

**CGSC 4900A/5901W: Special Topics Introduction to Developmental Cognitive Neuroscience**  
**Course Outline**  
**Winter 2019**

**Class Information**

Time: Friday 11:35-14:25

Location: Dunton Tower 2203

Course prerequisites: Fourth year standing or permission of the Institute

**Instructor Information**

Instructor: Dr. Rebecca Merkley

Office: DT 2202

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Office Hours: 11:30am-1:30pm on Wednesdays or by appointment

**Please refer to the Academic Year included in the online [Undergraduate](#) calendar to review all statutory holidays, important university dates, the Fall Break, Oct. 22-26, 2018, the Winter Break, February 18-22, 2019 and other university holidays prior to creating your course outline.**

**Course Description**

An introduction to the way in which genetic and experiential factors interactively contribute to the emergence of adaptive neural structures underlying visual processing, face perception, number processing, language, memory, and executive functions. Atypical development and potential applications of developmental cognitive science will also be discussed.

By the end of this course, students will be able to:

- Describe concepts in Developmental Cognitive Neuroscience
- Compare and contrast evidence reported in scholarly research papers
- Locate and critically evaluate scholarly research in Developmental Cognitive Neuroscience and consider implications of the findings

**Readings**

The readings will be recently published, peer-reviewed journal articles and some recent news articles and blog posts related to developmental cognitive neuroscience. The required readings are mandatory and it is important that you do these so that you can participate in class discussion. You will be expected to come up with one discussion question and complete a quiz based on the readings each week. The suggested readings are recommended if you choose to present or write a paper on one of these topics, or if you're simply interested in learning more about a particular topic. The readings can be found on the course page on cuLearn. If you have difficulties accessing the materials or if you find that materials are missing from the website, please contact the instructor.

**Course Web Page (cuLearn)**

The course website is located at <https://carleton.ca/culearn/>

On this site you will find the course outline, schedule, lecture slides, and any supplementary materials, updates, course feedback tools, marking rubrics, and a variety of learning exercises and useful links. Note that

material will be covered in class that is not included on these slides. In other words, the slides should not be regarded as a substitute for class attendance.

## Evaluation

Item	Weight of Grade	Date
Attendance and Participation	20%	
Presentation and Discussion Leader	25%	varies
Midterm Paper	25%	February 15 <sup>th</sup>
Final Paper	30%	April 5 <sup>th</sup>

**Participation:** This course depends on your active participation in class discussions. You must attend class and prepare by doing the assigned reading. At the end of each class, you will be required to complete a quiz, which will include submitting a discussion question. Participation marks will be deducted for failing to attend class without a valid excuse, and for failing to complete the quiz submit a discussion question.

**Presentation and Discussion Leader:** During the first week of term, you must sign up for a presentation date and topic. Each week's presentations will relate to a discussion question and presentations will highlight differing perspectives on the question. Please e-mail the course instructor for guidance on which research paper(s) to present on. You will be required to give a **15-minute** visual presentation (using either PowerPoint). You should review BOTH the literature assigned AND other relevant literature that you have found through independent literature searches. Following your presentation, you are required to lead the discussion of the papers you have reviewed. Your presentation should cover the following four points for papers:

- 1) motivation (why the study was undertaken)
- 2) methods (genetics, physiology, anatomy, behavior, etc)
- 3) major results (synopsis of key figure panels only)
- 4) missed opportunities (was the initial hypothesis fully addressed, possible future directions, etc)
- 5) implications (how do the findings relate to the discussion topic)

**Midterm Paper:** The purpose of this assignment is to give you the opportunity to write a short paper on one of the discussion topics. You must choose a different topic from the one you are presenting on. You are required to write a paper of no more than 1000 words (1.5 spaced, 12pt. font). In your paper you should not merely rely on the class readings, but go beyond them and do your own independent literature searches. We will have a peer-review writing session in class on Friday, February 8<sup>th</sup>, so be sure to have an outline of your paper by then. **The Midterm Paper is due at 5pm via cuLearn on Friday, February 15<sup>th</sup>.**

**Final Paper:** You are required to write a final paper of no more than 1500 words (1.5 spaced, 12pt font) that extends your thinking about one of the discussion topics by critically reviewing evidence from multiple sources. You should choose the topic for your final paper from the topics within the syllabus and generate a question. You are strongly encouraged to discuss the topic of your final paper with the instructor or teaching assistant. The purpose of this assignment is to see how your thinking about one of these topics may have changed over the course. In particular, your paper should extend the discussion of your chosen topic by outlining future research directions to generate new evidence to inform the debate. You may also consider the practical and applied implications of the question you choose. We will have a peer-review writing session in class on Friday, March 29<sup>th</sup>, so be sure to have an outline of your paper by then. **The Final Paper is due at 5pm via cuLearn on Friday, April 5<sup>th</sup>.**

## Lecture Schedule

Readings will be made available via cuLearn. Italics indicate the presentation and discussion topics.

