

Behavioural Genetics (PSY390H1F)

Fall Session, 2023

In-person course

Class time: Mondays, 1 – 4 pm in SS1088

Course Summary

This course examines the complex relationship between genes and behavior. Course material will integrate concepts from molecular genetics, quantitative genetics, evolutionary biology, neuroscience and psychology. Students will be exposed to the latest technologies, mathematical models and experimental approaches used to examine gene-behavior relationships. The social and economic implications of gene-behavior relationships and genetic engineering technology will also be discussed.

Course Team

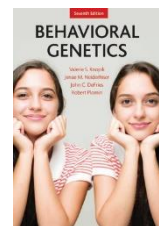
Instructor: Dr. Paul Whissell (paul.whissell@utoronto.ca)

Virtual Office Hours: Tuesday, by appointment, on Zoom

Teaching Assistant: Arya Rahbarnia

Recommended Textbook (optional)

Knopik, V.S., Neiderhiser, J.M., DeFries, J. C., Plomin, R. (2016). *Behavioral Genetics* (7th ed). New York, NY: Worth Publishers.



Assessments

This course includes four assessments (a term test, two quizzes and a final exam). The format and delivery of each assessment is described below.

Tests

The term test will be in-person, on-campus and occur during scheduled class hours. The final exam will be scheduled during the formal final exam period.

Online Quizzes

There will be two quizzes administered on Quercus. They can be completed remotely. These quizzes will be posted later in the term. In contrast to tests, quizzes will have a submission window and will not have a time limit. You can take as much time as you want to complete the quizzes (hours or days), as long you submit them before their due date.

Marking Scheme and Important Dates

- **30% Test 1 on October 16** based on Lectures 1 – 4
 - 2 hours allotted
 - Mixture of multiple choice, fill-in-the-blank and written answer questions
- **45% Final exam between December 9 – 20** based on Lectures 5 - 10
 - 2 hours allotted
 - Format T.B.A.
- **15% Online Methods Quiz on December 4**, based off lectures
- **10% Online Articles Quiz on December 4**, based off articles

Study Guide

To assist you in preparing for your assessments, a study guide will be provided on Quercus. This guide will identify key highlights of lecture content that are likely to be tested. If you can provide detailed answers to the questions in this guide, it is likely you will score at least a B grade (70+) on all assessments.

Course Schedule

This is an in-person course that will require you to complete assessments during the scheduled time slot (**Monday, 1 – 4 pm**). You must be available during this time period. This course should be treated as a synchronous course and should not conflict with other courses you are taking.

Posting Date	Topic + Due Dates
Sept 11	Lecture 01: Introduction
Sept 18	Lecture 02: Twin Studies and Heritability
Sept 25	Lecture 03: Genes and Genetic Variations
Oct 2	Lecture 04: Testing for Gene-Trait Associations
Oct 9	Thanksgiving Monday, No Classes
Oct 16	TERM TEST (Lectures 1 – 4)
Oct 23	Lecture 05: Cognitive Ability and Cognitive Disorders
Oct 30	Lecture 06: Genetics of Personality
Nov 6	Study Week, No Classes
Nov 13	Lecture 07: Genetics of Psychological Disorders
Nov 20	Lecture 08: Animal Modeling of Behavioural Traits, Articles Quiz, Methods Quiz Released
Nov 27	Lecture 09: Epigenetics
Dec 4	Lecture 10: Genetic Engineering, Articles Quiz, Methods Quiz Due
Dec 9 – 20	FINAL EXAM (Lectures 5 – 10)

Frequently Asked Questions

Q: Is this course right for me?

A: Hopefully yes! But it depends on your interests, aptitudes and academic goals. The course integrates concepts from multiple fields (neuroscience, psychology, biology and genetics). At times it can be challenging and controversial. If you are concerned about your GPA or academic background, please read the questions immediately below.

Q: What is the typical grade distribution in this course?

A: The Psychology program at U of T is exceptional and has a high academic standard. The PSY390 course maintains this standard and typically has a B average (~74-76%).

Q: Do I need to have a strong background in neuroscience, physiology or biology?

A: No, but it helps. Each lecture will include a review of the relevant information.

Q: Behavioural genetics seems to involve a lot of statistical methods. Do I need to know complex math? Will I have to do complex math?

A: No and no. Though statistical methods are essential to the field of Behavioural genetics, they are not the focus of this introductory course. Here, you will only have to know the 'general principle' of the method and do simple calculations.

Q: Does this course require a textbook?

A: No. Everything you need to know will be given in class. If you want to explore the content more, an excellent reference textbook is recommended (see page 1).

Q: I looked at the lectures and there are sometimes a lot of slides (~80-90)!

A: Yes. I prefer to place emphasis on in-class learning rather than textbook readings (which are not required here). The net investment in the course will be the same. If you want help narrowing down content, take a look at the course study guide!

Q: What is the course study guide?

A: The study guide identifies the key concepts in lectures that you will have to know. If it's in the guide, it is very likely testable material. About 90% of test questions come directly from the guide. If you know all the material in the guide, it is extremely likely you will get at least a 70% on all assessments. Updated guides are posted weekly.

