

Psychology 363: Developmental Neuropsychology

Tuesdays & Thursdays, 1 – 2:20 pm, PAS 2083

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Course Description: Developmental neuropsychology is a field in which brain-behaviour relationships are examined in the context of typical and atypical development. This course will focus on the structural development of the brain, the emergence of functional brain systems, and the neuropsychological underpinnings of childhood brain disorders. Emphasis will be placed on the integration of theoretical perspectives and empirical research in neuropsychology with clinical practice.

Course Web Site: Announcements, articles, lecture slides, and grades will be posted on the course web site in Learn.

Required Readings: Required readings have been compiled in a custom course pack that is available for purchase at the UW Book Store. Optional readings (e.g., case studies) and readings for the assignments can be accessed on the course web site in Learn. A supplementary brain atlas is available on reserve at the UW Porter library (3 hour loan).

Learning Objectives:

1. Become familiar with the structural and functional development of the brain
2. Develop a working knowledge of neuropsychological functions and the ways in which they are commonly measured in children
3. Understand the neuropsychological consequences of brain-based disorders of childhood
4. Identify and evaluate goals for neuropsychological interventions

Outcome Measures: Your final grade will depend on the points you accrue on two exams and four critical reflection papers. The exams will be based on assigned readings and lecture material. They will consist of objective questions (e.g., multiple choice, fill-in-the-blank, short answer) and will require knowledge of basic facts and the application of these facts to real-world situations. The critical reflection papers will require that you

read and report on empirical studies or articles from the popular media related to the field of developmental neuropsychology. The breakdown of grades will be as follows:

Exam 1:	30 points
Exam 2:	30 points
Papers:	40 points (10 points each x 4 papers)
Total:	100 points

Policy on Exams: Students may only miss an exam in extenuating circumstances and appropriate documentation must be provided. Please note that student travel plans are not acceptable grounds for missing an exam. Students in extenuating circumstances and with acceptable documentation must contact the instructor no later than 48 hours after the exam date. If contact is made, the student will be permitted to take a cumulative final. If no contact is made, a mark of 0 will be given for the exam. **There are no make-up exams in this course.** Information regarding University policies for missed exams is available at www.registrar.uwaterloo.ca/exams/ExamRegs.pdf.

Policy on Assignments: Assignments should be uploaded to the Dropbox on the course web site in Learn. All assignments must be submitted prior to the start of class on the identified due date (i.e., prior to 1 pm). Late assignments will only be accepted in extenuating circumstances and with appropriate documentation. Please note that student travel plans are not acceptable grounds for a late submission. If a student anticipates being absent from class on the day that an assignment is due, the student should e-mail his/her assignment to the instructor beforehand. Students in extenuating circumstances and with acceptable documentation must contact the instructor no later than 48 hours after the assignment due date. If no contact is made, a mark of 0 will be given for the assignment. Information regarding University policies for late assignments is available at www.registrar.uwaterloo.ca/exams/ExamRegs.pdf.

Plagiarism detection software (Turnitin) will be used to screen assignments in this course to verify that use of all materials and sources is 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 (if applicable).

Plagiarism is a serious academic offence. Assignments that are plagiarized may, at the discretion of the instructor, receive a grade of 0. ***To avoid potential problems, please familiarize yourselves with plagiarism and make sure to appropriately cite all ideas that are not your own.*** See the following link for more information: www.lib.uwaterloo.ca/ait/purchase.html.

Opportunity for Extra Credit: Students may earn a "bonus" grade of up to 4% through research experience. This bonus will be added to the final grade up to a maximum of 100 points (i.e., it is not possible to earn more than 100 points in the course). The two

options for earning the bonus are described below. Students may complete any combination of these options to earn research experience grades.

Option 1: Participation in Psychology Research

Research participation is coordinated by the Research Experiences Group (REG). Psychology students may volunteer as research participants in lab and/or online (web-based) studies conducted by students and faculty in the Department of Psychology. Participation enables students to learn first-hand about psychology research and related concepts. Many students report that participation in research is both an educational and interesting experience. Please be assured that all psychology studies have undergone prior ethics review and clearance through the Office of Research Ethics.

Educational focus of participation in research

To maximize the educational benefits of participating in research, students will receive feedback information following their participation in each study detailing the following elements:

- ❑ Purpose or objectives of the study
- ❑ Dependent and independent variables
- ❑ Expected results
- ❑ References for at least two related research articles
- ❑ Provisions to ensure confidentiality of data
- ❑ Contact information of the researcher should the student have further questions about the study
- ❑ Contact information for the Director of the Office of Research Ethics should the student wish to learn more about the general ethical issues surrounding research with human participants, or specific questions or concerns about the study in which s/he participated.

Participation is worth 0.5 participation credits (grade percentage points) for each half-hour of participation. Researchers will record student's participation and will report the total credits earned by each student at the end of the term to the course instructor.

