BIOLOGICAL AND PHYSIOLOGICAL ASPECTS OF AGING
GRT2111

Vanessa Taler
Winter 2010

COURSE OUTLINE

Class schedule: Monday, 2:30 – 4pm
Thursday, 4 – 5:30pm
Room SITE A0150

Professor’s office hours: Friday, 9:30 – 10:30am or by appointment
Office: Lees C105

E-mail: vtaler@uottawa.ca

Teaching assistants: Name: Melanie Joanisse, mjoan022@uottawa.ca
Office hours: TBA

Name: Jordanna Nash, jnash089@uottawa.ca
Office hours: TBA

Any questions sent by email should receive a response within two business days or during the following class if it takes place within the 48 hours following receipt of the email. Note that the professor reserves the right not to answer an email if the level of language used is inadequate.

OFFICIAL COURSE DESCRIPTION


GENERAL COURSE OBJECTIVES

It is expected that by the end of this course, students will be capable of the following:
• Detailing several biological aging theories.
• Discussing the myths associating age with disease.
• Detailing the concept of homeostasis and explaining its importance as well as the processes that influence/regulate it.
• Naming and detailing the factors that influence aging from a physiological point of view (accelerating/decelerating aging).
• Describing the main changes in the physiological systems that comes with normal aging in addition to being able to understand and outline the nature of the interactions between the various systems.
• Identifying variables that can influence the progression of biological/physiological aging within an individual.
• Noting the importance of inter-individual variation and identifying the causes of these variations (e.g., genetic, environmental, and social causes).
• Defining the biological characteristics and trajectories of common mental illnesses among the elderly (e.g., Alzheimer’s and Parkinson’s).

SPECIFIC COURSE OBJECTIVES

In this course the concept of aging will be looked at from a biological and physiological viewpoint. Students will be encouraged to investigate these changes and learn about the impact of maturation. We will discuss the physiological impacts of aging on a variety of systems (muscular-skeletal, digestive, immune, nervous, etc.), with the intention of contrasting the various current biological theories of aging. Students will also learn about the concept of longevity and how the various biological systems discussed each play a role in homeostasis.

ASSESSMENT METHODS

Evaluation will consist of your learning as evaluated through your performance on two in-class quizzes (15% each; 30% total) and a final exam (50%). In addition, you will complete four at-home written assignments, each worth 5% of your final grade (20% total).

Mid-term exam (30%)
• An in-class midterm exam will be held on February 25th, 2010, and will evaluate all material covered in class up until then.

At-home written assignments (20%)
• For each area covered, discussion topics will be provided and students will be expected to discuss these topics in small groups in class. Each student must choose any four of these topics and write a short discussion paper (1-2 pages) to be submitted to the professor within 1 week of the class discussion. Each short paper will be worth 5% of the final grade.

Final Exam (50%)
• The final exam will evaluate your understanding of the material presented in the second half of the semester (i.e., all material covered since the midterm exam). It
will consist of multiple choice questions and may also contain several short answer questions (e.g. List the following, True or False, Matching, Fill in the blank exercises or short essay questions). The final exam will take place during the final exam period and will last 3hrs.

*** If you miss or cannot attend the final exam, you must contact the department.

### Components of Final Mark

<table>
<thead>
<tr>
<th>Evaluation format</th>
<th>Weight</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid-term exam</td>
<td>30 %</td>
<td>February 25(^{th}), 2010</td>
</tr>
<tr>
<td>At-home written assignments</td>
<td>20 %</td>
<td>within 1 week of class discussion</td>
</tr>
<tr>
<td>Final exam</td>
<td>50 %</td>
<td>TBA (during exam period)</td>
</tr>
</tbody>
</table>

### Policy on language quality and late submissions

You will also be judged on your writing abilities. It is recommended to take the appropriate measures to avoid mistakes. You will be penalized between 5% to 15%, at the professor’s discretion.

Late submissions are not tolerated. Exceptions are made only for illness or other serious situations deemed as such by the professor. **There will be a penalty for late submissions.** University regulations require all absences from exams and all late submissions due to illness to be supported by a medical certificate. The Faculty reserves the right to accept or reject the reason put forth if it is not medical. Reasons such as travel, work and errors made while reading the exam schedule are not usually accepted.

In the event of an illness or related complications, only the counseling service and the campus clinic (located at 100 Marie-Curie) may issue valid certificates to justify a delay or absence.

Each day of late submission results in a penalty of 5% (weekends not excluded). This also applies to assignments sent by email, and in this case, the time of receipt of the email by the recipient is guarantor of the time of delivery.

We advise you to notify your professor as soon as possible if a religious holiday or event forces your absence during an evaluation.
SCHEDULE

(This is a tentative schedule. The order of presentations as well as the material covered may be altered at any time.)

On January 7th: Course Overview
- Contents of the course; Teaching approach & course objectives
- Evaluation and expectations of the professor
- Required Readings
- Important Dates and deadlines

On January 11th: Introduction to Biological Aging & The Aging Theories
- Why study aging?
- Discussing some of the major theories about aging.

On January 14th: Changes in Appearance – The Integumentary System
- Exploring what happens to the skin, hair and nails.

On January 18th: The Musculoskeletal System
- An investigation of body shape and body composition changes.
- Discovering what happens to bones, joints, muscles and tendons.

