



**University
of Victoria**

**University of Victoria, Faculty of Social Sciences, Department of Psychology
PSYCHOLOGY 351c
Cognitive Neuroscience**

Term: Spring (Jan – May) 2021 CRN: 22572 Time: MWTh 3:30 pm – 4:20 pm Room: Virtual via Zoom Room Link: TBD	Instructor: Chad Williams (He/Him; Please call me Chad) Email: ccwillia@uvic.ca, Twitter: @WilliamsNeuro Website: www.chadcwilliams.com Office: McKinnon 186 Office Hours: TBD. Teaching Assistant: Josh Palmer Email: jmpalmer@uvic.ca Office Hours: TBD
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ACKNOWLEDGEMENT AND INCLUSION STATEMENTS

TERRITORY ACKNOWLEDGEMENT

We acknowledge with respect the Lekwungen peoples on whose traditional territory the university stands and the Songhees, Esquimalt and WSÁNEĆ peoples whose historical relationships with the land continue to this day.

GENERAL STATEMENT OF LEARNING ENVIRONMENT

The University of Victoria and myself are committed to promoting a supportive and positive environment to facilitate a safe learning experience. If there are any concerns regarding the content of this course, please reach out to me as soon as possible.

WELLNESS STATEMENT

Please always put your health first. I understand that there is a lot of pressure on University Students, and I want you to always remember that you need to consider your physical and mental well-being with the highest regard. I am here to support you in this class and offer that you may reach out to me if you are struggling with mental health to potentially adapt the course to your needs (e.g., flexible deadlines). If you are in need of support, the University of Victoria has resources, which you may want to take advantage of, which are outlined here: www.uvic.ca/services/counselling/. Please, take care.

DIVERSITY AND INCLUSION STATEMENT

The University of Victoria embraces an inclusive learning community that respects and recognizes that we are enriched and strengthened by diversity including, but not limited to, ethnicity and national origins, language, gender and gender identity, sexuality, ability, age, socioeconomic status, and spirituality. We are committed to increasing the participation of people who have been historically and systemically excluded from higher education and welcome all who share this aspiration. We are committed to answering the Calls to Action from the Truth and Reconciliation Commission of Canada. We are a campus that educates for and encourages respect, acceptance of others, inclusion and diversity, with one principal limit: acts that incite hatred, espouse or encourage bigotry, either implied or explicit, will not be tolerated. Please also consult the **UVic equity policy**: www.uvic.ca/equity/index.php.

COURSE INFORMATION

INSTRUCTOR: CHAD WILLIAMS

Hello and welcome to Cognitive Neuroscience! My name is Chad Williams and I will be your professor for this course. My educational background includes a Bachelor's of Science in Psychology and a Master's of Neuroscience, both acquired here at the University of Victoria. I am currently a third year PhD Candidate in the Neuroscience Program. My teaching experience spans across a variety of content in psychology, neuroscience, and statistics. My research investigates the neural underpinnings (via electroencephalography or EEG) of decision making in complex environments, such as within the emergency room of hospitals or within simulated habitats for space exploration.



INSTRUCTOR EXPECTATIONS

Below, I outline the expectations I have of you; however, I feel it is necessary to also outline what you may expect of me. In the acknowledgement and inclusion statements above, I briefly describe that I strive to provide a safe and positive environment for all students. Thus, you may expect me to treat everyone with respect. In addition, I will ensure that I am always timely with class as well as with scheduled office hours and meetings. You may also expect me to provide you with examples and rubrics for your exams and assignments with ample time so that you may not only prepare yourself adequately, but also keep these in mind as we progress through class. Finally, I will promptly provide you with feedback on your exams and assignments to ensure that we have enough time to discuss my comments if needed.

CALENDAR DESCRIPTION

Emphasizes the study of mind-brain relationships using brain imaging techniques including functional MRI and electroencephalography as well as brain-based models of mental processes. Topic areas will include perception and attention, object recognition, memory, cognitive control, decision-making and language.

