

**University of Waterloo**  
**Department of Psychology**  
**Psych 335: Developmental Neuropsychology**  
**B2 350**  
**Fall 2023**

**Instructor and TA Information**

Instructor and email:	Dr. Tara McAuley, tmcauley@uwaterloo.ca (responded to Mon – Fri)
Instructor office hours:	Virtual or in-person, by appointment
TA and email:	Sophie Kudryk, smkudryk@uwaterloo.ca
TA office hours:	TBD

**Course Description**

In this course, we begin with the final assignment: you, a trainee in neuropsychology, are tasked with interpreting a child's assessment data to answer presenting referral questions and provide appropriate treatment recommendations. Doing so will require that you draw upon and integrate knowledge acquired in the three major components of the course (structural development of the brain, emergence of functional brain systems, neuropsychological underpinnings of childhood brain disorders).

**Major Learning Outcomes**

By the end of this course, you should be able to:

- A. Describe themes and stages of brain development
- B. Identify brain circuits supporting the development of neuropsychological functions
- C. Be familiar with clinical tools for assessing these functions in children and youth
- D. Identify moderating influences on the association of early brain insult on future outcome
- E. Describe the neural, cognitive, and behavioural sequelae of illustrative brain-based disorders of childhood

**Required Materials**

To the extent possible, course materials can be accessed freely in the public domain (click on the url in the schedule below). Other required materials are available in a digital custom courseware package that you will need to purchase from the UW bookstore (due to a backlog, the package will not be available until a few weeks into the course). There is a fee associated with the package because the readings are copyright protected.

**Meeting Plan**

We will meet in-person for all scheduled classes, though will pivot to MS Teams if in-person learning is not possible (e.g., if mandated to do so by the university or if the instructor becomes ill).

If you are ill, please self-isolate and do not come to class. Lecture slides are always posted on LEARN and I (the course instructor) am available to meet with you, either virtually or in-person, when you return to campus. Students who miss problem-based exercises due to illness must notify me beforehand and will be given the option of submitting a one-page make-up assignment.

**Course Requirements and Assessment**

<b>Assessment</b>	<b>Due Date</b>	<b>Weighting</b>
Quizzes	Must be completed within a 2-hour window on Mon Sept 25, Mon Oct 16, Mon Nov 13, and Tues Dec 5 between 6 am and 11:30 pm	4 x 15% = 60%
Problem Based Learning Exercises	Sept 14 & 19, Oct 24 & 26	2 x 5% = 10%
Final Assignment - Group Presentation	Presentation slides are due on or before Mon Nov 20. In-class presentations will be scheduled by draw for Nov 28 & 30.	Slides = 10% Presentation = 5%
Final Assignment – Individual Paper	An annotated bibliography is due no later than Wed Nov 8. An outline is due on or before Fri Nov 20. The final paper is due no later than Tues Dec 5.	Bibliography = 5% Outline = 5% Final Version = 5%
Discussion Board Introduction	Open from Thurs Sept 7 at 6 am to Thurs Sept 21 at 11:30 pm	Bonus 1%
<b>Total</b>		<b>101%</b>

*Quizzes (4 x 15% = 60%)*

Frequent quizzes are intended to help you keep-up with course content and consolidate your learning of more manageable chunks of information compared with mid-terms and/or a cumulative final exam. Quizzes will be based on lectures, problem-based learning exercises, student presentations, and assigned materials. They will be ‘open-book’ and are intended to assess basic knowledge and application of this knowledge to real-world situations. **Quizzes must be completed within a 2-hour window on LEARN between 6 am and 11:30 pm on specified dates (see schedule).** Sharing of questions with other students is strictly prohibited. There are no make-up dates for missed quizzes other than for illness or bereavement and you must notify me before the quiz date.

*Problem Based Learning Exercises (2 x 5% = 10%)*

These small-group exercises will give you an opportunity to work through applied scenarios with instructor feedback prior to the final assignment. You will receive credit for making positive contributions to your small group deliberations and sharing information about your scenario with the class. A grading rubric for the PBLs will be made available on LEARN.

*Final Assignment (Group Presentation: 15%; Individual Paper: 15%)*

In lieu of a final exam, the final assignment integrates information across the entirety of the course. In the final third of our course, you will have the opportunity to use protected class time to meet with your group and/or to start working independently on your paper. Assignment instructions and a grading rubric will be made available on LEARN.

