

Biodemography of Aging – GERO/BISC 440

Syllabus - 2013 Spring Semester

1. Basic Information

Course: Biodemography of Aging – GERO/BISC 440
Place and time: GERO 230, Monday 2-4:50pm
Faculty: Dr. Sean P. Curran
Assistant Professor, Gerontology
Assistant Professor, Molecular and Computational Biology
Office: GERO 306E
Telephone: 213-740-5354
Email: spcurran@usc.edu
Office Hours: Monday 3pm
Prerequisites: none
Class web page: <https://blackboard.usc.edu>
Units: 4

2. Classroom policy

This course will discuss current research in the field of healthy aging, the biology of age-related disease and longevity. The material will be discussed in both lecture and student presentations. As such attendance is mandatory. All electronic communication devices (phones, blackberries, and similar) must be turned off, and no instant messenger/chat type programs are allowed in class.

Statement for Students with Disabilities

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

Statement on Academic Integrity

USC seeks to maintain an optimal learning environment. General principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles. Scampus, the Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A:
<http://www.usc.edu/dept/publications/SCAMPUS/gov/>. Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review,

should there be any suspicion of academic dishonesty. The Review process can be found at: <http://www.usc.edu/student-affairs/SJACS/>.

3. Course goals and learning objectives

The main goal of this course is to introduce students to the concepts of molecular and genetic regulation of healthy aging, lifespan, and age-related diseases.

The only pre-requisite for this course is scientific curiosity. Students are not expected to know anything specific about molecular biology or genetics. This class is not meant to teach advanced molecular biology or genetics (such classes are already in existence). The emphasis in this course is on practical implementation of scientific concepts.

Specifically, we will learn:

- Why the study of lifespan is important and societal views on the biology of aging and age-related diseases
- How genes that modulate lifespan have been identified using model systems.
- Which biological pathways most potently influence lifespan and discuss the molecular mechanisms underlying this regulation.
- Implications of current research on future studies of human lifespan and age-related diseases.
- Most importantly, this class will provide students the means to break down a scientific hypothesis into its fundamental elements and critically analyze the validity of current theories and dogmas in the field.

4. Course plan

January 14th

Class structure and evaluation, Course Objectives

- Why the study of aging is important to your future
- Introduction to the study of aging and age-related disease
 - Human life expectancy
 - Demography of aging

January 21th

MLK Day –NO CLASS

January 28rd

Review of Basic Molecular Biology and Genetic concepts
Movie #1

February 4th

Paper #1 Due
Telomeres, DNA Damage, Hayflick limit, cancer

February 11th

Stemcells, protein turnover, proteasome
Movie #2

February 18th

Paper #2 Due
Presidents Day – NO CLASS

February 25th

Midterm

March 4th

Dietary Restriction, Nutrition, and nutrient signaling pathways

March 11th

Movie #3

March 18th

Spring Recess – NO CLASS

March 25th

Paper #3 Due
Mitochondria, energy, ROS

April 1

Movie #4

Development growth, reproduction

April 8th

Paper #4 Due

Progeria, Aging and disease

April 15rd

Aging Theories

Preparation for student presentations

April 22nd

Student Presentations on scientific papers - Part I

April 29th

Model systems versus humans, Aging Theories revisited, implications for longevity, disease, how does it relate to humans? What does it all mean?

(If needed) Student Presentations on scientific papers - Part II

Final Exam

Monday May 6th - Exam will be posted on Blackboard

Take home due on the scheduled Final Exam Day

Monday May 13th – Final Exam Due!!! Must be uploaded onto Blackboard before 4pm. NO EXCEPTIONS!!!

5. Assessment

Grades are based on five scores: 1) Participation. 2) There will be four multimedia presentations that relate to the scientific material presented. Students will write a one-page summary relating the course material to the presentation. 3) midterm exam. 4) group presentation consisting of a 30 minute talk including slides where the students describe and lead a discussion of a current research paper in the field and provide a written summary of that paper 5) final exam.

Assessment Procedure	Percent
Participation (100 points)	20%
Written Summaries (25 points each, 100 points total)	20%
Midterm Exam (100 points)	20%
Group Presentation of assigned paper (50 points presentation, 50 points written summary)	20%
Final Exam (100 points)	20%
Total = 500 points	100%

5.1. Criteria for grading: The midterm and final will be open book exams with short answer responses. The final presentation will be graded according to clarity of the presentation.

Students who are not able to meet deadlines due to medical or other emergency must notify the instructor immediately.

5.2. Course grade: The course is not curved. Letter grades will follow a straight scale: 90% and above leading to A, 80-90% leading to B, etc. Pluses and minuses are assigned by dividing each range in corresponding halves (A, A-) or thirds (B+, B, B-, C+, ...).

6. Policy against Cheating

We follow a zero tolerance policy: any student engaging in cheating will fail the course. All USC students are responsible for reading and following the Student Conduct Code, which appears in the Scampus and at <http://www.usc.edu/dept/publications/SCAMPUS/goverance>.

This policy does not apply to discussion or exchange of ideas. On the contrary, such interactions represent an important way to thoroughly understanding complex questions in molecular genetics.

Students must write their own papers. All written assignments will be turned in through blackboard and analyzed for plagiarism.

7. Disability Policy Statement:

Any Student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. The phone number for DSP is (213) 740-0776.

8. Resources

8.1. Web page: A class website will be setup on Blackboard containing information about the course: syllabus, laboratory handouts, grades, miscellaneous information about weekly class activities, and an email directory of all people in the class. Use it as much as you find it useful. The web page can be accessed through the main stem <https://Blackboard.usc.edu>.

8.2 Office Hours: Office hours will be held weekly. Time and location for my office hours are at the beginning of the syllabus. I am always available by email to help you as much as you need.