COURSE OBJECTIVES

- [1] For you to gain a deeper understanding of the variety of cognitive neuroscience methods.
- [2] Improve your knowledge of different cognitive mechanisms in terms of the brain and neuroscience.
- [3] Develop your ability to critically read and evaluate neuroscience research.

PREREQUISITES AND REGISTRATION

PSYC 201 and PSYC 251. Students who remain in courses for which they do not have the prerequisites do so at their own risk. Those who complete courses without prerequisites are not exempt from having to complete the prerequisite course(s) at some later date if such courses are required for the degree program. Students are responsible for checking their registration status by the add/drop deadline.

REQUIRED TEXTBOOK

Gazzaniga, M. S., et al. (2018). *Cognitive Neuroscience: The Biology of the Mind* (5th edition). New York: W. W. Norton & Company, Inc.

OPTIONAL TEXTBOOK (RELEVANT READINGS WILL BE FREELY PROVIDED ON BRIGHTSPACES)

Newman, A. (2019). *Research Methods for Cognitive Neuroscience*. Sage Publications.

BRIGHTSPACES

All material for this course, and student evaluations, will be through Brightspaces (www.bright.uvic.ca). This will include materials such as lecture resources, assignment and exam rubrics, and more.

ASSIGNMENTS AND EVALUATION

COURSE EVALUATION

Midterm Exam 1: 20%

Midterm Exam 2: 20%

Final Exam: 25%

Article Summary (x2): 15% & 20%

Please note that to pass this course you must complete at least one midterm exam, the final exam, and one article summary. For important and due dates, see the schedule below.

EXAMS

You will have 50 minutes to complete each midterm exam within scheduled class time. Exams will be composed of multiple choice questions, fill in the blanks and/or matching questions, and short answer questions. The final exam will take place within the final exam schedule and thus the date is to be determined. This will also be a 50 minute exam. All exams are not cumulative. Exams will be open book, but you may **not** work with others – these are individual assessments. Exams will contain questions from both the lectures and the textbooks.

ASSIGNMENTS

You will select two articles and summarize them. For each summary, I will provide you a list of three articles on BrightSpaces from which you will select. The first summary will take the form of completing the Article Summary Template, provided on BrightSpaces. The second summary will require you to write a summary paper – this summary will be 2-4 pages (doubled spaced, APA style) and must include all of the aspects as outlined in the Article Summary Template. Although I suggest using the template to organize your thoughts prior to writing the second summary, you will not need to submit a completed template for this assignment.

GRADING

The University Undergraduate Grading Scale is attached on the last page of this outline.

ACADEMIC CONCESSION

It is the student's responsibility to attend exams as scheduled. Students who miss an in-class test will receive a mark of zero unless they have a case of documented illness or family emergency. Students who miss the final exam due to illness, accident or family affliction must apply at Records Services for a "Request for Academic Concession", normally with 10 working days of the exam. Make-up exams will only be given for the final exam. For other missed exams with documented illness, other exams will be weighted more heavily.

NOTE

Assignments and evaluations may change at any time at the instructor's discretion.

