



PSY 195H1-F The Science of Babies and Children

Fall 2023

Mondays 11:00 – 1:00pm

Sidney Smith room 2114

Contact Information

Professor Amy Finn

Office Location: Sidney Smith 4002

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Office Hours: Fridays, 1-2pm

Description

When you reach a certain age, it's thought that you are no longer able to learn certain things. This can be referred to as a critical, sensitive, or optimal period. We seek to better understand these critical periods by exploring instances in which infants or children are able to learn or perform better than adults. We will investigate these cases and discuss the roles of brain plasticity and various aspects of brain and cognitive development. Students will learn about development and explore original research on critical periods and age-related limits on learning.

Goals and Learning objectives

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

- understand how learning changes with development through the lens of critical periods and brain plasticity
- gain familiarity with brain anatomy
- comprehend and critique original research articles
- write about scientific papers
- critically discuss scientific papers

Marking Scheme

% of Grade	Assignment/Task
25%	Class participation
5%	In class figure presentation
5%	Coloring
25%	Weekly reaction papers
25%	Written Handout
15%	In class handout presentation

Class participation (25%)

This small seminar is a fairly unique opportunity for first-years at U of T. You will get the most out of it if you come to class and come prepared and engage with your peers. Every week your participation in the class will be scored. Your score will be based on the (1) quality and thoughtfulness (relevance, insight added), (2) quantity (not too much, not too little; making good use of everybody's time) of your contributions. Listening carefully to your classmates' contributions is essential. Questions that spark a class discussion or that help us understand concepts can be significant contributions, too.

In making this assessment, I am answering the question **“how different would the class have been if that student would not have been present?”** Your score will be 0 (absent, silent, non-relevant, distracted and on their phone/doing other work during class), 1 (ok), 2 (good), or 3 (outstanding) points, for a maximum of 22 points (getting a 2 each day will therefore result in full credit: 100% for the participation component of your grade). This will make up 25% of your grade overall.

If in class participation is difficult, opportunities to participate in online forums will be made available, but coming to class (when healthy!) will still be needed to get full participation marks. If class must be missed due to health, you are welcome to comment on the online discussion board to receive participation marks for the day, making sure to go beyond what you note in your weekly response paper for that day.

Your online comments will also be scored similarly to in class comments: 0 (non-relevant and just restating the reading), 1 (ok; you asked or answered a question and it makes sense), 2 (good; you asked or answered a question and it was thoughtful), or 3 (outstanding; you asked or answered a question and it was so thoughtful it even made me think in a new way) points.

In Class Figure/Table Discussion (5%)

Each class member will be responsible for facilitating the discussion by explaining one figure or table from the assigned readings, with 2-3 figure/table presenters per day. You will choose which figure/table you are presenting on the first day of class and/or be assigned to an open figure/table if you are added after the first day. You will have about 5 minutes of class time to go through the figure. Make sure to clearly explain to the class **the purpose of the figure, what it represents and why it is important.** (Authors only get to have so many figures; make sure and think through why they choose this one). If the figure represents data, make sure to clearly explain the axes and **everything that is visualized.** Each student's ***figure presentation day will be determined on the first day they attend class.*** You will be permitted to switch days only if you arrange this on your own. If you miss your presentation day due to illness or for any reason, this part of your grade will be added to your Handout and in-class summary.

Coloring (5%)

A goal of this course is to become familiar with brain anatomy. To achieve this, students will be asked to complete coloring exercises from the following book (these will be posted on Quercus):

Diamond, M. C., Scheibel, A. B., & Elson, L. M. (1985). *The Human Brain Coloring Book*: HarperCollins Publishers Inc.

All coloring needs to be uploaded to Quercus by **September 25th** (A picture from a smart phone works as well) and completing the coloring digitally through these resources is also great:

- https://smallpdf.com/blog/draw-on-pdf?fbclid=IwAR1Dw8VSex_QjkXCp9UCRpX1Yr-x9IIeORwlboShzKR2YJot0axAsoCeHrE
- <https://inkscape.org/?fbclid=IwAR0INdiTNEX0omBApp1CNSkUhrhKP5nSY5nEwpGF31tycn2NDJ6IzxdFMZA>

Full points will be given if a clear effort has been made to complete the work thoroughly. **No make ups will be given nor late work accepted.** If work is missed due to health, etc., the points for this assignment will be applied to the written handout.

