

Department of Psychology - Graduate Courses 2022-23
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Semester	Instructor	Area	Course Code	Course Title	Schedule	Place	Description
Fall	Wang	Core	PSY2001H - Statistics I	Statistics I	Wed 14-16	SS 560A	This course will introduce students to foundational knowledge of and techniques for statistical analysis of quantitative psychological data. Students will (1) develop conceptual and practical understanding of the general linear model and its various iterations (e.g., t-tests, analyses of variance, multiple regressions), and (2) learn how to apply statistical techniques to their data and properly interpret the results.
Fall	Gerlai	BN	PSY5110H - Advanced Topics in Behavioural Neuroscience I	Animal Behaviour Genetics	Wed 12-14	online	The course will discuss the principles and applications of behaviour genetics focusing on developments of this field over the past two decades. The course will mainly deal with animal behaviour genetics research and will discuss approaches such as genome editing techniques including gene targeting and other transgenic methods, as well as gene expression profiling and analysis, and forward genetic applications. The course is designed for the psychology and biopsychology student and does not require a strong foundation of genetics.
Fall	Ralph	BN	PSY5111H - Advanced Topics in Behavioural Neuroscience II	Chronobiology: Temporal Aspects of Human Behaviour	Mon 10-12	SS 560A	The course will present an analysis of biological rhythms from several perspectives of time sense and sensibility. With due deference to Jane Austen, we will address the diverse roles that timing and timekeeping play in optimizing physiological and behavioral processes, regulating thought and action, and enabling anticipation of future events and conditions. A foundational issue will be the functional roles and evolutionary adaptations of temporal regulation. Particular attention will be directed toward the temporal opportunities and constraints that are imposed on human behavior and physiology, including the significant impacts on memory, personality, emotional regulation, and the awareness of time. Weekly topics have been chosen by the instructor and placed in a presentation order whereby later topics may refer to the earlier discussions. Modification to the schedule can be discussed at the first meeting of the class.
Fall	Meltzer	PCCN	PSY5220H - Advanced Topics in Cognition I	Interventional Neuroscience: Brain Hacks and Brain Quacks	Thu 14-16	SS 560A	Changing the function of the brain for the better noninvasively is a formidable scientific challenge. Numerous success stories exist (e.g. L-DOPA for Parkinson's, ECT for depression), yet many neurological and psychiatric disorders await new discoveries to provide relief. Dozens of potential therapies currently exist in a gray zone, with some evidence for their effectiveness and some practitioners routinely employing them, frequently outside of the mainstream health care system, while many of these therapies are criticized as ineffective quackery preying on the desperation of afflicted patients. This course will take a critical look at some of the most promising yet controversial emerging treatments for brain disorders, emphasizing their mechanisms of action, the quality of the evidence for their effectiveness (or lack thereof), and the path forward for further validating and optimizing the treatments that turn out to be beneficial. Overarching goals for the course include examining the principles and methods for evaluating treatments, especially in the face of placebo effects, reviewing the standards of evidence in the field, and achieving consensus on how to advance this field further, selecting the treatments that work and optimizing their effectiveness. Much of the course will focus on enhancement of cognitive abilities in healthy people and patients with specific disorders, but treatments addressing mood, motor, and other abilities will also be discussed.
Fall	Hutcherson	SP	PSY5430H - Advanced Topics in Social Psychology I	Computational Approaches to Decision Making	Tue 12-14	SS 560A	How do we know what we like? Why do people sometimes make choices they regret? How can we help people make better decisions? How do social influences enter into our decisions? The premise of this course is that we can better answer these questions by developing algorithmic and computational models of the processes that underlie judgment and decision making, informed in some cases by an understanding of the underlying neural mechanisms. Students will develop a basic familiarity with computational models of valuation, decision making, reward learning, self-control, and social behaviour. Instruction will include critical analysis of both foundational and more recent papers, student presentations and discussion of ongoing debates in the field, as well as hands-on exploration of tools and techniques for computational model-fitting. Basic knowledge of computer programming (or willingness to learn) is essential.
Fall	Mack	Module <i>alternate weeks</i>	PSY3100H F1 - Psychological Science Skills (LEC 0101)	Programming for Psychology 1: Introduction to Python and Experiment Programming	Mon 14-16	SS 560A	Over recent years computer programming skills have become a requirement for conducting psychological research across many subdisciplines. We designed this module to provide new graduate students with foundational programming skills that will enable their later acquisition of more specialized methods. It will begin with introductory concepts and good practices (e.g., version control, logistical statements, and debugging). We will then move on to experiment programming, surveying specialized software for stimulus presentation (e.g., PsychoPy, Psychtoolbox, Inquisit, and Qualtrics), with a focus on PsychoPy. No computer programming background is expected or required.