SCHEDULE

<u>MONDAY</u>	<u>WEDNESDAY</u>	<u>THURSDAY</u>
JAN 11 INTRODUCTION AND SYLLABUS READING: SYLLABUS	JAN 13 SUMMARIZING AN ARTICLE READING: WILLIAMS ET AL., 2019*	JAN 14 THE NERVOUS SYSTEM READING: CHAPTER 2**
JAN 18 COGNITIVE & BEHAVIOURAL METHODS READING: CHAPTER 3	JAN 20 THE DAMAGED BRAIN READING: CHAPTER 3	JAN 21 DISRUPTED NEURAL FUNCTIONING READING: CHAPTER 3
JAN 25 INVASIVE ELECTROPHYSIOLOGY READING: CHAPTER 3	JAN 27 ELECTROPHYSIOLOGY READING: CHAPTER 3 + NEWMAN CHAPTER 3	JAN 28 ELECTROPHYSIOLOGY READING: CHAPTER 3 + NEWMAN CHAPTER 3
FEB 1 STRUCTURAL NEUROIMAGING READING: CHAPTER 3	FEB 3 FUNCTIONAL NEUROIMAGING READING: CHAPTER 3 + NEWMAN CHAPTER 7	FEB 4 FUNCTIONAL NEUROIMAGING READING: CHAPTER 3 + NEWMAN CHAPTER 7
FEB 8 COMPUTATIONAL MODELLING READING: CHAPTER 3	FEB 10 CATCH-UP & REVIEW	FEB 11 EXAM 1
FEB 15 READING BREAK	FEB 17 READING BREAK	FEB 18 READING BREAK
FEB 22 PERCEPTION READING: CHAPTER 5	FEB 24 PERCEPTION READING: CHAPTER 5	FEB 25 PERCEPTION READING: CHAPTER 5
MAR 1 ATTENTION READING: CHAPTER 7	MAR 3 ATTENTION READING: CHAPTER 7	MAR 4 ATTENTION READING: CHAPTER 7
MAR 8 ACTION READING: CHAPTER 8	MAR 10 ACTION READING: CHAPTER 8	MAR 11 CATCH-UP & REVIEW <i>FIRST ARTICLE SUMMARY DUE</i>
MAR 15 EXAM 2	MAR 17 LANGUAGE READING: CHAPTER 11	MAR 18 LANGUAGE READING: CHAPTER 11
MAR 22 MEMORY READING: CHAPTER 9	MAR 24 MEMORY READING: CHAPTER 9	MAR 25 MEMORY READING: CHAPTER 9
MAR 29 COGNITIVE CONTROL READING: CHAPTER 12	MAR 31 COGNITIVE CONTROL READING: CHAPTER 12	APR 1 COGNITIVE CONTROL READING: CHAPTER 12
APR 5 EASTER MONDAY	APR 7 CATCH-UP & REVIEW <i>SECOND ARTICLE SUMMARY DUE</i>	APR 8 BEING A NEUROSCIENTIST
APR 12 BEING A NEUROSCIENTIST	* PLEASE ONLY SKIM THIS ARTICLE. YOU WILL NOT BE TESTED ON THIS ARTICLE. IT IS ONLY MEANT AS AN EXAMPLE FOR THE ARTICLE SUMMARIES. **THIS CHAPTER IS OPTIONAL AND ONLY MEANT FOR REVIEW. EXAM CONTENT FOR THIS TOPIC WILL ONLY INCLUDE THE LECTURE MATERIAL.	



BE WELL

A note to remind you to take care of yourself. Do your best to maintain a healthy lifestyle this semester by eating well, exercising, getting enough sleep and taking some time to relax. This will help you achieve your goals and cope with stress. All of us benefit from support during times of struggle. You are not alone.

Social Life, Friends, & Community at UVic:

Having a social network is an extremely important foundation for positive mental health. There are lots of benefits to joining clubs, course unions, intramurals and teams on campus.

<https://www.uvic.ca/mentalhealth/undergraduate/connecting/index.php>

Counselling Services:

Counselling Services can help you make the most of your university experience. They offer free professional, confidential, inclusive support to currently registered UVic students. www.uvic.ca/services/counselling/

Health Services:

University Health Services (UHS) provides a full service primary health clinic for students, and coordinates healthy student and campus initiatives.

www.uvic.ca/services/health/

Centre for Accessible Learning:

The CAL staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations www.uvic.ca/services/cal/. The sooner you let us know your needs, the quicker we can assist you in achieving your learning goals in this course.