Study scheduling, participation and grade assignment is managed using the SONA online system. All students enrolled in this course have been set up with a SONA account. *It is important that you get an early start on your studies.* For detailed instructions on when and how access your SONA account and for a list of important dates and deadlines please, as soon as possible, click on:

<http://www.arts.uwaterloo.ca/~regadmin/regparticipant/sonainfo/#SonaSignUp>

Please do not ask the Course Instructor or REG Coordinator for information unless you have first thoroughly read the information provided on this website.

More information about the REG program is available at:
<http://www.arts.uwaterloo.ca/~regadmin/regparticipant/>

Option 2: Article review as an alternative to participation in research

Students are not required to participate in research, and not all students wish to do so. As an alternative, students may opt to gain research experience by writing short reviews (1½ to 2 pages) of research articles relevant to the course. The course instructor will specify a suitable source of articles for this course (i.e., scientific journals, newspapers, magazines, other printed media). *You must contact the instructor to get approval for the article you have chosen before writing the review.* Each review article counts as one percentage point. To receive credit, you must follow specific guidelines. The article review must:

- ☐ Be submitted to the instructor electronically on or before the last day of lecture (July 19). Late submissions will not be accepted.
- ☐ Identify the title, author(s), source and date of the article. A pdf of the article must be attached.
- ☐ Identify the psychological concepts in the article and critically evaluate the application or treatment of those concepts. You may find, for example, misleading headings, faulty research procedures, alternative explanations that are ignored, failures to distinguish factual findings from opinions, faulty statements of cause-effect relations, errors in reasoning, etc. Provide examples whenever possible.

Plagiarism detection software (Turnitin) will be used to screen article reviews for the reasons noted above. Students who do not want to have their reviews screened by Turnitin may submit their assignment directly to the instructor along with hard copies of cited material in which cited information is highlighted (if applicable).

Grading Scheme:

Total Points	Final Grade	Total Points	Final Grade
90 - 100	A+	70 - 72	B-
85 - 89	A	67 - 69	C+
80 - 84	A-	63 - 66	C
77 - 79	B+	60 - 62	C-
73 - 76	B	0 - 59	F

Grade Appeals: If you feel that your exam or assignment grade is unfair, you have the right to appeal. Please send the instructor an e-mail stating (a) the item in question and

(b) your rationale for the appeal. Submit this e-mail within one week after receiving the grade.

Special Accommodations: If you require special accommodations for lectures, assignments, or for exams, please contact the Office for Persons with Disabilities (ODP). Any accommodations for which you qualify will be provided, provided that I receive written approval from the ODP.

Academic Integrity: Violations of the standards of Academic Integrity will be met with penalties. Anyone known to be plagiarizing material, copying from another student, or using crib notes will receive a grade of zero on that assignment or exam. Further consequences will be determined by the Office of Academic Integrity. Please familiarize yourselves with information at uwaterloo.ca/academicintegrity/Students/index.html.

Course Schedule:

Date	Topic	Readings	Notes
May 1	Course overview and history of the field	Lajiness-O'Neill, R., Pawluk, L., & Jacobson, D. (2011). Past, present, and future of pediatric neuropsychology. In A. Davis (Ed.), <i>Handbook of pediatric neuropsychology</i> (pp.979-994).	
3	Brain development I: Structural brain development	Anderson, A., Northam, E., Hendy, J., & Wrennall, J. (Eds.). (2001). <i>Developmental neuropsychology: A clinical approach</i> (pp.39 – 68).	
8	Brain development II: The specializing brain		
10	Early brain insult and recovery	Anderson, A., Northam, E., Hendy, J., & Wrennall, J. (Eds.). (2001). <i>Developmental neuropsychology: A clinical approach</i> (pp.103-124). Reading for assignment 1 (see course web site): Kennard, M.A. (1936). Age and other factors in motor recovery from precentral lesions in monkeys. <i>American Journal of Physiology</i> , 115, 138-146.	Assignment 1 Due: Is earlier better? Evaluating tenets of the “Kennard Principle”.
15	Methods of neuropsychological assessment	Baron, I. S. (Ed.). <i>Neuropsychological evaluation of the child</i> (pp. 37-60).	
17	Spatial and Motor Control	Atkinson, J., & Nardini, M. (2008). The neuropsychology of visuospatial and visuomotor development. In J. Reed & J. Warner-Rodgers (Eds.), <i>Child neuropsychology: Concepts, theory, and practice</i> (pp.183-217).	
22	Non-executive 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).	Disregard case study in this chapter (pp.250-253)
NO CLASS			
29	Memory	Horton, A.M., & 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).	
31	Language	Ninio, A. & Snow, C.E. (1999). The development of	Disregard Functionalist Models & Developmental

