**Course Syllabus**

Course title Biological aspects of aging

Prerequisites Understand and speak academic-level English

Course coordinator Deborah Jehu, PhD

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Office hours By appointment

Course Website https://connect.ubc.ca/webapps/login/login.jsp

**Course description**

*VSP Part I: Biological aspects of aging*

This course will provide an exploration of the biological underpinnings of aging and their individual and societal implications. It will give an introduction to the influence of normal aging on organs, cells, tissue, and chemical messengers and how these changes impact an individual’s function. The impact of common age-related chronic conditions, such as osteoporosis, cerebrovascular disease, type 2 diabetes, and dementia will be discussed as they pertain to the global burden on healthcare systems. Students will use a variety of interactive methods to understand the content, including small group lectures, group presentations, and case studies. The group presentation component will provide students with the opportunity to practice critical appraisal of biological aging research through both an oral presentation as well as through peer-evaluation. Students will also visit several state-of-the-art research laboratories at the Center for Hip Health and Mobility, where they will be provided with hands-on experience.

**Objectives of the course**

By the end of the course, students will be able to: 1) Identify the role of healthcare professionals (e.g., physicians, nurses, physical therapists, technicians) in the assessment and rehabilitation of the aging population; 2) Measure biological components of aging using relevant equipment and standardized assessments; 3) Describe the influence of aging on biological aspects of aging; and 4) Discuss relevant intervention strategies to reduce the healthcare burden of aging.

**Course materials**

There is no required textbook for this course. Students will be provided online and/or hardcopy access to original research articles that correspond to the lectures, lecture slides, and handouts.

**Evaluation**

30% Exam: Biological aspects of aging

30% Group presentation

20% Jury member

20% Quizzes

**Description of evaluation**

Exam

The exam format will include multiple choice and short answer questions taken from the lectures. Should you have any questions about concepts covered during the lectures, please contact the corresponding lecturer.

Group Presentation and Jury Member

Groups of students will present and critically appraise an original research article (approved by Deborah Jehu & Teresa Liu-Ambrose) that describes best practices for therapeutic interventions for a specific population with a pathological condition (e.g., Alzheimer’s disease, osteoarthritis) and assess the chosen article according to the PEDro guidelines.

The presentation should: 1) describe the biological element affecting aging as it relates to the body, individual, and society; 2) critically appraise the quality of the research; and 3) explain intervention strategies to specifically target the impairment.

The research presentation must follow a scientific conference format, i.e., 10 min. presentation time, followed by a 15 min question and answer period from the three jury members. Following this period, the research paper will be opened for questions to all other students for 5 min. Fellow classmates must read the papers which will be presented by their peers, thus presentation topics must be decided on and approved at least one week in advance.

The evaluation will be on the content of the presentation, the visuals of the presentation (i.e., PowerPoint materials used), the actual communication of the presentation, as well as the performance of answering the questions. Each student will be graded for one presentation (30 % of total mark); the average of the score from the jury will count for 5 % while the score from the professor will count for 25 % of the mark. The marking rubric for the jury members as well as the one for the professor is provided on Canvas.

Quizzes

Students will be provided with 3 questions before each laboratory visit and they will submit their answers by 11:59 pm on the day of the laboratory online on Canvas.

**Attendance**

Attendance at lectures and laboratories is mandatory. Students who are absent from the laboratory visits without a justified absence will not be permitted to submit the quiz for that day. Justified absences include: a death in the family (funeral notice, paper clipping including your name), and sickness (medical certificate).

**Tardiness**

Late submission of quizzes due to illness or exceptional personal circumstances must be justified; otherwise, students will be penalized 20 % per day (including weekends).

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| **Biological aspects of aging** | | | | | | |
| Date | Time | Activity | Title | Location | Professor leading | Contact information |
| 07/16 | 13:30-15:30  -------------- 15:30-16:30 | Lecture 1 | Course Introduction  -------------------------------------  Critical Appraisal and Presentation Skills | Friedman Lecture Hall | Deborah Jehu | [deb.jehu@ubc.ca](mailto:deb.jehu@ubc.ca) |
| 07/17 | 9:00-12:00 | Laboratory 1 | Library Search Skills and Students Prepare for Group Presentation | Friedman Lecture Hall | Deborah Jehu | deb.jehu@ubc.ca |
| 07/17 | 13:30-16:30 | Laboratory 2 | Critical Appraisal of Biological Research | LSC 1312 | Dannia Islas Preciado | |  | | --- | | dislas@mail.ubc.ca | |  | |
| 07/18 | 9:00-12:00 | Lecture 2 | Cardiopulmonary System and Aging | Friedman Lecture Hall | Michele Schaeffer | Michele.Schaeffer@hli.ubc.ca |
| 07/18 | 13:30-16:30 | Lecture 3 | Musculoskeletal System and Aging | Friedman Lecture Hall | Linda Li | lli@arthritisresearch.ca |
| 07/19 | 9:00-12:00 | Laboratory 3 | Cardiopulmonary System and Aging: Measurement & Interpretation | CHHM on VGH | Lauren Marcotte | lauren.marcotte@alumni.ubc.ca |
| 07/22 | 9:00-12:00 | Lecture 4 | Cognitive Aging | Friedman Lecture Hall | Teresa Liu-Ambrose | teresa.ambrose@ubc.ca |
| 07/22 | 13:30-16:30 | Lecture 5 | Circadian Rhythm and Sleep in Aging | Friedman Lecture Hall | Ryan Falck | ryan.falck@hiphealth.ca |
| 07/23 | 9:00-12:00 | Laboratory 4 | Circadian Rhythm and Sleep in Aging: Measurement & Interpretation | Plinth laboratory (204 Friedman Building) | Ryan Falck | ryan.falck@hiphealth.ca |
| 07/23 | 13:30-16:30 | Free study | Students Prepare for Their Presentations | NA | NA | NA |
| 07/24 | 9:00-12:00 | Group  presentations | Group Presentations | Friedman Lecture Hall | Deborah Jehu | deb.jehu@ubc.ca |
| 07/24 | 13:30-16:30 | Lecture 6 | Hormonal Changes Across the Lifespan and its Effects on Aging | Friedman Lecture Hall | Cindy Barha | cindy.barha@ubc.ca |
| 07/25 | 9:00-12:00 | Laboratory | Biological Aspects of Aging: Measurement & Interpretation | CHHM at VGH | Danmei Liu | [danmei.liu@hiphealth.ca](mailto:danmei.liu@hiphealth.ca) |
| 07/25 | 13:30-16:30 | Free study | Free Study | Friedman Lecture Hall | Deborah Jehu | deb.jehu@ubc.ca |
| 07/26 | 9:00-12:00 | Lecture | Mobility in Aging | Friedman Lecture Hall | Michael Hunt | [michael.hunt@ubc.ca](mailto:michael.hunt@ubc.ca) |
| 07/26 | 13:30-16:30 | Exam 1 | Biological Aspects of Aging | Friedman Lecture Hall | TA TBD |  |