PSYC 320
Selected Topics in Cognitive Neuroscience W22.
Professor Jonathan Smallwood
Winter Semester: Jan 10th 2022 – April 8th 2022.
Number of credits: 3
Weeks 1-6 Online, Weeks 7-13 In Person
Pre-requisites: Psyc 221.
Location: Weeks 1-6 Asynchronous lectures via OnQ
Weeks 7-13 Jeffery Rm 127 Tuesday 16-17.30; Thursday 14.30-16.00.

Instructor Information
Name: Jonathan Smallwood
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About me: I am a scientist interested in understanding the organization of human cognition. In my research I use the methods of cognitive neuroscience and psychology to ask questions about how the mind generates different patterns of thought. In my spare time I enjoy making and recording music. You can follow me on **Twitter**: **@the_mindwanders**

Teaching Assistant Information
Name: Jack Parsons
Email: Psyc320@queensu.ca

1.0 Land Acknowledgment

I will begin this syllabus by acknowledging that Queen's is situated on traditional Anishinaabe and Haudenosaunee territory. We are grateful to be able to live, learn and teach on these lands. By acknowledging this traditional territory, we recognize its history and its significance for the Indigenous Peoples who lived and continue to live, upon it.

2.0 Diversity and Inclusion

In this class, it is my goal to ensure that students from all backgrounds have a great learning experience, and that everyone feels valued, respected, and welcome. The class will represent a diversity of individuals, identities, beliefs, backgrounds and experiences. The diversity of experiences that the students bring to this class will be viewed as a resource, strength and benefit. **With this in mind, students are encouraged to speak up and participate during class**

meetings by sharing their opinions and their questions. In these interactions please show respect for other members of the class.

Welcome

Welcome to Psyc320 – Selected Topics in Cognitive Neuroscience. My name is Jonathan Smallwood and I am the professor leading this course. I have developed a series of lectures and video material that, along with the textbook, will give you a glimpse into the exciting but complex world of contemporary cognitive neuroscience.

To take full advantage of this class, it is important that you plan your work load. Knowing the key dates (first day of class, tuition due date, last day to add/drop courses) can help you plan your studies properly. Please find them at Important Dates.

Learning Outcomes

Upon completion of this course you will be able to

- Describe the goals and objectives of contemporary cognitive neuroscience and evaluate how effectively different studies address them.
- Describe the different methods available to cognitive neuroscience and evaluate their strengths and weaknesses.
- Articulate contemporary view points on how neural systems contribute to specific features of higher order thoughts (cognitive control, memory and social cognition)
- Critically evaluate the conclusions that can be drawn by cognitive neuroscientists based on the limits of todays' methods.

Course description

This class will help you understand why studying the brain is valuable. We will consider how thoughts and feelings in the brain allow us to engage in flexible and adaptive behaviours. This is a complex topic, but don't worry – this course is about helping you think more like a cognitive neuroscientist. If you stick to the course material, you will accomplish a higher understanding of how contemporary researchers think about human cognition.

To help you meet these learning outcomes, the class is divided into three broad sections.

Section 1 (Conceptual Questions, **Weeks 1-5**) will help you think about the conceptual issues posed by researchers who want to understand how the brain supports cognition. It will cover the underlying assumptions that underpin many contemporary approaches used in cognitive neuroscience today and consider the different methods which scientists use to probe the links between brain and cognition.

Section 2 (Interacting with the Environment, **Weeks 6-8**) will help you think about how scientists understand the brain helps us interact with our immediate environment (e.g. visual processing, motor control and attention).

Section 3 (Complex Behaviour, **Week 9-12**) will cover the brain basis behind more complicated actions, which depend on the organisation of behaviour over longer periods of time. These rely on aspects of cognition including language, executive control and social cognition.

The course is designed to balance different types of learning. Each week we will have two meetings. The first meeting will be the weekly lecture where we will discuss topics in cognitive science according to the 3 sections outlined above. The second meeting will involve listening to talks given by cognitive scientists about their work. You will also be expected to keep up-to-date with the course by reading the textbook.

This class is scheduled to meet Tuesdays 16-17:30, and Thursdays 14:30-16:00. All times are Eastern Time (Kingston time). *As a result of the ongoing pandemic, Weeks 1-6 of this course will happen asynchronously online. Lectures will be posted to onQ. Once classes resume in person, this class will meet at the normal times in the locations described at the top of the syllabus.* During weeks 1-6 I will hold a drop-in session on Zoom at the time the class would normally run on Tuesdays (4.00– 5.30 pm). This session is to give you the opportunity to get to know me, and ask questions about any aspects of the course that you have. The Meeting ID is 991 9367 9081 and the passcode is 374860. Please note that these "drop-in" sessions will not be recorded so that no one feels uncomfortable about speaking in the meeting.