Date	Lecture Topic	Readings
Week 1 January 11 <sup>th</sup>	Welcome and Introduction	
Week 2 January 18 <sup>th</sup>	Theoretical Perspectives <i>Are we born with core knowledge of how the world works?</i>	Stahl & Feigenson, 2015 Schulz, 2015
Week 3 January 25 <sup>th</sup>	Research Methods <i>Are there critical periods in human development?</i>	Werker & Hensch, 2015 Fox, Levitt, & Nelson, 2010
Week 4 February 1 <sup>nd</sup>	Brain Development <i>Is screen time detrimental to child development?</i>	Johnson, 2001 Gopnik, Griffiths, & Lucas, 2015
Week 5 February 8 <sup>th</sup>	Genetics <i>What are the pros and cons of different methods of investigating the influence of genes on human development?</i>	Charney, 2017
Week 6 February 15 <sup>th</sup>	Language Development <i>Is there a cognitive advantage to being bilingual?</i> <b>Midterm Paper Due</b>	Bialystok, 2009 Morton & Harper, 2007
Reading week		
Week 7 March 1 <sup>st</sup>	Executive Function Development <i>Can training executive functions transfer to other cognitive skills?</i>	Melby-Lervag, Redick, & Hulme, 2016 Diamond & Ling, 2016
Week 8 March 8 <sup>th</sup>	Mathematical Development <i>Are men better suited to STEM careers than women are?</i>	Fine et al., 2017 Hutchison et al., 2017
Week 9 March 15 <sup>th</sup>	Social Development <i>Are mirror neurons the key to understanding how humans thrive in a social world?</i>	Heyes, 2010 Marshall & Meltzoff, 2014
Week 10 March 22 <sup>nd</sup>	Atypical Development <i>Can studying atypically developing children inform our understanding of typical development?</i>	Karmiloff-Smith, 2008 Butterworth & Kovas, 2013
Week 11 March 29 <sup>th</sup>	Adolescent Development <i>Should adolescents be tried as adults?</i>	Cohen et al., 2016 Casey et al., 2017
Week 12 April 5 <sup>th</sup>	Music Development <b>Final Paper Due</b>	Rauscher, Shaw, & Ky, 1993 Hannon & VBdN, 2014

***This schedule is to be regarded as tentative.***

### **Additional Information**

In accordance with the Carleton University Undergraduate Calendar (p 34), the letter grades assigned in this course will have the following percentage equivalents:

A+ = 90-100	B+ = 77-79	C+ = 67-69	D+ = 57-59
A = 85-89	B = 73-76	C = 63-66	D = 53-56
A - = 80-84	B - = 70-72	C - = 60-62	D - = 50-52
F = Below 50			

Grades entered by Registrar:

WDN = Withdrawn from the course

DEF = Deferred

### **Academic Regulations, Accommodations, Etc.**

University rules regarding registration, withdrawal, appealing marks, and most anything else you might need to know can be found on the university's website, here:

<http://calendar.carleton.ca/undergrad/regulations/academicregulationsoftheuniversity/>

### ***Pregnancy obligation***

Write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details see the Student Guide  
Religious obligation: write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details see the Student Guide

Academic Accommodations for Students with Disabilities: The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613 - 520 - 6608 or [pmc@carleton.ca](mailto:pmc@carleton.ca) for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first in - class scheduled test or exam requiring accommodation (if applicable). After requesting an accommodation from PMC, meet with me to ensure accommodations arrangements are made. Please consult the PMC website for the deadlines to request accommodations for the formally - scheduled exam (if applicable).

### **Plagiarism**

The University Senate defines plagiarism as “presenting, whether intentionally or not, the ideas, expression of ideas or work of others as one’s own.” This can include: - reproducing or paraphrasing portions of someone else’s published or unpublished material, regardless of the source, and presenting these as one’s own without proper citation or reference to the original source; - submitting a take-home examination, essay, laboratory report or other assignment written, in whole or in part, by someone else; - using ideas or direct, verbatim quotations, or paraphrased material, concepts, or ideas without appropriate acknowledgment in any academic assignment; - using another’s data or research findings; - failing to acknowledge sources through the use of

proper citations when using another's works and/or failing to use quotation marks; - handing in "substantially the same piece of work for academic credit more than once without prior written permission of the course instructor in which the submission occurs."

Plagiarism is a serious offence that cannot be resolved directly by the course's instructor. The Associate Dean of the Faculty conducts a rigorous investigation, including an interview with the student, when an instructor suspects a piece of work has been plagiarized. Penalties are not trivial. They can include a final grade of "F" for the course.

### **Important Information**

- Students must always retain a hard copy of all work that is submitted.
- All final grades are subject to the Dean's approval.
- For us to respond to your emails, we need to see your full name, CU ID, and the email must be written from your valid CARLETON address. Therefore, in order to respond to your inquiries, please send all email from your Carleton CMail account. If you do not have or have yet to activate this account, you may wish to do so by visiting <http://carleton.ca/ccs/students/>

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**For a list of dates and deadlines, including holidays and exam dates, please visit:**  
<https://carleton.ca/registrar/registration/dates-and-deadlines/>