Weekly reaction papers (25%)

Over the course of this semester, 7 original empirical articles will be assigned reading (see course schedule below, **these are always #2 for the listed readings**). For **6 of these 7** reading assignments, you will complete a **weekly reaction paper** and submit this to Quercus by **10 am on Monday, an hour before class starts**. **Late responses will not be accepted.** Note that you can miss one by design; if more than one reaction paper is missed due to health, the points for this assignment will be applied to the written handout.

These short weekly reaction papers should be 500 to 750 words each, never being longer than 750 words and should include 2 parts.

Part 1 will be an executive summary for the assigned empirical reading. This needs to be BRIEF (**not more than 3-4 sentences**) and should convey the take-home message of the article. When writing this, imagine that you are sharing a short elevator ride with a professor who asked you to describe the study. Imagine that she or he has some familiarity with the field in general, but not this subject in particular. *Providing a concise, accurate, and efficient summary of the work demonstrates that you understand the material. It also shows that you are able to convey a complicated idea succinctly.*

***AI might be helpful for this aspect of the summary.** If you choose to use this (see policy below), (1) make sure to indicate this on the assignment, and (2) make sure to edit this so that AI is telling the truth. You may find it easier to do this on your own immediately after reading the paper.

Part 2 will be a short paragraph summarizing your thoughts on the reading. *What did you learn that you did not know before? What new questions does this reading raise for you? What did you like or find lacking?* This is your opportunity to reflect about what the readings mean, to be critical and creative. While it can be easy (and important) to highlight a study's limitations, it is also helpful to identify its strengths and contributions and think of improvements for future work.

***AI will not be helpful for this aspect of the summary since this pertains to your personal reactions and integrating your reading with the specific experiences you have had both in this class and in your life.**

50% of your grade will be based on accurately completing each of 6 submitted writing pieces (full credit will be given if the assignment is accurate and well thought out). The other 50% of your grade will be based on a one-time random selection for detailed grading based on these aspects:

1. written with an authentic and clear voice (50%)
2. accurate reflection of the reading, part 1 (20%)
3. thoughtfulness, part 2 (30%)

Written Handout (25%)

Every student will prepare a handout summarizing key aspects of an assigned paper this term. We will discuss the structure of papers, how to approach them, as well as how to prepare a handout in class. I will provide you with a handout template. *A list of possible papers will be available on Quercus.* **Please submit three preferences by week 2 (September 25th).** Papers will be assigned in week 3 (October 2nd).

You will be asked to submit two intermittent drafts of your handout in weeks 6 (October 16th) and 8 (October 30th). **The final version of your handout is due on November 20th.**

Your handout grade will be based on:

1. accurately conveying the idea and content of the paper

2. explaining the relevance of the paper's insights for understanding how children learn, critical periods or plasticity
3. providing thoughtful comments to your peers during peer review
4. making good use of space/ time
5. satisfying the format requirements and being of professional quality

Step/Due date
First page draft of handout, October 16th by midnight
Peer review first page of handout (2 peers each), October 23rd by midnight
Complete draft of handout, October 30th by midnight
Peer review full handout (2 peers each), November 13th by midnight
Final version of handout, November 20th by midnight

In class handout presentation (15%)

Every student will give a two-minute in-class summary in which they present their handout to the class. This presentation will be graded based on clarity and time management (more details to follow) and will take place on either **November 27th** or **December 4th**.

Course Webpage/Quercus

The website associated with this course is accessible via <http://q.utoronto.ca>

Writing Help

Book an appointment online with the Writing Centres on St. George Campus:

<http://www.writing.utoronto.ca/writing-centres/arts-and-science>

English is not your first language? Take a look at these resources:

<http://www.writing.utoronto.ca/faqs/english-as-second-language>

<http://www.artsci.utoronto.ca/current/advising/ell>

Academic Integrity

All students, faculty and staff are expected to follow the University's guidelines and policies on academic integrity. For students, this means following the standards of academic honesty when writing assignments, collaborating with fellow students, and writing tests and exams. Ensure that the work you submit for grading represents your own honest efforts.