I will also hold office hours on Mondays between 12 and 1 each week for one-to-one meetings with students. **If you would like a meeting with me please to try email me at least three-four days before the date when you would like to meet.**

The lectures are designed to accompany the textbook and will contextualise the information in contemporary questions facing cognitive neuroscientists. **This means that the lectures will not cover all of the material in the text book.** This feature of the course is designed to allow the lectures to help you (i) see the links between different aspects of the field and (ii) to understand the broad questions that researchers grapple with when trying to understand the brain basis of cognition. To facilitate this goal, most lectures will be accompanied by one or two short talks by experts in different areas. These talks will provide perspectives on cutting edge cognitive neuroscience findings by researcher's in their own words and as part of your ongoing course work you will be asked to provide short answers on the issues raised by these talks (see below).

The class will use an online discussion board where you can share any questions about the course that you may have. Before posting a question, please check this out to see if any similar issues have been raised by other students.

Evaluation

This course contains a variety of assessments, described in more detail below:

Low-stakes Reflection Posts	**20%**
Video Reaction Papers	**30%**
Mid-term	**20%**
Final Exam	**30%**

Assessment of learning outcomes

Due dates for reflection posts and video reaction papers will be indicated on the schedule found in onQ. The Mid-term and Final exam will consist of multiple-choice questions.

Low Stakes Reflection Posts

Each week you will have the chance to write a **reflection post** – a short comment on something that you found interesting in that week's class. These should be a minimum of three sentences and should focus on one study, theory or idea that you found interesting or that made you think differently about cognition or the brain. These should relate to information covered in class, in the videos or textbook. These will not be graded and you will receive 2 point for each appropriate post that you make (up to a maximum of 2 point per week, and 20 points for the course as a whole).

Reflection Posts are due at 5pm on Friday of each week (starting on Week 1) and are to be submitted via the **assignments section** in OnQ. **As for all aspects of course work there will be an automatic 3-day grace period on these submissions (see below).**

Video Reaction Papers

Throughout the semester, there will also be 4 Video Reaction Papers, and your marks on the best 3 of these will contribute to your final mark (10 points for each of your three best papers for a total of 30 points for the course). You will be required to submit (via onQ) a paper where you "react" to the expert talks covered in class. These will be around 500 words double spaced. Details on these submissions can be found below.

There will be no make-up Video Reaction Papers. If you miss more than 1 submission for the Video Reaction Papers, please contact Dr. Smallwood as soon as possible.

For each Video Reaction Paper, you will only achieve full marks if you react to 2 or more talks. You can choose any of the talks that we have watched together as your focus. However, you cannot use the same talk for multiple Video Reaction Papers.

The expert talks will all address the same questions that we will cover in lectures. The reaction papers will test whether you have thought about and understood the talks. I am interested in your ideas. **A summary or description of the talks is not enough**. You are encouraged to write about an issue that you thought of while watching several of the talks:

- a critique of coverage – what things fit with our reading of the concepts, what concepts were too simple
- consideration of how the main concept being discussed in class relates to real-life
- talk about the implications of something discussed in the video for another scientific source
- suggest a new experiment to explore a specific question raised in the video

The rubric for marking the video reaction papers is as follows (out of a total of 10):

- 5 points for submission of a piece of work on time (i.e. an appropriate document within the word limits).
- Up to 2 points for reactions to two (or more) videos.
- Up to 2 points for new information that is not covered in either video.
- Up to 1 point for grammar and writing.

Video Reaction Papers are due at 5pm on Friday of the assigned week and are to be submitted via onQ. There will be an automatic three-day extension for these pieces of work (see below).

Academic Consideration for Course Work

There may be a time when you are unable to submit a written assignment for personal reasons. To build in some flexibility for all students, each written assignment will have a 3-day grace period. **That is, your written assignments (Video Reaction Papers and Reflection posts) are due on the due date in OnQ but will be accepted, without penalty, up to 72 hours afterwards.** Assignment dropboxes will close 72 hours after the published deadline and assignments not submitted by that time will receive a '0'. This universal design feature precludes your need to use the Faculty's Request for Academic Consideration without documentation portal. Should you have a documented request for more than 72 hours, please do use the portal (details below).

Mid-term

There will be one Mid-term Exam for this course worth 20% of the course mark that will occur online on On-Q. This will take the form of multiple-choice questions. The instructions for this exam will be posted in onQ at least 1 week prior to the due date. Completion of the Mid-term Exam is required for completion of this course. If you are unable to complete the Mid-term

Exam due to extenuating circumstances, you must apply for academic consideration through the method described in this syllabus.

Final Exam

The final exam will cover the entire class (<u>every</u> chapter in the textbook, as well as the material covered in the lectures). It will take the form of a set of multiple-choice questions and will take place online during the normal exam period. It will count for a total of 30% of your overall mark.