Fall	Joordens	Module 6 weeks, beginning October 5	PSY3100H F2 - Psychological Science Skills (LEC 0102)	The Science of Learning	Wed 14-16	UTSC SW 403 /online	We are sometimes guilty of viewing our teaching as distinct from our research but, in fact, there is an ever-growing research base underlying effective teaching. Given how important our teaching role is, we should be aware of that evidence-base as well, and we should base our efforts and approaches in the classroom on that evidence. In this course we will discuss research on issues such as how to enhance student engagement, the effective use of micro-learning, how assessments can be used to deepen learning and promote skill development, how to enhance community with a class, and how to best prepare students for a successful future. We will also consider the role of educational technologies in the future of education.
Fall	Bernhardt-Walther	Module alternate weeks	PSY3100H F3 - Psychological Science Skills (LEC 0103)	Machine Learning With Applications to Data Analysis	Tue 12-14	online	In this module I will introduce important concepts for understanding machine learning techniques. We will then work on practical, hands-on exercises for using machine learning methods in psychological research. Students are encouraged to bring data from their own research projects for the applied, hands-on component. A basic understanding of programming in Python and/or R is prerequisite.
Fall	Williams	Hosted by Computer Science	CSC2558H - Topics in Multidisciplinary HIS	Designing Intelligent Self-Improving Systems through Human Computer Interaction, Randomized A/B Experiments, and Statistical Machine Learning	Wed 16-18	online	This course will introduce students to the technology skills needed to design and deploy real-world field experiments, through taking part in projects that will let them design experiments relevant to their research. Examples of experiments could include: Investigating how people learn in online courses, conducting growth mindset interventions in on-campus courses, and encouraging health behaviour change through persuasive mobile apps.
Winter	Page-Gould	Core	PSY2002H - Statistics II	Statistics II	Wed 10-12	RW 107 /online	This course will provide a practical introduction to a number of different advanced statistical methods used in psychological research. Specifically, the course will cover the following topics: (1) Path analysis and Mediation; (2) Mixed effects/multilevel modelling; (3) Non-gaussian models (e.g., logistic regression) and bootstrapping; (4) Bayesian Hypothesis Testing; (5) Factor analysis, including exploratory factor analysis/principal components analysis, confirmatory factor analysis, and cluster analysis; (6) Structural Equation Modelling; and, (7) Time-based analysis like time series, lagged regression, and latent growth curves. The course will place a strong emphasis on practical application, such that every class will include demonstrations, electronic copies of sample syntax in SPSS and R, and brief computer-based data analysis exercises. You will also learn to be an active consumer of quantitative psychology articles, as well as develop generalizable strategies for statistical reporting. You will only need to be familiar with one of the following statistical packages: R or SPSS. The course will have a final project where you will be required to use one of the analyses you learn in class to analyze your own data or public data and then write methods, results, and discussion sections that describe your findings. You will also be expected to complete lab assignments that involve conducting analyses on example datasets in the statistical software package of your choice. The goal is for you to leave the class with an understanding of when and how to apply each of the statistical techniques you learn. Knowledge of these modern statistical tools will increase the flexibility of your research designs and the statistical rigour with which you analyze your data.
Winter	Johnson	Core	PSY3001H - Professional Psychology	Professional Psychology	Tue 10-12	SS 560A	This is the first half of Professional Psychology, for PhD1 students. It will cover topics to help you succeed in graduate school, including research ethics, mental health, scholarship writing, being an effective TA, and professional relationships. The second half of Professional Psychology will occur in the PhD3 year, and will focus in preparing for your post-graduate career.
Winter	Martin	BN	PSY5101H - Mechanisms of Behaviour	Systems and Cellular Neuroscience	Wed 12-14	UTM, MN 6128	The overall goal of this course is to help students demonstrate an understanding of the core principles and scientific methods of systems and cellular neuroscience, as well as appreciate and evaluate neuroscience findings as they apply to clinical conditions. This course will introduce students to the neural pathways and processing that contribute to perception and behavior. Topics will cover techniques for neuronal manipulation, monitoring and imaging, sensory and pain systems, motor function, cortical processing, social behaviour and animal models of health and disease. A mix of instructor and student-led lectures will provide fundamental information derived from classical studies, as well current work detailing an understanding and implementation of experimental designs. Finally, students will learn to interpret and critique data in the context of problem sets and discussion of papers.
Winter	Sommerville	DEV	PSY5303H - Cognitive Development	Cognitive Development	Tue 12-14	SS 560A	This course will provide participants with a foundational understanding of key issues in cognitive and language development, as well as opportunities to read and discuss both classical and recent empirical and theoretical work on these topics. The course covers infancy through the early school years. Major theories of cognitive development will be explored. Emphasis is placed on both classic and current experimental findings, and on how they address centuries-old debates surrounding the origin and nature of human knowledge.
Winter	Ronfard	DEV	PSY5311H - Advanced Topics in Development II	Children's Understanding of, and Engagement in, Discussion and Debate	Wed 14-16	SS 560A	This seminar will examine the development of children's understanding of, and engagement in, discussion and debate. We will begin by reading about the value of discussion and debate for learning. We will then explore different theoretical positions on argumentative reasoning. We will identify the social, linguistic, and cognitive skills involved in children's ability to engage in discussion and debate. Students will be asked to write weekly response papers to prepare for class. Classes be focused on understanding, critiquing, and building on the course reading. The final assignment for the class can take the form of a review paper, theoretical critique, or a proposal for an experiment.