Plagiarism—representing someone else's work as your own or submitting work that you have previously submitted for marks in another class or program is a serious offence that can result in sanctions. Speak to me or your TA for advice on anything that you find unclear. To learn more about how to cite and use source material appropriately and for other writing support, see the U of T writing support website at <http://www.writing.utoronto.ca>.

The University of Toronto's Code of Behaviour on Academic Matters (<https://www.viceprovoststudents.utoronto.ca/policy-guideline/code-of-behaviour-on-academic-matters/>) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offenses.

All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of

Behaviour on Academic Matters. If you have questions or concerns about what constitutes appropriate academic behavior or appropriate research and citation methods, you are expected to seek out additional information on academic integrity from your instructor or from other institutional resources.

University's Plagiarism Detection Tool

Normally, students will be required to submit their course writing to the University's plagiarism detection tool for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their work to be included as source documents in the tool's reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of this tool are described on the Centre for Teaching Support & Innovation website (<https://uoft.me/pdt-faq>).

On the use of Generative Artificial Intelligence (Gen AI) Tools

Students may use generative artificial intelligence tools (e.g., ChatGPT) for assignments in this course. If you choose to use generative artificial intelligence tools to assist you in the assignments in this course (including posting on the discussion board and providing peer feedback), this use must be documented in an appendix for each assignment and noted in the posting/feedback. The documentation should include **what tool(s) were used, how they were used (e.g., include your prompts), and how the results from the AI were incorporated into the submitted work**. These tools can be most helpful in improving your writing and clear expression of your ideas (rather than trying to generate complete content which is unlikely to meet the standards of the assignments).

on COVID, masks & other protections

As of the writing of this policy, the University of Toronto no longer requires (though recommends) masks, and no longer requires COVID-19 vaccinations except for students living in residence. That said, medical masks (ideally N95, KN95, or KN94) and vaccinations remain incredibly important public health tools which, when used widely, help to keep viral transmission lower and protect those we are in community with.

What if you get sick?

If you believe you may have been exposed to COVID-19 or believe you are infected, please exercise caution when deciding whether to come to class or otherwise go in public. Rapid antigen tests are still available and useful tools in tracking your infection status.

I understand it may be different in other courses, but please remember that there is sufficient flexibility built into this course to allow you to make choices prioritizing your health and safety and that of others.

Specific Medical Circumstances, including COVID

If you become ill and it affects your ability to attend class or complete an assignment, send me an email. Normally, I will ask you for documentation in support of your specific medical circumstances. This documentation can be an Absence Declaration (via ACORN) or the University's Verification of Student Illness or Injury (VOI) form. The VOI indicates the impact and severity of the illness, while protecting your privacy about the details of the nature of the illness. You can submit a different form (like a letter from a doctor), as long as it is an original document, and it contains the same information as the VOI. For more information on the VOI, please see <http://www.illnessverification.utoronto.ca>. For information on Absence Declaration Tool for A&S students, please see <https://www.artsci.utoronto.ca/absence>. If you get a concussion, break your hand, or suffer some other acute injury, you should register with Accessibility Services as soon as possible.

Missed Deadlines

Late work for weekly reaction papers will not be accepted (but note that students can miss one for any reason at all). Contact me if COVID requires that more of these be missed in advance of the deadlines. Work that is turned in late without contacting me and documentation will incur a 3% penalty for every 24-hour period or

portion thereof. **Assignments will not be accepted 5 days after the due date.** If lateness is due to COVID or related, points will be redistributed elsewhere.

Resources and Accommodations

Accessibility Needs

Students with diverse learning styles and needs are welcome in this course. If you have an acute or ongoing disability issue or accommodation need, you should register with Accessibility Services (AS) at the beginning of the academic year by visiting <http://www.studentlife.utoronto.ca/as/new-registration>. Without registration, you will not be able to verify your situation with your instructors, and instructors will not be advised about your accommodation needs. AS will assess your situation, develop an accommodation plan with you, and support you in requesting accommodation for your course work. Remember that the process of accommodation is private: AS will not share details of your needs or condition with any instructor, and your instructors will not reveal that you are registered with AS.