Course Materials
Text book: Cognitive Neuroscience: The biology of the mind by M.S, Gazzangia, R.B. Ivry and G.R. Mangun, Norton Fifth Edition.

It can be found here:

https://www.campusbookstore.com/textbooks/search-engine/results?Course=PSYCB05029

Course Timeline
Below is a provisional schedule for this course. **Please note that this may be subject to change.**

Week	#	Section	Tuesday Class	Thursday Class	Assessments
10th Jan	1	Conceptual	Lecture 1 (Chapter 1)	Videos Damasio Chalmers	
17th Jan	2	Conceptual	Lecture 2 (Chapter 1 & 2)	Videos Merzenich Insel	
24th Jan	3	Conceptual	Lecture 3 (Chapter 2)	Video Markham Barrett	Video Reaction Paper 1 (Due Jan-28, 5pm)
31st Jan	4	Conceptual	Lecture 4 (Chapter 3)	Video Kanwisher Boyden	
7th Feb	5	Conceptual	Lecture 5 (Chapters 4-6)	Video Bolte Herculano-Houzel	Video Reaction Paper 2 (Due Feb-11, 5pm)
14th Feb	6	Interacting with the environment	Lecture 6 – Perception for action (Chapter 6)	Mid-term	Mid-term
21st Feb		Reading Week			

28th Feb	7	Interacting with the environment	Lecture 7 Attention (Chapter 7)	Videos LaChaux Jha	
7th Mar	8	Interacting with the environment	Lecture 8 Acting with a goal in mind (Chapter 8)	Videos Wolpert Lozano	Video Reaction paper 3 (Due Mar-11, 5pm)
14th Mar	9	Complex behaviour	Lecture 9 – Memory, and Emotion (Chapter 9 & 10)	Videos Keane Burgess	
21st Mar	10	Complex behaviour	Lecture 10 Cognitive Control (Chapter 12)	Videos Doebel Bavalier	Video Reaction paper 4 (Due Mar-25, 5pm)
28th Mar	11	Complex behaviour	Lecture 11 Language (Chapter 11)	Videos Morin Boriditsky	
4th April	12	Complex behaviour	Lecture 12 Social cognition and consciousness (Chapters 13 and 14)	Videos Saxe Generous	

Suggested Time Commitment

In this course, you should expect to invest on average 8 to 10 hours per week. This will include the time you spend in class or lab/tutorial, studying course material, and completing weekly homework or preparing for your larger assignments and exams. You are encouraged to use a term at a glance and a weekly study schedule (visit SASS) that distributes the 8-10 hours per week and avoid 'cramming'. This way you will be more likely to complete the course successfully and remember what you learned longer.

Timing of Final Examinations

The exam dates for each Term are listed on the Faculty of Arts and Science webpage under Important Dates. Student exam schedules for the Fall Term are posted via SOLUS immediately prior to the Thanksgiving holiday; they are posted on the Friday before Reading Week for the Winter Term and for the summer term, they are individually noted on the Arts and Science Online syllabi. **Students should delay finalizing any travel plans until after the examination schedule has been posted. Exams will not be moved or deferred to accommodate employment, travel/holiday plans or flight reservations.**

Grading Scheme and Grading Method

All components of this course will receive numerical percentage marks. The final grade you receive for the course will be derived by converting your numerical course average to a letter grade according to Queen's Official Grade Conversion Scale:

Queen's Official Grade Conversion Scale

Grade	Numerical Course Average (Range)
A+	90-100
A	85-89
A-	80-84
B+	77-79
B	73-76
B-	70-72
C+	67-69
C	63-66
C-	60-62
D+	57-59
D	53-56
D-	50-52
F	49 and below

Questions about the Course and Contacting the Teaching Team
Where possible please use the course email to contact the teaching team:
psyc320@queensu.ca

Course Announcements
All course announcements will be made on the on-Q site.

Accommodations for Disabilities
Queen's University is committed to achieving full accessibility for people with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all their academic activities. The Senate Policy for Accommodations for Students with Disabilities was approved at Senate in November 2016. If you are a student with a disability and think you may need academic accommodations, you are strongly encouraged to contact the **Queen's Student Accessibility Services (QSAS)** and register as early as possible. For more information, including important deadlines, please visit the QSAS website.

Academic Consideration for Students in Extenuating Circumstances
Academic consideration is a process for the university community to provide a compassionate response to assist students experiencing unforeseen, short-term extenuating circumstances

that may impact or impede a student's ability to complete their academics. This may include but is not limited to:

- Short-term physical or mental health issues (e.g., stomach flu, pneumonia, COVID diagnosis, vaccination, etc.)
- Responses to traumatic events (e.g., Death of a loved one, divorce, sexual assault, social injustice, etc.)
- Requirements by law or public health authorities (e.g., court date, isolation due to COVID exposure, etc.)