On January 21st and 25th: The Cardiovascular & Circulatory System
- Learning all about the heart
  - Heart function, disease, age changes.
- A look at veins, blood and homeostasis.

On January 28th: The Respiratory System
- Examining what happens to the lungs and the concept of homeostasis.

On February 1st, 4th, 8th, and 11th: The Nervous System
- A look at the Central Nervous system.
- Effects of age on sleep and temperature control.
- Effects of aging on cognition, memory, thinking, personality, Intelligence etc. (Alzheimer’s, Parkinson etc...)
- Diseases of the Nervous system.

On February 22nd: Mid-term review

On February 25th: Mid-Term Exam
- Covering all material from Jan. 11th – Feb 11th inclusive.

On March 1st and 4th: Vital Bodily Functions
- Exploring the Urinary system.
A look at the kidney and bladder.

Exploring the Gastrointestinal system.

A look at the mouth, teeth, stomach, small intestine, Liver and Colon.

**On March 8th and 11th: Bodily Control Systems I**

- The Endocrine system.
  - Growth hormone, Antidiuretic hormones, Melatonin, Sex Hormones.
  - A look at insulin, the thyroid, diabetes and homeostasis.

**On March 15th: Bodily Control Systems II**

- The Immune System.
  - The effect of age on the immune system and the main functions for homeostasis.

**On March 18th: Special Topics**

- Alcoholism
- Falls
- Foot care
- Pain

**On March 22nd and 25th: Sensation & Perception**

- Exploring vision, hearing, balance, taste, smell and the somatosensory systems.

**On March 29th: The Reproductive System**

- A look at the reproductive system in aging males and females.

**On April 1st: Longevity**

- A look at Diet, Nutrition, Exercise and Heredity in the elderly.

**On April 8th: Medication and the Elderly**

- Prescription and OTC drugs
- The problem of polypharmacy

**On April 12th: Exam Review**

**BIBLIOGRAPHY**


From time to time, articles and other selected readings will be posted on WEBCT or placed on reserve at the MRT library under the course code. Students will be informed about these readings.

**Supplementary Readings:**


Resources for you

Mentoring Centre - http://www.sciencessociales.uottawa.ca/mentor/fra/
The goal of the Mentoring Centre is to help students with their academic and social well being during their time at the University of Ottawa. Regardless of where a student stands academically, or how far along they are in completing their degree, the mentoring centre is there to help students continue on their path to success.

A student may choose to visit the mentoring centre for very different reasons. Younger students may wish to talk to their older peers to gain insight into programs and services offered by the University, while older student may simply want to brush up on study and time management skills or learn about programs and services for students nearing the end of their degree.

In all, the Mentoring Centre offers a place for students to talk about concerns and problems that they might have in any facet of their lives. While students are able to voice their concerns and problems without fear of judgment, mentors can garner further insight in issues unique to students and find a more practical solution to better improve the services that the Faculty of Social Sciences offers, as well as the services offered by the University of Ottawa.

Academic Writing Help Centre - http://www.sass.uottawa.ca/writing/
At the AWHC you will learn how to identify, correct and ultimately avoid errors in your writing and become an autonomous writer. In working with our Writing Advisors, you will be able to acquire the abilities, strategies and writing tools that will enable you to:
- Master the written language of your choice
- Expand your critical thinking abilities
- Develop your argumentation skills
- Learn what the expectations are for academic writing

Career Services - http://www.sass.uottawa.ca/careers/
Career Services offers various services and a career development program to enable you to recognize and enhance the employability skills you need in today’s world of work.

Counselling Service- http://www.sass.uottawa.ca/personal/
There are many reasons to take advantage of the Counselling Service. We offer:
- Personal counselling
- Career counselling
- Study skills counselling

Access Service - http://www.sass.uottawa.ca/acces/
The Access Service contributes to the creation of an inclusive environment by developing strategies and implementing measures that aim to reduce the barriers to learning for students who have learning disabilities, health, psychiatric or physical conditions.

The Student Resources Centres aim to fulfill all sorts of students needs.
Beware of Academic Fraud!

Academic fraud is an act committed by a student to distort the marking of assignments, tests, examinations, and other forms of academic evaluation. Academic fraud is neither accepted nor tolerated by the University. Anyone found guilty of academic fraud is liable to severe academic sanctions.

Here are a few examples of academic fraud:
- engaging in any form of plagiarism or cheating;
- presenting falsified research data;
- handing in an assignment that was not authored, in whole or in part, by the student;
- submitting the same assignment in more than one course, without the written consent of the professors concerned.

In recent years, the development of the Internet has made it much easier to identify academic plagiarism. The tools available to your professors allow them to trace the exact origin of a text on the Web, using just a few words.

In cases where students are unsure whether they are at fault, it is their responsibility to consult the University's Web site at the following address:
http://www.socialsciences.uottawa.ca/eng/writing_tools.asp « Tools for Writing Papers and Assignments ».

Persons who have committed or attempted to commit (or have been accomplices to) academic fraud will be penalized. Here are some examples of the academic sanctions, which can be imposed:
- a grade of « F » for the assignment or course in question;
- an additional program requirement of between 3 and 30 credits;
- suspension or expulsion from the Faculty.

Last session, most of the students found guilty of fraud were given an « F » for the course and had between three and twelve credits added to their program requirement.

For more information, refer to:
http://www.uottawa.ca/academic/info/newsletter/fraud_e.html