Elders' Voices:

The Office of Indigenous Academic and Community Engagement (IACE) has the privilege of assembling a group of Elders from local communities to guide students, staff, faculty and administration in Indigenous ways of knowing and being.

www.uvic.ca/services/indigenous/students/programming/elders/

Mental Health Supports and Services:

Mental health supports and services are available to students from all areas of the UVic community: www.uvic.ca/mentalhealth/undergraduate/

UNIVERSITY POLICIES

ACADEMIC INTEGRITY

Students must abide by academic regulations as set out in the university calendar. They must observe standards of 'scholarly integrity' especially regarding plagiarism and cheating. The University Senate has approved changes to the Policy on Academic Integrity in the academic calendar to clarify that, “the unauthorized use of an Editor is prohibited, unless the instructor grants explicit written authorization”. This regulation change is effective May 2017. Please refer to Academic Integrity policy here: <https://web.uvic.ca/calendar2019-05/undergrad/info/regulations/academic-integrity.html>

FAIR DEALING / ACCESS COPYRIGHT STATEMENT

Please refer to: <https://www.uvic.ca/library/featured/copyright/fairdealing/statement/index.php>

DISCRIMINATION AND HARASSMENT

Discrimination and Harassment are prohibited at the University of Victoria. Members of the University Community have the right to work, study and participate in activities at the university in an environment free of Discrimination and Harassment. Eligible WorkSafeBC claimants also have a right to an environment free of workplace bullying or harassment as it is defined by regulations pursuant to the British Columbia Worker's Compensation Act.

Please refer to **University of Victoria discrimination and harassment policy** at:

https://www.uvic.ca/universitysecretary/assets/docs/policies/GV0205_1150_.pdf and

WSBC bullying and harassment policies at: https://www.uvic.ca/ohse/assets/docs/BH_policies_Nov1_2013.pdf

SEXUALIZED VIOLENCE PREVENTION AND RESPONSE AT UVIC

UVic takes sexualized violence seriously, and has raised the bar for what is considered acceptable behaviour. We encourage students to learn more about how the university defines sexualized violence and its overall approach by visiting www.uvic.ca/svp. If you or someone you know has been impacted by sexualized violence and needs information, advice, and/or support please contact the sexualized violence resource office in Equity and Human Rights (EQHR). Whether or not you have been directly impacted, if you want to take part in the important prevention work taking place on campus, you can also reach out:

Where: Sexualized violence resource office in EQHR, Sedgewick C119

Phone: 250.721.8021 Email: svpcoordinator@uvic.ca Web: www.uvic.ca/svp

STATEMENT OF COPYRIGHT NOTICE

Please note that all content including, but not limited to, course lecture materials, assignments, and exams are my intellectual property, and are only for instructional purposes. Please do not distribute any content from this course that is not already freely available (e.g., YouTube Tutorials are already freely available).

CENTRE FOR ACCESSIBLE LEARNING (CAL)

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, please feel free to approach me and/or the [Centre for Accessible Learning \(CAL\)](#) as soon as possible. CAL staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations. The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.

OMBUDSPERSON

If You Have an Academic Problem or Concern

Depending on the nature of the academic matter or concern, the order in which you would normally seek assistance or redress is:

1. Instructor
2. Chair, Department of Educational Psychology & Leadership Studies
3. Associate Dean, Undergraduate Programs of Faculty of Education
4. The Senate

If the problem is related to a specific course, the first person you should contact is the course instructor. In addition, you may wish to consult the Office of the Ombudsperson, located at: SUB B205, phone: 250-721-8357, ombuddy@uvic.ca or uvicombudsperson.ca, Monday to Friday.

COURSE EXPERIENCE SURVEY (CES)

I value your feedback on this course. Towards the end of term you will have the opportunity to complete a confidential course experience survey (CES) regarding your learning experience. The survey is vital to providing feedback to me regarding the course and my teaching, as well as to help the department improve the overall program for students in the future. When it is time for you to complete the survey, you will receive an email inviting you to do so. If you do not receive an email invitation, you can go directly to <http://ces.uvic.ca>. You will need to use your UVic NetLink ID to access the survey, which can be done on your laptop, tablet or mobile device. I will remind you nearer the time, but please be thinking about this important activity, especially the following three questions, during the course.