Q: Is this the course the same every year? Will studying old materials be helpful?

A: No. Genetics is a rapidly evolving field. To ensure that students get current information, lectures and assessments are made fresh every year.

Course Policies

Specific Medical Circumstances

If you become ill and it affects your ability to do your academic work, consult me right away. Normally, I will ask you for documentation in support of your specific medical circumstances. This documentation can be an Absence Declaration (via ACORN) or the University's Verification of Student Illness or Injury (VOI) form. The VOI indicates the impact and severity of the illness, while protecting your privacy about the details of the nature of the illness. You can submit a different form (like a letter from a doctor), as long as it is an original document, and it contains the same information as the VOI. For more information on the VOI, please see <http://www.illnessverification.utoronto.ca>. For information on Absence Declaration Tool for A&S students, please see <https://www.artsci.utoronto.ca/absence>. If you get a concussion, break your hand, or suffer some other acute injury, you should register with Accessibility Services as soon as possible.

Missed Assessments

If you miss the term test, you must provide documentation explaining your absence (see above) and complete a make-up test in a timely fashion. If you do not complete a make-up test, you will receive a grade of 0 for the it. To ensure a make-up test can be completed as soon as possible, please contact the instructor immediately after missing a test. Most make-up tests should be scheduled within one week of the original test and completed within two weeks of the original test.

If you miss the formal final exam, you must write a deferred final exam at a later date. The deferred final exam will be similar in format to the missed final exam. To be eligible for a deferred exam, you will need to file a petition with your College RO immediately following missing the exam.

Late Quizzes

Late assessments will not be accepted in this course without adequate justification. If exceptional circumstances prevent you from submitting an assessment, please notify the instructor immediately and provide documentation of your situation. The standard late penalty is 10% per day late.

Regrade Requests

Inquiries must be made within two weeks of the returned grade. A regrade of your assessment may increase your grade, have no effect or decrease your grade (e.g. if an

adding error is discovered during the re-evaluation). Please let us know if we can help you.

Religious Accommodation

As a student at the University of Toronto, you are part of a diverse community that welcomes and includes students and faculty from a wide range of backgrounds, cultural traditions, and spiritual beliefs. For my part, I will make every reasonable effort to avoid scheduling tests, examinations, or other compulsory activities on religious holy days not captured by statutory holidays. Further to University Policy, if you anticipate being absent from class or missing a major course activity (like a test, or in-class assignment) due to a religious observance, please let me know as early in the course as possible, and with sufficient notice (at least two to three weeks), so that we can work together to make alternate arrangements.

Intellectual Property

Lectures slides and recordings are the intellectual property of the instructors. Under no circumstances should any of this content be shared online (e.g. via sites such as OneClass, Course Hero or Youtube). The Academic Handbook states: “It is absolutely forbidden for a student to publish an instructor’s notes to a website or sell them” (section 4.5)” Any student found violating this rule will be brought in to the Office of Student Academic Integrity. If you would like to share material with someone, please obtain approval from the content creator first.

Accessibility Needs

Students with diverse learning styles and needs are welcome in this course. If you have an acute or ongoing disability issue or accommodation need, you should register with Accessibility Services (AS) (www.accessibility.utoronto.ca) at the beginning of the academic year. Without registration, you will not be able to verify your situation with your instructors, and instructors will not be advised about your accommodation needs. AS will assess your medical situation, develop an accommodation plan with you, and support you in requesting accommodation for your course work. Remember that the process of accommodation is private: AS will not share details of your condition with any instructor, and your instructors will not reveal that you are registered with AS.

Academic Integrity and Plagiarism

You must complete all work in this course independently. You may not collaborate with anyone else (*though you are encouraged to ask me for help*). Your answers must be your own thoughts, expressed in your own words.

All students, faculty and staff are expected to follow the University's guidelines and policies on academic integrity. For students, this means following the standards of academic honesty when writing assignments, collaborating with fellow students, and writing tests and exams. Ensure that the work you submit for grading represents your own honest efforts. Plagiarism—representing someone else's work as your own or submitting work that you have previously submitted for marks in another class or program—is a serious offence that can result in sanctions. Speak to me or your TA for advice on anything that you find unclear. To learn more about how to cite and use source material appropriately and for other writing support, see the U of T writing support website at www.writing.utoronto.ca/. Consult the Code of Behaviour on Academic Matters for a complete outline of the University's policy and expectations. For more information, please see <http://www.artsci.utoronto.ca/osai> and <http://academicintegrity.utoronto.ca/>.

Writing

As a student here at the University of Toronto, you are expected to write well. The university provides its students with a number of resources to help them achieve this. For more information on campus writing centres and writing courses, please visit <http://www.writing.utoronto.ca/>.

Other Resources

- Student Life Programs and Services (<http://www.studentlife.utoronto.ca/>)
- Academic Success Services (<http://www.studentlife.utoronto.ca/asc>)
- Counselling and Psychological Services (<http://www.studentlife.utoronto.ca/hwc>)