Winter	Pratt	PCCN	PSY5204H - Attention	Visual Attention	Tue 14-16	SS 560A	This seminar will examine current research in the areas of visual attention in the context of some of the classic research papers in the field. The topics covered in the seminar include attentional capture, attentional control sets, inhibition of return, action-based attention, object-based attention, and the links between eye movements and shifts of attention.
Winter	Gilboa	PCCN	PSY5221H - Advanced Topics in Cognition II	Cognitive Neuropsychiatry	Wed 16-18	SS 560A	The course focuses on cognitive and neurocognitive aspects of psychopathological disorders. It will explore how clinical disorders can be studied using theories, concepts and methodologies that are used for understanding normal cognition and the relation between brain and behaviour. To the extent possible, the entities of investigation will be symptoms that can sometimes cross diagnostic boundaries, rather than the more typical syndrome-based diagnostic approach of psychiatry. The format of the course is a lecture-based seminar but group discussions are also a significant part of it, and students are expected to arrive prepared for discussions.
Winter	Niemeier	PCCN	PSY5222H - Advanced Topics in Cognition III	Advanced Topics in the Cognitive Neuroscience of Attention	Tue 16-18	online	This course will be concerned with the neural and computational mechanisms underlying attentional functions. We will study the different attentional systems; we will look at the interplay of attention and other brain functions such as actions (eye movements, grasping etc.), perception, and higher level cognitive processes; and we will discuss important models of attention. To this end we will look at evidence from human cognitive neuroscience, cognitive neurophysiology in different animal models, and computational approaches.
Winter	Sekuler	PCCN	PSY5205H - Memory	Perceptual Attributes in Memory Research	Wed 14-16	online	
Winter	Inbar	SP	PSY5433H - Advanced Topics in Social Psychology IV	The Psychology of Morality	Wed 12-14	SS 560A	This course provides an overview of the field of moral psychology. We will cover perspectives on morality from a variety of disciplines including philosophy, animal behavior, neuroscience, economics, and almost every area of scientific psychology (social psychology, developmental psychology, evolutionary psychology, and cognitive psychology). By the end of the course you will be well versed in the primary issues and debates involved in the scientific study of morality.
Winter	Plaks	SP	PSY5431H - Advanced Topics in Social Psychology II	Motivational Theories in Social Psychology	Mon 12-14	SS 560A	PSY 5431 involves reading and discussion of seminal articles on motivation in the social psychology literature. A key emphasis will be on how motivation and cognition mutually influence each other to produce behavior. This course will explore such key issues as: the influence of emotions, values, and desires on one's thought; goal setting and goal pursuit; self-regulation and self-control.
Winter	Tafarodi	SP	PSY5432H - Advanced Topics in Social Psychology III	Philosophy of Psychology as a Social Science	Tue 12-14	SS 4004	This is a philosophy of science course for psychology students wanting a deeper understanding of what it means to study social reality. Despite the prescriptive claims of scientific unitarians from J. S. Mill to E. O. Wilson, the discipline of psychology continues to walk on two legs as both a natural and a social science. This course addresses key metaphysical, epistemological, and ethical questions concerning the second leg -- psychology as a social science. What is social reality? How does it relate to agency and intentionality? What does it mean to explain human action? How do and should causality, prediction, laws, reasons, and interpretation figure in social scientific explanation? Can naturalist and interpretive approaches to understanding social life be reconciled? What is the place of values in social inquiry? To what extent does studying the social world legitimate or challenge it? What are the ethical implications of this for the social scientist? Finally, do responses to the above questions point to any essential differences between natural and social science? Guided by classic and contemporary readings in philosophy of science and psychology, students will be encouraged to develop their own positions on the issues examined and test out these positions in class discussion. The result, it is hoped, will be as many distinct perspectives as there are students enrolled.
Winter	Mack	Module <i>alternate weeks</i>	PSY3100H S1 - Psychological Science Skills (LEC 0101)	Programming for Psychology 2: Introduction to R for Data Wrangling and Visualization	Mon 14-16	SS 560A	This module builds off foundational skills developed in Programming for Psychology 1, but focuses on working with data in R. We will cover data management, restructuring, and quality control followed by data visualization. A variety of tools will be surveyed, but most examples will be taught in R and will involve the application of tools included in Tidyverse packages. Background in computer programming is not required, but students are encouraged to take Programming for Psychology 1 before this module to become comfortable with version control and basic programming concepts.
Winter	Diaconescu	Module <i>alternate weeks</i>	PSY3100H S2 - Psychological Science Skills (LEC 0102)	Bayesian Models of Perception and Decision-Making	Mon 10-12	SS 560A	This module is designed for graduate students with diverse backgrounds (neuroscience, brain physiology, perception, cognition, abnormal psychology) who would like to apply computational modelling techniques to study cognition, perception, or abnormal behaviour. The course will teach not only the theory of computational modeling, but also demonstrate open-source software in application to example data sets.