Course: Biomedical Sciences 4330, Biological Basis of Aging, Graduate Credit
Tuesdays and Thursdays: 2:30-3:45 pm; CI 106

Faculty: Suzzette F. Chopin, Ph.D., M.B.A.
CS 130D; 825-6022
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Course Description:
This course is an examination of one phase of the developmental process--the aging organism. Although the course focuses on human aging, perspectives of aging in other organisms are reviewed. Topics included in the course are: demographics of human aging; research methodologies and measurements; development of age-related diseases; theories of aging; and anti-aging interventions.

Supplies:
Notes, journal articles and PowerPoint slides printed from the course website
Binder for notes and handouts

Student Outcomes: At the conclusion of the course, the student will be able to:
1. Discuss the factors that have contributed to increased life expectancy;
2. Identify model systems used to study aging;
3. Compare aging in humans to aging in other organisms;
4. Explain the physiological effects of aging in humans;
5. Describe the relationship between aging and disease;
6. Distinguish among, evaluate and synthesize theories of aging;
7. Understand strategies that promote healthy aging;
8. Evaluate current methods to retard aging;
9. Improve critical thinking skills by reading and evaluating scientific articles; and
10. Improve presentation skills.

Subscribe to the course email listserv by:
Send an email message to:
zoology-list-request@sci.tamucc.edu
In the subject heading, type subscribe
In a few minutes, you will receive a message if you subscribed successfully.

Grading: Your course grade is calculated on 535 points: 300 test points, 100 in class exercise points, 100 journal summaries points and 35 points for PowerPoint Presentation:
Four intraterm tests 300
The lowest of these four grades is dropped
An exam may contain questions in the following formats: multiple choice; true/false; matching; fill in the blank; short answer questions; and essay questions. Journal articles, handouts, videos and presentations are included on the test.

**THERE ARE NO MAKE-UP EXAMS. IF YOU MISS AN EXAM, THAT IS THE GRADE THAT IS DROPPED.**

**In class exercises**  
There are four in class exercises, each worth 25 points.

**Journal Summaries**  
You will submit a one-page summary of a journal article each Thursday, beginning September 7. The articles will focus on anti-aging interventions. Your last article is due on Thursday, November 9. The summaries must be computer-generated with one-inch margins and a point no larger than 12. The journal article must be attached to each summary. These journal articles will form the basis of your PowerPoint Presentation on Anti-aging Interventions.

**PowerPoint Presentation**  
You will deliver a 40-minute Powerpoint presentation to the class on Tuesday November 14. The presentation will be on Anti-aging Interventions and should cover both historical and current interventions. You should provide a copy of the slides to the class and submit to me 10 multiple-choice questions to use on the test.

**Bonus points:** Extra points earned by doing activities during class. Bonus point activities will not be announced before the class.

**Computation:**

\[
\begin{align*}
535 - 477 &= A \\
476 - 423 &= B \\
422 - 370 &= C \\
369 - 316 &= D \\
315 - 0 &= F
\end{align*}
\]

**Class Standards:**

The student is expected to attend each class. If you are absent, you are responsible for obtaining missed information from a classmate. Missed information includes not only missed lecture notes, but also any possible information regarding syllabus changes. If you are absent when handouts are distributed, you can pick up a copy from the plastic holder outside CS 130D.

The student has several opportunities to demonstrate competency in the course. Assessment and computation are performed by the instructor according to objective criteria. If a student experiences difficulty in the course, the instructor is available for consultation. However, it is the responsibility of the student to seek help, preferably when the investment made by the student can still be salvaged.

Academic integrity is expected. Cheating is not acceptable behavior and the student is not to give or receive help during testing. All students are expected to conform to University standards of ethics, academic integrity, grammar and spelling; review the 2006-2007 A&M-CC catalog for more information.
References:
AGENDA

August

R 24  Course Introduction
Tonight: Print out notes, articles and PowerPoint from website
Buy Aging with Grace

T 29  Course Overview
Definitions and measurement of aging
Article: Baltimore Longitudinal Study of Aging (BLSA)
What is aging?

R 31  Definitions and measurement: continued
Bring PowerPoint slides from website
Lifespan vs. life expectancy
Causes of death
Video: The Aging Process 19 min

For Tuesday: Go to http://www.livingto100.com/
Calculate your life expectancy. Print out your results. Then, go back and enter your info again, changing your answers to improve your life expectancy. Print out your results. Bring your results to class and be ready to discuss them.

September

T 5  Definitions and measurement: continued
Factors leading to increased life expectancy
Physiological correlates of aging
Video: Geriatric Medicine: Innovations and Applications 26 min

R 7  Definitions and measurement: continued
Methods to study aging

T 12  Definitions and measurement: continued
In class exercise: BLSA You can use the article and your notes of it

R 14  Aging in Humans and Other Organisms
Articles: Some Animals Age, Some Do Not and Abuse and Neglect of Elderly
Are cells immortal?: Carrel and Hayflick
Reproductive capacity

T 19  Test 1: Definitions and measurement, handouts, article, video

R 21  Aging in Humans and Other Organisms: continued
Aging in other organisms

T 26  Aging in Humans and Other Organisms: continued
Aging in humans
In class exercise: Some Animals Age, Some Do Not

R 28  Aging in Humans and Other Organisms: continued
Systemic changes: Integumentary and musculoskeletal systems

October

T 3  Aging in Humans and Other Organisms: continued
Systemic changes: cardiovascular and pulmonary systems

R 5  Aging in Humans and Other Organisms: continued
Systemic changes: gastrointestinal and renal systems

F 6  **Sigma Xi Distinguished Lecture** 5:30 PM UC Ballroom: Virginia Huxley, Ph.D., Director, National Center for Gender Physiology, University of Missouri-Columbia:  *Gender Physiology in Medicine*

T 10  Aging in Humans and Other Organisms: continued

  Systemic changes: immune and nervous systems

  **In class exercise:** Abuse and neglect of the elderly  You can use the article and your notes of it

R 12  Aging in Humans and Other Organisms: continued

  **Video:** The Alzheimer’s Mystery 48 min

T 17  **Test 2:** Aging in Humans and Other Organisms, handouts, video, articles

R 19  Theories of Aging

  General observations and ApoE

T 24  Theories of Aging: continued  Bring PowerPoint slides from website

  Progeria and Werner’s Syndrome

  Problematic theories

R 26  Theories of Aging: continued

  Theories with interesting perspectives

T 31  Theories of Aging: continued

  **Video:** Old Before Their Time 45 min

**November**

R 2  **Test 3:** Aging with Grace – bring your book to class

T 7  Theories of Aging: continued

  Cross-linkage, free radical theories

R 9  Theories of Aging: continued  Combining theories

T 14  Ray Jones: Graduate Student Presentation: Anti-aging Interventions

R 16  Rachell Oliver-Williams Presentation: Health Disparities

T 21  Anti-aging Strategies

  Wacky, wild, possible

  **In class exercise:** Is There An Anti-aging Medicine  You can use the article and your notes of it

R 23  Thanksgiving

T 28  Jack Ghably, Jasmine Maldonado and Justin Villareal Honors Student Presentations: Healthy Aging

R 30  **Test 3:** Theories of Aging and Anti-aging Strategies, handouts, guest speakers, videos, in class exercises

**December**

T 5  Wrap-up