- a. **Group Presentation:** The group presentation will require you and other students to collaboratively work through and present a real assessment case in a rounds format. Grading is comprised of two components – presentation slides and the presentation itself. Presentation slides must be uploaded to LEARN on or before Nov 20 for review (10%). Feedback will be provided to groups in meetings scheduled during class time on Nov 21 & 23. The purpose of the meetings is for groups to receive input on the content of their slides such that revisions can be made prior to the in-class presentation (e.g., correcting inaccuracies, identifying information gaps to be filled, etc.). In-class presentations will be scheduled by draw for Nov 28 & 30 (5%).
- b. **Individual Paper:** The individual paper will require you to independently identify an evidence-based treatment that is logically related to a key assessment finding from your case. Grading is comprised of three components – an annotated bibliography due on or before Nov 8 (5%), an outline of the paper due on or before Nov 24 (5%), and a final polished version of the paper due on or before Dec 5 (5%). Late papers will not be accepted unless there are exceptional circumstances (e.g., verified illness, bereavement).

All three components of the individual paper must be uploaded to LEARN. Text matching software (Turnitin®) will be used to verify that use of all materials and sources are documented. Students who do not want to have their assignment screened by Turnitin may submit their assignment directly to the instructor along with hard copies of cited material in which cited information is highlighted (i.e., parts of lecture slides or readings in which you highlight where you have obtained information). PLEASE ENSURE THAT YOU ARE AWARE OF WHAT PLAGIARISM IS AND HOW IT MAY BE AVOIDED IN YOUR WORK (e.g., [subjectguides.uwaterloo.ca/plagiarism](http://subjectguides.uwaterloo.ca/plagiarism)). Plagiarism is a serious academic offence and assignments that are plagiarized may, at the instructor's discretion, receive a hefty penalty (e.g., a grade of 0) and be referred to the Dean.

#### *Discussion Board Intro (Bonus 1%)*

Early in the term, students will have the opportunity to introduce themselves to the class using the discussion board. This helps the TA and I get to know students and students to get to know one another.

#### **Course Policy re: Artificial Intelligence**

This course encourages the independent development and practice of specific skills, such as collecting, synthesizing, and analyzing information and writing. Therefore, the use of generative artificial intelligence (GenAI) trained using large language models (LLM) or other methods to produce text, images, music, or code, like Chat GPT, DALL-E, or GitHub CoPilot, is not permitted in this class. Unauthorized use in this course, such as running course materials through GenAI or using GenAI to complete a course assessment is considered a violation of Policy 71 (plagiarism or unauthorized aids or assistance). Work produced with the assistance of AI tools does not represent the author's original work and is therefore in violation of the fundamental values of academic integrity including honesty, trust, respect, fairness, responsibility and courage (ICAI, n.d.).

You should be prepared to show your work. To demonstrate your learning, you should keep your rough notes, including research notes, brainstorming, and drafting notes. You may be asked to submit these

notes along with earlier drafts of their work, either through saved drafts or saved versions of a document. If the use of GenAI is suspected where not permitted, you may be asked to meet with your instructor or TA to provide explanations to support the submitted material as being your original work. Through this process, if you have not sufficiently supported your work, academic misconduct allegations may be brought to the Associate Dean.

In addition, you should be aware that the legal/copyright status of generative AI inputs and outputs is unclear. More information is available from the Copyright Advisory Committee:  
<https://uwaterloo.ca/copyright-at-waterloo/teaching/generative-artificial-intelligence>

### **Roles and Responsibilities**

You (the student) are expected to attend lectures, participate in class, familiarize yourself with the required assigned materials, and connect with me (the instructor) when something about the course is unclear. I (the instructor) will be available to address any questions that you have about any aspect of the course. I will upload pdfs of slides to LEARN prior to lectures. PowerPoint files will not be released to students. Your TA will hold office hours for quiz review, create groups for the final assignment, consult with groups on their teamwork and progress, and assist me with the provision of feedback and grading.

### **Intellectual Property**

This course contains the intellectual property of the course instructor as well as others. Intellectual property includes items such as:

- Lecture content, spoken and written (and any audio/video recording thereof);
- Lecture handouts, presentations, and other materials prepared for the course
- Questions or solution sets from various types of assessments (e.g., quizzes); and
- Work protected by copyright (e.g., any work authored by the instructor or used by the instructor with permission of the copyright owner, course readings, etc.).

Course materials and the intellectual property contained therein, are used to enhance a student's educational experience. However, sharing this intellectual property without the intellectual property owner's permission is a violation of intellectual property rights. For this reason, it is necessary to ask the instructor for permission before uploading and sharing the intellectual property of others online (e.g., to an online repository).

Permission from an instructor is also necessary before sharing the intellectual property of others from completed courses with students taking the same/similar courses in subsequent terms/years. In many cases, instructors might be happy to allow distribution of certain materials. However, doing so without expressed permission is considered a violation of intellectual property rights.

Please alert the instructor if you become aware of intellectual property belonging to others (past or present) circulating, either through the student body or online. The intellectual property rights owner deserves to know (and may have already given their consent).

