental factors. By manipulating these aging-related factors, researchers have been able to extend lifespan and healthspan in lab animals. This course is mainly focused on the current and emerging interventions to promote human lifespan and healthspan. In this course, learners will learn both general knowledge and mechanistic insights into these anti-aging interventions. Many novel, emerging, and sometimes controversial techniques and interventions will be discussed in this course, such as Parabiosis or "Young Blood" Transfusions, The Aging Microbiome, Stem Cell Rejuvenation, Senescence Cell Clearance, Gene Therapy, Biotechnology Development, and Virtual Reality And Environmental Enrichment.

Course Director: Rui Xiao, PhD
Assistant Professor
Department of Aging and Geriatric Research
Email: rxiao@ufl.edu
Phone: 352-273-9389

Schedule: This course will be offered yearly during each semester.

Course Goals:
The goals of the course are to: (1) understand the concept of lifespan modulation by both intrinsic and extrinsic factors; (2) appreciate important environmental factors involved in human aging; and (3) promote critical thinking of clinical implications of environmental interventions for age-associated conditions

Learning Outcomes:
Upon completion of this course, students will be able to:
1. Understand the interactions between genetic factors and environmental factors involved in aging.
2. Gain a general understanding on how the environment cues are senses and translated to longevity outcome.
3. Evaluate the potential implication of environmental interventions in geriatrics.

Learning Resources:
1. Topic articles will be placed on the course website. The information in these articles is coordinated with online lecture materials and serves as the required text for the course.
2. Weekly discussion questions will stimulate critical thinking about issues relevant for that

week's topic.
3. An on-line discussion will be available every week to address questions related to the lectures or other learning material.

Course Outline and Assignments:
The course is divided into 3 overall categories. Each module consists of specific reading assignments, videos and other internet resources. For each module students will: (1) review the learning objectives and corresponding lecture notes; (2) read and complete the assignments as given; (3) participate in weekly discussion boards as assigned.

Discussion Board
Students will be expected to participate in discussion boards. These discussion boards will be used for addressing questions related to the weekly lecture as well as addressing selected student discussion questions. This discussion board will have an ongoing format, where students may post questions or comments at a convenient time during the week. The course director or instructor for each class session will monitor the discussion board and respond to questions or comments as necessary. Students will be expected to make at least two significant, thoughtful comments for each discussion board.

Projects
With the completion of each module, student will be required to complete a project. Each project is a bit different, however, the idea is to create content so that the student may use this module projects to help construct the larger final project.
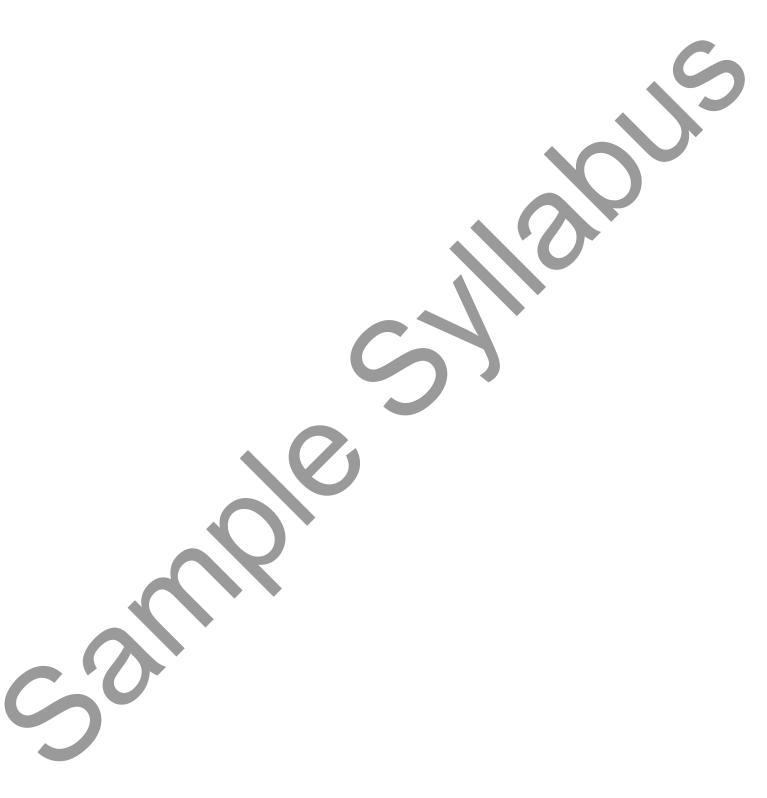
Grading
Each student's final grade for the course will be calculated as follows:
- Module Projects: 50%. These projects will be graded according to a rubric defined each week. This may include short papers, presentations and reflections in response to a writing prompt. Each module project is worth 10 to 25 points and is graded on application of the module content to the specific prompt and media used.
- Discussions/Online forums: 25%.
- Final project: 25%. Based on all of the anti-aging interventions discussed in the course, what is your current favorite intervention and intervention with the biggest potential based on healthy aging? Why? Prepare a powerpoint video presentation with at least 30 slides. Please discuss both advantages and challenges.
    - Total number of points = 100
    - 10 points for having enough slides
    - 70 points for presenting your slides
    - 20 points for commenting your 2 colleagues' slides.
-

