

**Faculty of Health
Department of Psychology
PSYC 3210 3.0 M: VISION SCIENCE
Tuesdays, 10:30-11:50; Accolade West 306
Thursdays, 10:30-11:50; Stong College 303
Winter term 2024**

This is an in-person course. All lectures and tests will be at the places and times given above.

Instructor information

Instructor: Dr. Richard Murray
Email: rfm@yorku.ca

Office hours: TBD

Course Prerequisite(s): Course prerequisites are strictly enforced

- HH/PSYC 1010 6.00 (Introduction to Psychology)

Course Credit Exclusions

Please refer to [York Courses Website](#) for a listing of any course credit exclusions.

Course website: [eClass](#)

All course materials will be available on the course eClass site, unless otherwise indicated by the instructor. The site will be your central access point for course materials.

Course Description

Provides a comprehensive introduction to the study of human vision. Addresses a range of research methods (e.g., electrophysiology, psychophysics, neuroimaging), with an emphasis on quantitative understanding and modelling of visual function. Incorporates mathematical models and computational tools throughout the course. Topics include the eye, optics, phototransduction, models of the neuron, primary visual cortex, spatial vision, colour vision, visual decision making, and current research methods.

Program Learning Outcomes

Upon completion of this course, students should be able to:

1. Describe the anatomical organization and basic functions of the human visual system.
2. Use mathematical and computational models to explain and analyze key properties of the eye and visual cortex.
3. Use mathematical and computational models to explain and analyze psychological processes such as colour perception and decision making.
4. Analyze and evaluate the strengths and limitations of several contemporary research

methods in vision science.

Required Text

Gilbert, P. (2022). *Physics in the arts, sixth edition*. Academic Press.

When you are on campus or connected through York's [virtual private network](#), you can download a PDF copy of this book for free through the campus library:

<https://www.sciencedirect.com/book/9780128243473/physics-in-the-arts>

Due to last minute changes in the course content, this book is not available through the York University Bookstore. However, if you prefer a printed copy, it is available through online booksellers.

Course Requirements and Assessment:

Assessment	Date of Evaluation (if known)	Weighting
Quizzes	weekly	10%
Test 1	February 6	30%
Test 2	March 19	30%
Term project	April 12	30%
Total		100%

Description of Assignments

Quizzes and tests. Weekly quizzes will cover assigned readings. Tests will cover lectures and assigned readings. The first test will cover weeks 1-4, and the second test will cover weeks 6-9. (See course schedule below for topics.)

Term project. Students will code a visual experiment in Python and write a research report on the methods and results.

Class Format and Attendance Policy

In-person attendance at the lectures is strongly encouraged.

Grading as per Senate Policy

The grading scheme for the course conforms to the 9-point grading system used in undergraduate programs at York (e.g., A+ = 9, A = 8, B+ = 7, C+ = 5, etc.). Assignments and tests* will bear either a letter grade designation or a corresponding number grade (e.g. A+ = 90 to 100, A = 80 to 89, B+ = 75 to 79, etc.)

For a full description of York grading system see the York University Undergraduate Calendar – [Grading Scheme for 2023-24](#)

Missed Tests/Midterm Exams/Late Assignment

For any missed quiz or test, students MUST complete the following online form which will be received and reviewed in the Psychology undergraduate office. At this time, due to COVID-19

an Attending Physician’s Statement (APS) is not required, but a reason for missing an evaluated component in the course must be provided.

[HH PSYC: Missed Tests/Exams Form](#)

Failure to complete the form within 48 hours of the original deadline will result in a grade of zero for the missed quiz or late assignment.

Policy on missed tests. There will be no makeup tests. If you provide suitable documentation for missing a test, you will have the weight of the missed test added to the weight of the final exam. Tests missed without adequate documentation will be assigned a mark of zero.

Add/Drop Deadlines

For a list of all important dates please refer to: [Undergraduate Fall/Winter 2023-2024 Important Dates](#)

	Fall (Term F)	Year (Term Y)	Winter (Term W)
Last date to add a course without permission of instructor (also see Financial Deadlines)	Sept. 21	Sept. 21	Jan. 23
Last date to add a course with permission of instructor (also see Financial Deadlines)	Oct. 5	Oct. 26	Feb. 7
Drop deadline: Last date to drop a course without receiving a grade (also see Financial Deadlines)	Nov. 12	Feb. 11	18-Mar
Course Withdrawal Period (withdraw from a course and receive a grade of “W” on transcript – see note below)	Nov. 13 - Dec. 7	Feb. 12 - April 10	March 19 - April 10

Add and Drop Deadline Information

There are deadlines for adding and dropping courses, both academic and financial. Since, for the most part, the dates are **different**, be sure to read the information carefully so that you understand the differences between the sessional dates below and the [Refund Tables](#).