**Academic Integrity.** In order to maintain a culture of academic integrity, members of the University of Waterloo are expected to promote honesty, trust, fairness, respect and responsibility. See the [Office of Academic Integrity webpage](#) for more information.

**Discipline.** A student is expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for his/her actions. Check [the Office of Academic Integrity](#) for more information. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about “rules” for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean. When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 – Student Discipline. For information on categories of offenses and types of penalties, students should refer to [Policy 71 - Student Discipline](#). For typical penalties check [Guidelines for the Assessment of Penalties](#).

### **Concerns about a Course Policy or Decision**

**Informal Stage.** We in the Psychology Department take great pride in the high quality of our program and our instructors. Though infrequent, we know that students occasionally find themselves in situations of conflict with their instructors over course policies or grade assessments. If such a conflict arises, the Associate Chair for Undergraduate Affairs (Richard Eibach) is available for consultation and to mediate a resolution between the student and instructor: Email: [reibach@uwaterloo.ca](mailto:reibach@uwaterloo.ca); Ph 519-888-4567 ext. 38790.

**Grievance.** A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70 - Student Petitions and Grievances, Section 4. When in doubt, please be certain to contact Richard Eibach, the Associate Chair for Undergraduate Affairs who will provide further assistance; [reibach@uwaterloo.ca](mailto:reibach@uwaterloo.ca).

**Appeals.** A decision made or penalty imposed under Policy 70 - Student Petitions and Grievances (other than a petition) or Policy 71 - Student Discipline may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to [Policy 72 - Student Appeals](#).

**Note for Students with Disabilities.** The [AccessAbility Services](#) office, located on the first floor of the Needles Hall extension (NH 1401), collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the AS office at the beginning of each academic term.

**Accommodation for course requirements for Psychology courses.** Policies of the Psychology department pertaining to course requirements are available on the [department website](#).

**Schedule**

Date	Topic	Assigned Pre-Lecture Material	Important Dates
Sept 7	Introduction	Reid, Gerald and Reid, Alexis (Hosts). (2022, November 17). What are Neuropsychological Evaluations? (No. 6) [Audio podcast episode]. In <i>The Reid Connect-Ed Podcast</i> . <a href="https://reidconnect.com/reid-connect-ed-podcast/f/episode-6-what-are-neuropsychological-evaluations">https://reidconnect.com/reid-connect-ed-podcast/f/episode-6-what-are-neuropsychological-evaluations</a>	<p><b>Discussion Board</b> introductions open Thurs Sept 7 at 6 am to Thurs Sept 21 at 11:30 pm</p> <p><b>Quiz 1</b> open Mon Sept 25 from 6 am to 11:30 pm. Covers intro, brain development, neurodevelopmental malformations, and early brain insult.</p>
Sept 12	Brain development	Stiles, J., & Jernigan, T. L. (2010). The basics of brain development. <i>Neuropsychology Review</i> , 20(4), 327-348. <a href="https://doi.org/10.1007/s11065-010-9148-4">https://doi.org/10.1007/s11065-010-9148-4</a>	
Sept 14 & 19	Neurodevelopmental malformations	N/A - problem based learning session. Students will work in groups to map neurodevelopmental malformations onto stages of brain development.	
Sept 21	Early brain insult and recovery	Anderson, V., Spencer-Smith, M., & Wood, A. (2011). Do children really recover better? Neurobehavioural plasticity after early brain insult. <i>Brain</i> , 134(8), 2197-2221. <a href="https://doi.org/10.1093/brain/awr103">https://doi.org/10.1093/brain/awr103</a>	
Sept 26	Testing Part 1	<p>Riccio, C. A., &amp; Reynolds, C. R. (2013). Principles of Neuropsychological Assessment in Children and Adolescents. In D. H. Saklofske, C. R. Reynolds, &amp; V. Schwane (Eds.), <i>The Oxford handbook of child psychological assessment</i> (pp. 331-347). Oxford University Press. <a href="https://doi-org.proxy.lib.uwaterloo.ca/10.1093/oxfordhb/9780199796304.013.0014">https://doi-org.proxy.lib.uwaterloo.ca/10.1093/oxfordhb/9780199796304.013.0014</a></p> <p>Guilmette, T. J., Sweet, J. J., Hebben, N., Koltai, D., Mahone, E. M., Spiegler, B. J., ... &amp; Conference Participants. (2020). American Academy of Clinical Neuropsychology consensus conference statement on uniform labeling of</p>	

