BIOC14H3 – Genes, Environment, and Behaviour

Summer 2020

Instructor: Daman Bawa

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Teaching Assistants: Rida Ansari and Marc Shenouda

Office Hours: Tuesdays 2:00 PM – 4:00 PM

Office hours will be through Bb Collaborate or by appointment through Microsoft Teams.

Please be prepared and consult lecture materials. Appointments outside these hours can be arranged by e-mail. If the hours need to be changed or if there are technical hurdles during the semester, you will be notified by an announcement.

Lecture: **Pre-recorded lectures will be posted online every week on Thursdays by the end of the day.**

Textbook: **This textbook is optional** and can be purchased online through UofT bookstore.

An Introduction to Behavioral Genetics (2008) Terence J. Bazzett, Sinauer Press

The best way to reach me outside the office hours is by e-mail. Please use your UTORONTO e-mail account and include your course code in the subject. Emails sent from non-university accounts will not be answered.

Lectures:

BIOC14 will provide an overview of the direct and indirect role of various genes in determining behavior and behavioral regulation. We will cover topics that include behavior evaluation methods, genetic effects on behavior in animals and humans, gene environment interactions and specific examples of genes and environment involvement in cognitive / psychiatric disorders. The lectures come from a number of sources including the textbook, primary papers, reviews and other sources.

Accessibility:

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the AccessAbility Services Office as soon as possible. AccessAbility Services staff (located in Rm AA142, Arts and Administration Building) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations 416-287-7560 or email ability@utsc.utoronto.ca. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

Academic integrity/plagiarism:

Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters (http://www.governingcouncil.utoronto.ca/policies/behaveac.htm) outlines the behaviors that constitute academic dishonesty and the processes for addressing academic offences. Potential offences include, but are not limited to:

In papers and assignments: Using someone else's ideas or words without appropriate acknowledgement. Submitting your own work in more than one course without the permission of the instructor. Making up sources or facts. Obtaining or providing unauthorized assistance on any assignment.

On tests and exams: Using or possessing unauthorized aids. Looking at someone else's answers during an exam or test. Misrepresenting your identity.

In academic work: Falsifying institutional documents or grades. Falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.

All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters. If you have questions or concerns about what constitutes appropriate academic behavior or appropriate research and citation methods, you are expected to seek out additional information on academic integrity from your instructor or from other institutional resources (refer to: http://www.utoronto.ca/academicintegrity/resourcesfor students.html).

Use of Turnitin:

"Normally, students will be required to submit their course assignments to Turnitin for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their assignments to be included as source documents in the Turnitin.com reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site".

We will use Turnitin for your assignment and exam answers to detect any plagiarism.

Grade Breakdown:

The grade breakdown for the course will be as listed below. The exams will test the material covered in lectures and will consist of multiple-choice questions, fill in the blank(s) and short answer type questions that test your <u>understanding and application</u> of the course material. If you miss an exam for an official reason (e.g. documented family emergency or illness), you must contact me within 48 Hours and provide me with appropriate documentation. The documents may be verified before you are allowed to write a makeup exam.

- **Quizzes: 5 X 2%**   **Quizzes will be based on lecture material, see below for dates.**

- **Assignment: 10%**   **Details to be provided on Quercus**   **Due date: July 31**

- **Exam 1: 20%**   **Topics covered before the date of exam**   **Date: TBA**

- **Exam 2: 20%**   **Topics covered since Exam 1**   **Date: TBA**

- **Final Exam: 40%**   **Cumulative – All topics covered in the course**   **Date: TBA**

The quizzes and exams will be conducted online. It is the students' responsibility that these are completed and submitted within the time period specified.

Tentative Quiz Schedule:

The quizzes will be done online on Quercus and will include multiple-choice questions and fill in the blanks. Each quiz will be worth 2% of your final grade for the total combined grade of 10% over the whole term. If any changes need to be made due to unforeseen circumstances, it will be posted on Quercus.

Week of:

May 25	Quiz 1
June 8	Quiz 2
July 6	Quiz 3
July 20	Quiz 4
Aug 3	Quiz 5

Tentative Lecture Schedule:

More than one topic may be covered in one lecture while some topics will be covered over more than one lecture.

Topic 1:   Overview of the course; Introduction to Behavioral Genetics

Topic 2:   Human Genome Project; Genome Wide Association Studies

Topic 3:   Simple Inheritance; Inheritance of Complex Traits

Topic 4:   Genes and Environment; Methods in Quantitative Genetics

Topic 5:   Genetic Engineering; Linking genetically defined neurons to behavior

Topic 6:   Genetic dissection of neural circuits; Behavioral phenotyping strategies

Topic 7:   Normal behavioral development; Primary Cognitive Disorders

Topic 8:   Psychiatric Disorders; Genetics of Mood, Anxiety and Personality disorders

Topic 9:   Environmental epigenetics; Beyond Psychopathology

Topic 10:   Genetic Counselling; Applied Pharmacogenomics and Gene Therapy; The future of Behavioral Genetics