

KINGSBOROUGH COMMUNITY COLLEGE
CITY UNIVERSITY OF NEW YORK

DEPARTMENT OF BIOLOGICAL SCIENCES

THE BIOLOGY OF AGING
BIO 3900

Instructor: C.T.Naanos
Monday and Thursday from 7:40am – 9:08am

e-mail: cnaanos@schools.nyc.gov
room 306

COURSE SYLLABUS

COURSE DESCRIPTION: BIO 3900 – THE BIOLOGY OF AGING 3 credits 3 hours

Biological aspects of the aging process, including: definitions, characteristics and biological theories of aging, recent biological research, effects of disease and prescription drugs; determination of each student's aging profile, factors which modify the rate of the aging process, including nutrition and exercise. This course does not satisfy the Biology major elective requirement.

Flexible Core: Scientific World (Group E)

Pre/Co-Requisites: none

STUDENT LEARNING OBJECTIVES

Upon completion of the course student should be able to:

1. Define biological aging, and how biogerontologists study aging.
2. Determine the advantages and disadvantages of using isolated cell systems, and laboratory organisms to study aging and longevity.
3. Examine the cell cycle and how it is regulated within the human body.
4. Examine the original research findings of Hayflick and Moorhead.
5. Compare and contrast the causes of cellular aging.
6. Analyze field work that describes how and why we age.
7. Evaluate the changes that occur when in the skin, in our five senses, in the digestive system, in the urinary system, in the immune system, and in the reproductive system, as humans age
8. List and describe the types of age-related disease in humans.
9. Explain how the media (TV, newspapers, magazines) influences how we view the aged.
10. Assess current studies that modulate aging and longevity.

TEXTBOOK (*will be provided*)

The Clock of Ages (1996) by John J. Medina.

Cambridge University Press, United Kingdom

GRADES

Examinations	50%
Journal Report	10%
Advertisement Report	10%
Movie Report	10%
Final Examination	20%

Civility Statement

□□As an institution of higher education, Kingsborough Community College and its faculty and staff are committed to its entire student body. As such, we strive to interact with each student equitably and professionally while providing an environment of mutual respect and civility.

□□In the event a student has an allegation charge brought against him/her that is a breach of the Henderson Rules to Maintain Public Order or the Campus Code of Conduct, an immediate investigation will commence followed by a conciliation conference to determine the appropriate outcome within a thirty day period.

□□The Judicial Affairs process at Kingsborough Community College is critical in providing an agenda for safety, yet simultaneously offering protection of the rights of students who may have been accused of being in violation of the Henderson Rules to Maintain Public Order and/or the Campus Code of Conduct. These rights have been afforded to each Kingsborough student under the bylaws that were established in 1969.

Academic Integrity Policy

□□To reach academic success, one needs to uphold the 5 core values of honesty, trust, fairness, respect and responsibility. Failure to do so may result in charges of academic dishonesty. Academic dishonesty is prohibited by CUNY and Kingsborough Community College and is punishable by penalties, including failing grades, suspension, and expulsion. Examples of academic dishonesty include, but are not limited to, cheating, plagiarism, internet plagiarism, obtaining unfair advantages, and falsification of records.

□□Plagiarism is the intentional use of another's intellectual creations without attribution (giving credit to the author). This is theft of materials from another author, and is prohibited. Determination and penalty- ranging from grade reduction to course failure - is at the discretion of individual faculty members.

Attendance Policies

□□Attendance will be taken at the start of class. Any student not present when attendance is taken will be marked *absent*. If a student arrives late to class, it is the responsibility of the student to inform the instructor at the end of class that he/she came in late. At that point, the *absence* will be changed to *late*. If a student does not inform the instructor that he/she came in late, that student remains marked as *absent* for that class.

□□Absence from exams earns a zero on the exam. Assignments submitted late receive partial credit.

Note:

1. A grade of "WN" is to be assigned to students who never attended and did not officially withdraw.
2. A grade of "WU" is to be assigned to students who attended a minimum of one class, completely stopped attending at any time before final exam week, and did not officially withdraw. A WU grade should never be given in place of an "F" grade. The "F" grade is an earned grade based on poor performance and the student not meeting the learning objectives/outcomes of the course throughout the entire academic term/session
3. A grade of "F" is failing grade given to a student who completed the course and failed. A student who completed a course unsuccessfully should be granted a grade of "F" with the culminating academic experience of the course, i.e. final exam, final paper, etc. This grade can also be assigned if the student has completed a majority of the course and documentation of failing course work is available. This documentation must be retained and available for review by auditors.
4. The grade of "INC" (incomplete) should only be given by the instructor in consultation with the student, see addendum for acceptable reasons to use this grade.

ACCESSIBILITY

Access-Ability Services (Students with Disabilities) Room D-205, Ext. 5175

Access-Ability Services (AAS) is committed to opening doors of equal opportunity to individuals with disabilities at Kingsborough Community College. The goal of Access-Ability Services (AAS) is to equalize educational opportunities and to provide access through appropriate academic accommodations. AAS serves as a liaison and resource to the Kingsborough College community regarding disability issues, promotes equal access to all Kingsborough Community College programs and activities, and makes every reasonable effort to provide appropriate accommodations and assistance to students with disabilities. Students with disabilities who require accommodations are asked to complete an "Application for Academic Accommodations" and submit supporting documentation. For further information go to <http://www.kbcc.cuny.edu/access-ability/Pages/welcome.aspx>

COURSE OUTLINE

Part 1:

Weeks 1-4

Week 1: An Introduction to Aging

Weeks 1-2: What is the Process of Aging

Weeks 3-4: Death of Cells, Individuals and Populations

Movie report is due week 3

Examination #1 occurs week 4

Textbook Reading

pp. 1-70

Part 2:

Weeks 5-7

Week 5: Biomarkers of Aging Laboratory

Week 6: Effects of Aging on Tissues, Integumentary and Skeletal Systems

Week 7: Effects of Aging on Nervous and Cardiovascular Systems

Advertisement report 1st draft is due week 7

Week 8: Effects of Aging on Digestive and Urinary Systems

Examination #2 occurs week 8

pp.71-224

Part 3:

Weeks 8-12

Week 9: DNA structure, Genes, and Protein Synthesis

Week 10: The Cellular Senescence Hypothesis of Aging

Journal report is due week 10

Week 11: The Wear and Tear Hypothesis of Aging

Advertisement report is due week 11

Week 12: What Can We Do to Slow Down Aging?

pp. 225-316