Date	Topic	Assigned Pre-Lecture Material	Important Dates
		performance test scores. <i>The Clinical Neuropsychologist</i> , 34(3), 437-453. <a href="https://doi.org/10.1080/13854046.2020.1722244">https://doi.org/10.1080/13854046.2020.1722244</a>	<b>Quiz 2</b> open Mon Oct 16 from 6 am to 11:30 pm. Covers testing part 1, visual functions, attention, and memory.
Sept 28	"What" and "Where" Visual Functions	Maurer, D., & Lewis, T. L. (2018). Visual systems. In R. Gibb & B. Kolb (Eds.), <i>The neurobiology of brain and behavioral development</i> (pp. 213-233). Academic Press. <a href="https://www.sciencedirect.com/science/article/pii/B978012804036200008X">https://www.sciencedirect.com/science/article/pii/B978012804036200008X</a>	
Oct 3	Attention	Sinclair, M., & Taylor, E. (2008). The neuropsychology of attention development. In J. Reed & J. Warner-Rodgers (Eds.), <i>Child neuropsychology: Concepts, theory, and practice</i> (pp.235-263). Wiley-Blackwell, Walden, MA.	
Oct 5	Memory	MacNeill Horton, A., & Soper, H. (2008). The neuropsychology of children's memory. In J. Reed & J. Warner-Rodgers (Eds.), <i>Child neuropsychology: Concepts, theory, and practice</i> (pp.218-234). Wiley-Blackwell, Walden, MA.	
Oct 10 & 12	<b>FALL BREAK!</b>		
Oct 17	Language	Dick, F., Leech, R., & Richardson, F. (2008). The neuropsychology of language development. In J. Reed & J. Warner-Rodgers (Eds.), <i>Child neuropsychology: Concepts, theory, and practice</i> (pp.140-182). Wiley-Blackwell, Walden, MA.	<b>Quiz 3</b> open Mon Nov 13 from 6 am to 11:30 pm. Covers language, executive functions, FASD, and PKU.
Oct 19	Executive Functions	Perone, S., Almy, B., & Zelazo, P. D. (2018). Toward an understanding of the neural basis of executive function development. In <i>The neurobiology of brain and behavioral development</i> (pp. 291-314). Academic Press. <a href="https://www.sciencedirect.com/science/article/pii/B978012804036200011X">https://www.sciencedirect.com/science/article/pii/B978012804036200011X</a>	
Oct 24 & 26	Testing Part 2	N/A - problem based learning session: Students will work in groups to interpret assessment results in illustrative cases.	

Date	Topic	Assigned Pre-Lecture Material	Important Dates
NO CLASS OCT 31 (Teams should meet)  Nov 2	Fetal Alcohol Spectrum Disorder	Glass, L., & Mattson, S. N. (2016). Fetal alcohol spectrum disorders: Academic and psychosocial outcomes. In Riccio, C.A., & Sullivan, J.R. (Eds.). <i>Pediatric neurotoxicology: Academic and psychosocial outcomes</i> (pp. 13-49). Springer, Boston, MA. <a href="https://link.springer.com/content/pdf/10.1007/978-3-319-32358-9.pdf">https://link.springer.com/content/pdf/10.1007/978-3-319-32358-9.pdf</a>	
NO CLASS NOV 7 (Teams should meet)  Nov 9	Phenylketonuria	Waisbren, A.E., & Anshtel, K.M. (2013). Phenylketonuria. In I.S. Baron & C. Rey-Casserly (Eds). <i>Pediatric neuropsychology: Medical advances and lifespan outcomes</i> (pp. 219-236). Oxford University Press, Oxford, UK.	
NO CLASS NOV 14 (Teams should meet)  Nov 16	Traumatic Brain Injury	Kirkwood, M.W., Peterson, R.L., & Yeates, K.O. (2013). Traumatic Brain Injury. In I.S. Baron & C. Rey-Casserly (Eds). <i>Pediatric neuropsychology: Medical advances and lifespan outcomes</i> (pp. 302-320). Oxford University Press, Oxford, UK.	<b>Quiz 4</b> open Tues Dec 5 from 6 am to 11:30 pm. Covers TBI, student case presentations, and training considerations.
NO CLASS NOV 21 & 23 (Teams should meet amongst selves and schedule check-in with instructor)			
Nov 28 & 30	<b>Student Presentations</b>		
Dec 5	Training Considerations	Hartlage L.C., Long C.J. (2009) Development of Neuropsychology as a Professional Psychological Specialty: History, Training, and Credentialing. In: Reynolds C.R., Fletcher-Janzen E. (Eds) <i>Handbook of Clinical Child Neuropsychology</i> (pp. 3-18). Springer, Boston, MA. <a href="https://link.springer.com/chapter/10.1007/978-0-387-78867-8_1">https://link.springer.com/chapter/10.1007/978-0-387-78867-8_1</a>	