Grading Scale

A = 93-100%	C+ = 77-79%
A- = 90-92%	C = 73-76%
B+ = 87-89%	C- = 70-72%
B = 83-86%	D+ = 67-69%
B- = 80-82%<	D = 63-66%
	D- = 59-62%

E < 59%

An grade of incomplete (I) may be given if a student fails to complete the course as scheduled for unforeseen circumstances beyond the student's control.

Course Schedule:

Schedule	Module
Week 1	Overview of aging-related environmental factors
Week 2	Experimental models for laboratory aging research
Week 3	Dietary intervention for anti-aging: dietary restriction
Week 4	Dietary intervention for anti-aging: gut microbiome
Week 5	Exercise and Aging
Week 6	Social interaction for anti-aging
Week 7	Anti-aging Compound and their Mechanisms of Actions.
Week 8	Hypothermia therapy and anti-aging
Week 9	Environmental enrichment and anti-aging
Week 10	"Young Blood" Transfusion and anti-aging
Week 11	Clearing senescent cells for anti-aging
Week 12	Anti-aging gene therapy: advances and challenges
Week 13	Stem cell and anti-aging
Week 14	Modern biotechnology for potential anti-aging Intervention
Week 15	Final Project

Academic Integrity:
Please review the University's complete policy regarding academic dishonesty, found online in the student handbook: http://www.dso.ufl.edu/judicial/pdffiles/handbook2003.pdf

Students are expected to abide by the University's Academic Honesty Policy, and to adhere to the following pledge:

"We, the member of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."

On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied:

"On my honor, I have neither given nor received unauthorized aid in doing this assignment."

According to the UF Student Guide, Academic dishonesty includes the following.

Cheating - copying another's work for academic
gain. Plagiarism - representing another's work as
your own.
Bribery - offering, giving, soliciting, or receiving goods or services of value for academic gain.
Misrepresentation - altering facts (e.g., signing an absent classmate's name to an attendance sheet).

Conspiracy - planning with others to commit academic dishonesty.
Fabrication - making up information to avoid punishment or other difficulty.

Copyright Information:
Please also review the policy for the use of copyrighted materials, which can be found on the Health Science Center Library's web page:
http://www.library.health.ufl.edu/services/copyright.htm

Accommodation Policy:
Students requesting classroom accommodation must first register with the Dean of Students' office, 202 Peabody Hall, 392-1261. The DSO will provide documentation to the student who must then provide this documentation to the instructor.

Student Support Services
As a student in a distance learning course or program you have access to the same student support services that on campus students have. For course content questions contact your instructor. For any technical issues you encounter with your course please contact the UF computing Help Desk at 352-392-4357. For Help Desk hours visit:
http://helpdesk.ufl.edu/. For a list of additional student support services links and information please visit: http://www.distance.ufl.edu/student-services

Special Accommodations
Students requesting disability-related academic accommodations must first register with the Disability Resource Center. http://www.dso.ufl.edu/drc/
The Disability Resource Center will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

Complaints
Should you have any complaints with your experience in this course please visit
http://www.distance.ufl.edu/student-complaints to submit a complaint.