

## ***Behavioural Genetics (PSY390H1S)***

Winter Session, 2023

In-person course

Class time: Fridays, 10 am – 1 pm in SS1086

### **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**

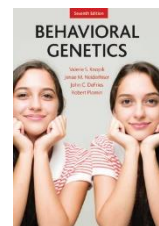
**Instructor:** Dr. Paul Whissell ([paul.whissell@utoronto.ca](mailto:paul.whissell@utoronto.ca))

Office Hours: Mondays, 1 – 2 pm in SS4001

**Teaching Assistant:** Arya Rahbarnia

### **Recommended Textbook (optional)**

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



## Assessments

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This course includes five assessments (three tests and two quizzes). The format and delivery of each assessment is described below.

## Tests

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There are **two term tests** (each based on four lectures) and a **final exam** (cumulative, based on all lectures). At present, **all tests are planned to occur in-person, on-campus and during scheduled class hours**. If the University's health and safety regulations change, the method of course delivery could also. If this occurs, you will be notified.

## Online Quizzes

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**There will be two quizzes administered on Quercus**. 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

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- **25% Test 1 on February 10** based on Lectures 1 – 4
  - 2 hours allotted
  - Mixture of multiple choice, fill-in-the-blank and written answer questions
- **25% Test 2 on March 24** based on Lectures 5 – 8
  - 2 hours allotted
  - Mixture of multiple choice, fill-in-the-blank and written answer questions
- **35% Final exam between April 11 - 28** based on Lectures 1 - 10
  - Format T.B.A.
- **10% Online Methods Quiz on April 7**, based off lectures
- **5% Online Articles Quiz on April 7**, based off articles

## Study Guide

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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 multiple assessments during the scheduled time slot (**Friday, 10 am – 1 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.

There is an exception to our standard in-person lecture schedule, which is Lecture 10 on Genetic Engineering. This lecture cannot be delivered in-person on its normal date (April 6) as this date is Good Friday. Instead of a live lecture, we will release a video recording of the content.

Posting Date	Topic + Due Dates
Jan 13	Lecture 01: Introduction
Jan 20	Lecture 02: Twin Studies and Heritability
Jan 27	Lecture 03: Genes and Genetic Variations
Feb 3	Lecture 04: Testing for Gene-Trait Associations
Feb 10	<b>TERM TEST 1 (Lectures 1 – 4)</b>
Feb 17	Lecture 05: Cognitive Ability and Cognitive Disorders
Feb 24	<b>Study Week, No Classes</b>
Mar 3	Lecture 06: Genetics of Personality
Mar 10	Lecture 07: Genetics of Psychological Disorders
Mar 17	Lecture 08: Animal Modeling of Behavioural Traits, <b>Articles Quiz, Methods Quiz Released</b>
Mar 24	<b>TERM TEST 2 (Lectures 5 – 8)</b>
Mar 31	Lecture 09: Epigenetics
Recording*	Lecture 10: Genetic Engineering, <b>Articles Quiz, Methods Quiz Due</b>
Apr 11 - 28	<b>FINAL EXAM (Lectures 1 – 10)</b>

## Frequently Asked Questions

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### **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

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### Missed Tests

In the event you miss an assessment due to illness, please use the **illness self-declaration tool on ACORN and notify the instructor immediately**. If you miss a test due to other exceptional circumstances, you must still notify the instructor immediately. According to departmental policies, you have a maximum of 1 week to get in touch about the missed test. Each situation will be handled on a case-by-case basis.

**If you miss a single term test (e.g. test 1) due to exceptional circumstances, you will be given an automatic grade reweight** wherein the proportion of your grade allocated to the missed test (e.g. 25% for test 1) will be reallocated to your other tests (e.g. 37.5% for test 2 and 47.5% for the final exam). Please note the quiz is not re-weighted.

**If you miss BOTH term tests (i.e. test 1 AND test 2) due to exceptional circumstances, you must attend a make-up test.** The date of this test will be announced after test 2. The make-up test will be similar in format to test 2. The weight of the make-up test will be 37.5% and the weight of the final test will be 47.5%. As before, the quiz is not re-weighted.

**If you miss the final exam, you must attend a make-up final exam at a later date.** The make-up final exam will be similar in format to the missed final exam. **To be eligible for a make-up exam, you will need to file a petition with your College RO for a deferred exam immediately following the missed final 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](http://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/](http://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>)