Queen's University is committed to providing academic consideration to students experiencing extenuating circumstances. For more information, please see the Senate Policy on Academic Consideration for Students in Extenuating Circumstances.

Each Faculty has developed a protocol to provide a consistent and equitable approach in dealing with requests for academic consideration for students facing extenuating circumstances. Arts and Science undergraduate students can find the Faculty of Arts and Science protocol and the portal where a request can be submitted. Students in other Faculties and Schools who are enrolled in this course should refer to the protocol for their home Faculty.

If you need to request academic consideration for this course, you will be required to provide the name and email address of the instructor/coordinator. Please use the following contact information:

Instructor/Course Coordinator Name: Jack Parsons
Instructor/Course Coordinator email address: Psyc320@queensu.ca

Students are encouraged to submit requests as soon as the need becomes apparent and to contact their Professors/Course Coordinators as soon as possible once Consideration has been granted. Any delay in contact may limit the Consideration options available.

For more information on the Academic Consideration process, what is and is not an extenuating circumstance, and to submit an Academic Consideration request, please see our website.

Winter term centralized deferred exam period: May 12th-15th 2022

Students receiving permission to write a deferred midyear or final exam are expected to write their exam during this deferred exam period. Requests for individualized deferred exam dates will not normally be accommodated. The deferred exam is considered an official exam to which all the exam regulations apply. The Exams Office will set a conflict-free schedule for each student.

Academic Integrity

Copyright of Course Materials
Unless otherwise stated, the material on the course website is copyrighted and is for the sole use of students registered in Psyc320. The material on the website may be downloaded for a registered student's personal use but shall not be distributed or disseminated to anyone other than students registered in this course.

Privacy Statement for Instructors Who Use Third-Party Software in their Course
This course makes use of TED.com for the videos associated with the class. Be aware that by logging into the site, you will be leaving onQ, and accessing [the name of company's] website and [name of software application]. Your independent use of that site, *beyond what is required for the course (for example, purchasing the company's products),* is subject to TED's terms of use and privacy policy.

You are encouraged to review these documents using the link(s) below before using the site.

You are encouraged to review the applicable privacy statements before using the site.

https://www.ted.com/about/our-organization/our-policies-terms/privacy-policy

Technology Requirements

Calculator Policy
As noted in Academic Regulation 9.2, "Calculators acceptable for use during quizzes, tests and examinations are intended to support the basic calculating functions required by most Arts and Science courses. For this purpose, the use of the **Casio 991 series calculator** is permitted and is the only approved calculator for Arts and Science students."

Turnitin Statement
This course uses Turnitin, a third-party application that helps maintain standards of excellence in academic integrity. Normally, students will be required to submit their course assignments through onQ to Turnitin. In doing so, students' work will be included as source documents in the Turnitin reference database, where they will be used solely to detect plagiarism.
Turnitin is a suite of tools that provide instructors with information about the authenticity of submitted work and facilitates the process of grading. Turnitin compares submitted files against its extensive database of content, and produces a similarity report and a similarity score for each assignment. A similarity score is the percentage of a document that is similar to content held within the database. Turnitin does not determine if an instance of plagiarism has occurred. Instead, it gives instructors the information they need to select the authenticity of work as a part of a larger process.

Please read Turnitin's Privacy Pledge, Privacy Policy, and Terms of Service, which govern users' relationship with Turnitin. Also, please note that Turnitin uses cookies and other tracking

technologies; however, in its service contract with Queen's, Turnitin has agreed that neither Turnitin nor its third-party partners will use data collected through cookies or other tracking technologies for marketing or advertising purposes. For further information about how you can exercise control over cookies, see Turnitin's Privacy Policy

Turnitin may provide other services that are not connected to the purpose for which Queen's University has engaged Turnitin. Your independent use of Turnitin's other services is subject solely to Turnitin's Terms of Service and Privacy Policy, and Queen's University has no liability for any independent interaction you choose to have with Turnitin.

Remote Proctoring Statement
Selected assessments in this course will use remote proctoring provided by Examity, which is a third-party, cloud-based service that enables the completion of a proctored exam or test from an off-campus location, through onQ. This cloud-based proctoring solution was chosen as part of the approach to maintaining academic integrity when remote proctoring is required. Precise details about how remote proctoring will be used in this course will be provided by the instructor.
Queen's has conducted an extensive privacy and security review of Examity and has entered into a binding agreement with terms that address the appropriate collection, use and disclosure of personal information in accordance with Ontario's privacy legislation. You should also take measures yourself to protect your information by keeping your NetID password and challenge questions private, closing all applications prior to starting an exam/test, and ensuring your device is updated and safeguarded against malware. For more information about remote proctoring, please see *http://www.queensu.ca/registrar/students/examinations/exams-office-services/remote-proctoring*