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		pragmatics: Learning to use language appropriately. In W.C. Ritchie & T.K. Bhatia (Eds.). <i>Handbook of child language acquisition</i> (pp.347-383).	Theories (pp.349-353)
June 5	Social Cognition	Baron-Cohen, S. & Chakrabarti, B. (2008). Social neuroscience. In J. Reed & J. Warner-Rodgers (Eds.), <i>Child neuropsychology: Concepts, theory, and practice</i> (pp.316-339).	
7	Executive Functions	Zelazo, P.D., & Muller, R. (2011). Executive function in typical and atypical development. In U. Goswami (Ed.), <i>The Wiley-Blackwell handbook of childhood cognitive development, Second edition</i> (pp.574-603) Reading for assignment 2 (see course web site): McAuley, T., Chen, S., Goos, L., Schachar, R, & Crosbie, J. (2010). Is the Behavior Rating Inventory of Executive Function more strongly associated with measures of impairment or executive function? <i>Journal of the International Neuropsychological Society, 16</i> , 495-505.	Assignment 2 Due: In or out of the office? Issues related to the assessment of executive skills.
12	EXAM 1		
14	Endocrine + Metabolic Disorders I	Anderson, A., Northam, E., Hendy, J., & Wrennall, J. (Eds.). (2001). <i>Developmental neuropsychology: A clinical approach</i> (pp.249-278).	Case study at the end of chapter is optional (pp. 275-278)
19	Endocrine + Metabolic Disorders II	OPTIONAL CASE STUDY: As Above (pp.275-278)	
21	Hydrocephalus and Spina Bifida	Anderson, A., Northam, E., Hendy, J., & Wrennall, J. (Eds.). (2001). <i>Developmental neuropsychology: A clinical approach</i> (pp.185-219).	
26	Feotal Alcohol Exposure	Mattson, S.N, & Vaurio, L. (2010). Fetal alcohol spectrum disorders. In K.O. Yeates, M.D. Ris, H.G. Taylor, & B.F. Pennington. (Eds.). <i>Pediatric neuropsychology: Research, theory, and practice</i> (pp.265-293).	
28	Epilepsy	Westerveld, M. (2010). Childhood epilepsy. In K.O. Yeates, M.D. Ris, H.G. Taylor, & B.F. Pennington. (Eds.). <i>Pediatric neuropsychology: Research, theory, and practice</i> (pp.71-91). OPTIONAL CASE STUDY: See course web site	

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July 3	Traumatic Brain Injury	<p>Yeates, K.O. (2010). Traumatic brain injury. In K.O. Yeates, M.D. Ris, H.G. Taylor, & B.F. Pennington. (Eds.). <i>Pediatric neuropsychology: Research, theory, and practice</i> (pp.112-146).</p> <p>OPTIONAL CASE STUDY: See course web site</p> <p>Reading for assignment 3 (see course web site):</p> <p>Fine, S. (2011, February 11). My Daughter's concussion shook my world. <i>Globe and Mail</i>. Retrieved March 23, 2012 from http://www.globeandmail.ca</p>	<p>Assignment 3 Due: Sports-related concussions and the teenage brain.</p>
5	Reading Disability	<p>Riccio, C.A., Sullivan, J.R., & Cohen, M.J. (2010). <i>Neuropsychological assessment and intervention for childhood and adolescent disorders</i> (pp.15-39).</p> <p>OPTIONAL CASE STUDY: As Above (pp.28-39)</p>	<p>Case study at the end of chapter is optional (pp. 28-39)</p>
10	ADHD	<p>Willcutt, E.G. (2010). Attention-deficit/hyperactivity disorder. In K.O. Yeates, M.D. Ris, H.G. Taylor, & B.F. Pennington. (Eds.). <i>Pediatric neuropsychology: Research, theory, and practice</i> (pp.393-417).</p> <p>OPTIONAL CASE STUDY: See course web site</p>	
12	Autism Spectrum	<p>Bade-White, P.A., Obrzut, J.E., & Randall, P.P. (2009). Neuropsychological aspects of pervasive developmental and autism spectrum disorders. In C.R. Reynolds & E. Fletcher-Janzen (Eds.). <i>Handbook of clinical child neuropsychology</i> (pp. 765-781).</p> <p>OPTIONAL CASE STUDY: See course web site</p>	
17	Neuropsychological Intervention	<p>Teeter, P.A. (2009). Neurocognitive interventions for childhood and adolescent disorders: A transactional model. In C.R. Reynolds & E. Fletcher-Janzen (Eds.). <i>Handbook of clinical child neuropsychology</i> (pp. 427-458).</p>	
19	Neuropsychological Intervention	<p>Reading for assignment 4 (see course web site):</p> <p>Hurley, D.. (2012, April 18). Can you make yourself smarter? <i>The New York Times</i>. Retrieved April 30, 2012 from http://www.nytimes.com</p>	<p>Assignment 4 Due: Neuro-enhancement: Is it possible to make ourselves smarter?</p>
24	EXAM 2		