You are strongly advised to pay close attention to the "Last date to enrol without permission of course instructor" deadlines. These deadlines represent the last date students have unrestricted access to the registration and enrolment system.

After that date, you must contact the professor/department offering the course to arrange permission.

You can drop courses using the registration and enrolment system up until the last date to drop a course without receiving a grade (drop deadline).

You may [withdraw from a course](#) using the registration and enrolment system after the drop deadline until the last day of class for the term associated with the course. When you withdraw from a course, the course remains on your transcript without a grade and is notated as 'W'. The withdrawal will not affect your grade point average or count towards the credits required for your degree.

Academic Integrity for Students

York University takes academic integrity very seriously; please familiarize yourself with [Information about the Senate Policy on Academic Honesty](#).

It is recommended that you review Academic Integrity by completing the [Academic Integrity Tutorial](#) and [Academic Honesty Quiz](#).

Test Banks

The offering for sale of, buying of, and attempting to sell or buy test banks (banks of test questions and/or answers), or any course specific test questions/answers is not permitted in the Faculty of Health. Any student found to be doing this may be considered to have breached the Senate Policy on Academic Honesty. In particular, buying and attempting to sell banks of test questions and/or answers may be considered as “Cheating in an attempt to gain an improper advantage in an academic evaluation” (article 2.1.1 from the Senate Policy) and/or “encouraging, enabling or causing others” (article 2.1.10 from the Senate Policy) to cheat.

Academic Accommodation for Students with Disabilities

While all individuals are expected to satisfy the requirements of their program of study and to aspire to do so at a level of excellence, the university recognizes that persons with disabilities may require reasonable accommodation to enable them to do so. The university encourages students with disabilities to register with Student Accessibility Services (SAS) to discuss their accommodation needs as early as possible in the term to establish the recommended academic accommodations that will be communicated to Course Directors as necessary. Please let me know as early as possible in the term if you anticipate requiring academic accommodation so that we can discuss how to consider your accommodation needs within the context of this course.

<https://accessibility.students.yorku.ca/>

Excerpt from Senate Policy on Academic Accommodation for Students with Disabilities

1. Pursuant to its commitment to sustaining an inclusive, equitable community in which all members are treated with respect and dignity, and consistent with applicable accessibility legislation, York University shall make reasonable and appropriate accommodations in order to promote the ability of students with disabilities to fulfill the academic requirements of their programs. This policy aims to eliminate systemic barriers to participation in academic activities by students with disabilities.

All students are expected to satisfy the essential learning outcomes of courses. Accommodations shall be consistent with, support and preserve the academic integrity of the curriculum and the academic standards of courses and programs. For further information please refer to: [York University Academic Accommodation for Students with Disabilities Policy](#).

Course Materials Copyright Information

These course materials are designed for use as part of the PSYC 3210 3.0 course at York University and are the property of the instructor unless otherwise stated. Third party

copyrighted materials (such as book chapters, journal articles, music, videos, etc.) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law.

Copying this material for distribution (e.g. uploading material to a commercial third-party website) may lead to a violation of Copyright law. [Intellectual Property Rights Statement](#).

Course schedule

		topic	readings
1a	9-Jan	the eye	chapter 4
1b	11-Jan	lists and tuples	
2a	16-Jan	colour vision	chapter 6
2b	18-Jan	if-else, loops	
3a	23-Jan	additive colour mixing	chapter 7
3b	25-Jan	psychopy 1	
4a	30-Jan	subtractive colour mixing	chapter 8
4b	1-Feb	psychopy 2	
5a	6-Feb	term test 1	
5b	8-Feb	plotting data	
6a	13-Feb	colour illusions	posted readings
6b	15-Feb	a complete experiment	
		reading week	
7a	27-Feb	animal vision	Goldsmith
7b	29-Feb	writing a research paper	
8a	5-Mar	lenses	chapter 3
8b	7-Mar	term project workshop	
9a	12-Mar	photography	chapter 5
9b	14-Mar	numpy	
10a	19-Mar	term test 2	
10b	21-Mar	statistics	
11a	26-Mar	term project workshop	
11b	28-Mar	term project workshop	
12a	2-Apr	presentations	
12b	4-Apr	presentations	

The term project is due on April 12.