1. What strengths did your **instructor** demonstrate that helped you learn in this course?
2. Please provide specific suggestions as to how the **instructor** could have helped you learn more effectively.
3. Please provide specific suggestions as to how this **course** could be improved.

Undergraduate Grading Scale			
Passing Grades	Grade Point Value	Percentage For Instructor Use Only *	Description
A+	9	90 – 100	Exceptional, outstanding and excellent performance. Normally achieved by a minority of students. These grades indicate a student who is self-initiating, exceeds expectation and has an insightful grasp of the subject matter.
A	8	85 – 89	
A-	7	80 – 84	
B+	6	77 – 79	Very good, good and solid performance. Normally achieved by the largest number of students. These grades indicate a good grasp of the subject matter or excellent grasp in one area balanced with satisfactory grasp in the other area.
B	5	73 – 76	
B-	4	70 – 72	
C+	3	65 – 69	Satisfactory, or minimally satisfactory. These grades indicate a satisfactory performance and knowledge of the subject matter.
C	2	60 – 64	
D	1	50 – 59	Marginal Performance. A student receiving this grade demonstrated a superficial grasp of the subject matter.
COM	Excluded Grade		Complete (pass). Used only for 0-unit courses and those credit courses designated by the Senate. Such courses are identified in the course listings.
Failing Grades	Grade Point Value	Percentage For Instructor Use Only *	Description
E	0	TBD	Conditional supplemental.
F	0	0 – 49	Unsatisfactory performance. Wrote final examination and completed course requirements; no supplemental.
N	0	0 – 49	Did not write examination or complete course requirements by the end of term or session; no supplemental.
N/X	Excluded Grade		Did not complete course requirements by the end of the term; no supplemental. Used only for co-op work terms and for courses designated by Senate. Such courses are identified in the course listings. The grade is EXCLUDED from the calculation of all grade point averages.
F/X	Excluded Grade		Unsatisfactory performance. Completed course requirements; no supplemental. Used only for co-op work terms and for courses designated by Senate. Such courses are identified in the course listings. The grade is EXCLUDED from the calculation of all grade point averages.
Temporary Grade	Grade Point Value	Percentage For Instructor Use Only *	Description
INC	N/A		Incomplete. Used only for those credit courses designated by the Senate, to be replaced with a final grade by June 1. Such courses are identified in the course listings.
DEF	N/A		Deferred status granted. Used only when deferred status has been granted because of illness, an accident or family affliction. See Deferred Status, page 36.
INP	N/A		In Progress. Used only for courses designated by Senate, to be replaced with a final grade by the end of the next Winter Session except for TIED courses (identified in the <i>Calendar</i>). In TIED courses the INP must be replaced with a final grade by the end of the subsequent term (including Summer Session) or, where a co-op Work Term intervenes, within eight months. If a student fails to complete the second course of a TIED course sequence, then the final grade will be N.
CIC	N/A		Co-op Interrupted Course. See Co-op Regulations (14), page 46.
CTN	N/A		The CTN designation will appear on student transcripts at mid-point through the course or at the end of the first academic term (Sept-Dec). On completion of the course, the designation will be replaced with a final grade.
Grade Note			Aegrotat. Transcript notation accompanying a letter grade, assigned where documented illness or similar affliction affected the student's performance or prevented completion of all course work.
<p>*These percentage ranges are standardized and will be used by all instructors in determining letter grades effective May 2012.</p> <p>The percentage is not recorded on the student academic record or displayed on the student official transcript; the official 9 point grading system and letter grades are displayed on the academic record and official transcript.</p> <p>The University Senate has approved transition from the 9 point grading system to a percentage grading system and the implementation is planned to take effect May 2014.</p>			