

BIOC14: Genes, Environment, and Behaviour

Winter 2018

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 Blackboard.

Teaching Assistants: Nicholas Guilbeault, Samantha Lauby, Mouly Rahman, Saad Muhammed

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

Recommended Textbook: 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. Please plan to come to the tutorials or office hours for content questions. For administration-related issues (e.g. a missed exam) you must send correspondence to the course email account.

Emails are usually answered within 48 business hours. Email sent to our personal accounts will not be answered.

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 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 4-5 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, etc).

Grade Breakdown:

The exams will reflect the materials from the lectures and tutorials. Some lectures follow closely from the recommended 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, fill in the blank and short answer. 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 exams or tutorials: If you miss an exam 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 or make-up tests. If a student misses an exam but does have a valid excuse, the grade allotment for the missed exam will shift to the final exam.

- **Exam 1: 20%** **Topics covered before the date of exam** **Date: TBA**
- **Exam 2: 20%** **Topics covered since Exam 1** **Date: TBA**
- **Final Exam: 34%** **Cumulative – All topics covered in the course** **Date: TBA**
- **Tutorial Attendance: 6%**
- **Tutorial Assignments and Presentations: 16%**
- **Tutorial Participation: 4%**

Tentative Tutorial Schedule:

The tutorials will run according to the following schedule. Depending on the dates of the exams, the tutorial schedule might need to be adjusted slightly. If any changes need to be made due to this or any other unforeseen circumstances, it will be posted on Blackboard. **Attendance in tutorials is mandatory unless specified otherwise.**

Week of:

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|----------|-------------------------------|----------------------------------|
| Jan 8 | No tutorial | |
| Jan 15 | Tutorial 1 | Introductions, Form Groups, etc. |
| Jan 22 | Tutorial 2 | |
| Jan 29 | Tutorial 3 | |
| Feb 5 | Q & A (not mandatory) | |
| Feb 12 | No tutorial | |
| Feb 19 | READING WEEK | |
| Feb 26 | Tutorial 4 | |
| March 5 | Tutorial 5 | |
| March 12 | Q & A (not mandatory) | |
| March 19 | No tutorial | |
| March 26 | Tutorial 6 | |
| April 2 | 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. **Exam 1**
6. Genetic Engineering; Linking genetically defined neurons to behaviour
7. Genetic dissection of neural circuits; Behavioural phenotyping strategies
8. Normal Behavioural Development; Primary Cognitive Disorders
9. **Exam 2**
10. Psychiatric Disorders; Genetics of Mood, Anxiety, and Personality disorders

11. Environmental Epigenetics: Beyond Psychopathology
12. Genetic Counseling, Applied Pharmacogenomics and Gene Therapy; The Future of Behavioural Genetics

Intellectual Property:

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.