BIOC14: Genes, Environment, and Behaviour
Winter 2019

Instructor: Professor Patrick McGowan

Office: Science Wing SW548

Office Hours: Wednesdays 1pm-3pm
Science Wing 548

If the hours or the location need to be changed during the semester, you will be notified by an announcement on Quercus.

Teaching Assistants: Dennison Trinh, Samantha Lauby, Mouly Rahman, Jonathan Burnie, Saad Muhammad

Lecture: Thursday 10:00-12:00 **AA 112**

Textbook (A reference for some lectures only): An introduction to Behavioral Genetics (2008) Terence J. Bazzett, Sinauer Press

E-mail: genesC14@gmail.com

To direct an email to your TA or instructor specifically, enter their name in the subject line.

Note: Content questions will not be answered by email. For administration-related issues (e.g. a missed exam) you must send correspondence to the course email account.

Emails are usually answered within 24 business hours. Email sent to our personal accounts will not be answered.

Content Questions:

The Quercus Discussions forum and Office Hours (TAs and Instructor) will be used for Content questions.

Quercus Discussions Forum: Before the mid-term and final, a set period of time will be allocated to answer and rate questions and answers on the Discussion Forum. The top questions and answers provided

by a student will win that student a partial mark applied to their upcoming exam grades (1%/answer to a maximum of 5%, or a maximum of 100% on a given exam). Note: The Question must not have already been asked. Your TAs and Instructor will determine what is a substantive question or answer. Further details will be announced closer to the date of the exam.

Lectures:

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

Tutorials:

Tutorials in this class are mandatory, except as indicated in the tutorial schedule below.

Attendance: Attendance will be recorded at the beginning of the mandatory tutorials and missing a tutorial will lead to forfeit of that mark unless proper documentation is provided.

Assignments and Presentations:
Within each tutorial group, students will join a peer group for the semester. Peer groups consist of 4-6 students who will work together to answer and critique study questions based on lecture material provided the previous week. Some of the assignments will involve working as a group and some will require you to work individually. Each group will be required to submit a written response to a tutorial question.

Participation: In order to obtain tutorial participation marks (see grade distribution) students will need to actively participate in tutorials (e.g. participating in discussions, questions asked during tutorial, or submitted note cards/page by the end of the tutorial session).

Grade Breakdown:

The exams will reflect the materials from the lectures and tutorials. Some lectures follow closely from the textbook, so it is a good supplement. **Note that not all the lecture information will be on the slides.** Exams will consist of multiple-choice questions. The questions will test both recall and your understanding of the material. The best way to study is to review the lecture notes and text, and to participate with your peer groups in the tutorial sessions. Bring your U of T ID, a 2HB pencil, pen, and eraser to all tests.

Missed mid-term or tutorials: If you miss the mid-term or tutorial for an official reason, please contact us via the course email address within 48 hours, providing the appropriate documentation. There will be no re-scheduled mid-term or make-up work. If a student misses the mid-term but does have a valid excuse, the grade allotment for the missed exam will shift to the final exam.

- **Mid-term: 30%** **Topics covered to Feb 7 (first 5 lectures)** **Tentative Date: Feb 28**
- **Final Exam: 40%** **Topics covered from Feb 14 to end** **Date: TBA**
- **Tutorial Attendance: 5%**

- **Tutorial Assignments and Presentations: 15%**
- **Tutorial Participation: 10%**

A note on Grades: Any grade posted to Quercus should be considered **Provisional** (i.e. subject to change).

Tentative Tutorial Schedule:

The tutorials will run according to the following tentative schedule. If any changes need to be made due to any unforeseen circumstances, it will be posted on Quercus. **Attendance in tutorials is mandatory unless specified otherwise.**

Week of:

Jan 7	No tutorial	
Jan 14	No tutorial	
Jan 21	Tutorial 1	Introductions, Form Groups, etc.
Jan 28	Tutorial 2	
Feb 4	Tutorial 3	
Feb 11	Q & A (not mandatory)	
Feb 18	**READING WEEK**	
Feb 25	No tutorial	
March 4	Tutorial 4	
March 11	Tutorial 5	
March 18	Tutorial 6	
March 25	Tutorial 7	
April 1	Q & A, Review (not mandatory)	

Tentative Lecture Schedule:

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

1. Course Overview; Introduction to Behavioural Genetics
2. Human Genome Project; Genome Wide Association Studies
3. Simple Inheritance; Inheritance of Complex Traits
4. Genes & Environment; Methods in Quantitative Genetics
5. Genetic Engineering; Linking genetically defined neurons to behaviour
6. **Mid-Term (Tentative: Feb 28)**
7. Genetic dissection of neural circuits; Behavioural phenotyping strategies

8. Normal Behavioural Development; Primary Cognitive Disorders
9. Psychiatric Disorders; Genetics of Mood, Anxiety, and Personality disorders
10. Epigenetics: Beyond Psychopathology
11. Genetic Counseling, Applied Pharmacogenomics and Gene Therapy; The Future of Behavioural Genetics

Intellectual Property:

Video recording or photographing any aspect of this course without prior approval of all involved and written approval from the instructor is not permitted.

AccessAbility statement:

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 SW302, Science Wing) 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:

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 behaviours that constitute academic dishonesty and the processes for addressing academic offences.

Potential offences in papers and assignments include 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 cheating includes using or possessing unauthorized aids, looking at someone else's answers during an exam or test, misrepresenting your identity, or falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.