Religious Accommodations

As a student at the University of Toronto, you are part of a diverse community that welcomes and includes students and faculty from a wide range of cultural and religious traditions. For my part, I will make every reasonable effort to avoid scheduling tests, examinations, or other compulsory activities on religious holy days not captured by statutory holidays. Further to University Policy, if you anticipate being absent from class or missing a major course activity (such as a test or in-class assignment) due to a religious observance, please let me know as early in the course as possible, and with sufficient notice (at least two to three weeks), so that we can work together to make alternate arrangements.

Other Resources

Student Life Programs and Services (<http://www.studentlife.utoronto.ca/>)

Academic Success Services (<https://studentlife.utoronto.ca/department/academic-success/>)

Counselling and Psychological Services (<https://studentlife.utoronto.ca/department/health-wellness/>)

Health and well-being

As a student, you may experience challenges that can interfere with learning, such as strained relationships, increased anxiety, substance use, feeling down, difficulty concentrating and/or lack of motivation, financial concerns, family worries and so forth. These factors may affect your academic performance and/or reduce your ability to participate fully in daily activities. Everyone feels stressed now and then – it is a normal part of university life. Some days are better than others, and there is no wrong time to reach out. There are resources for every situation and every level of stress. There are many helpful resources available through your College Registrar (<https://studentlife.utoronto.ca/>) or through Student Life (<https://studentlife.utoronto.ca/task/support-when-you-feel-distressed/>). An important part of the University experience is learning how and when to ask for help. Please take the time to inform yourself of available resources.

Wellness Statement*

As your professor, I value your health and well-being. In order to succeed in my class, in University, and beyond, you must work hard AND balance the work with rest... and attention to your mental and physical health. Yes, I plan to challenge you... By the end of this class, I hope you will feel proud of your growth and learning much like the marathoner feels accomplished by their triumphs across the finish line.

However, this work cannot be at the expense of your well-being. **Working until exhaustion is NOT a badge of honour; it shows you are out of balance.**

In addition to the many resources and supports available to you at UofT, you might find this [self-care packet](#) (with a self-assessment, advice, and worksheets) helpful in reaching your self-care goals. **excerpted from Dr. Molly Metz of the UofT and Dr. Nicole Gonzalez Van Cleeve of Brown University*

Outline & Readings

Date	Topic, Reading & Assignments
Sept. 11 week 1	<p>Introduction, coloring overview, figure presentation sign-up & examples</p> <p>No reading, welcome!</p>
Sept. 18 week 2	<p>When younger children learn (language) better than adults</p> <p>Read:</p> <ol style="list-style-type: none"> Gualtieri, S., & Finn, A.S. (2022) <i>The sweet spot: When children's developing abilities, brains, and knowledge make them better learners</i>, pages 5-8: When children hear and learn what adults cannot: The case of language. Singleton, J. L., & Newport, E. L. (2004). When learners surpass their models: The acquisition of American Sign Language from inconsistent input. <i>Cognitive Psychology</i>, 49(4), 370-407. <p>Figure presentations</p> <p>_____</p> <p><i>Figure 1: Gualtieri & Finn</i> <i>Figure 1: Singleton & Newport</i> <i>Figure 2: Singleton & Newport</i> <i>Figure 3: Singleton & Newport</i></p>
Sept. 25 week 3	<p>When infants see better than adults</p> <p>Read:</p> <ol style="list-style-type: none"> Gualtieri, S., & Finn, A.S. (2022) <i>The sweet spot: When children's developing abilities, brains, and knowledge make them better learners</i>, pages 8-9: When children see what adults cannot Kelly, D. J., Liu, S., Lee, K., Quinn, P. C., Pascalis, O., Slater, A. M., et al. (2009). Development of the other-race effect during infancy: Evidence toward universality? <i>Journal of Experimental Child Psychology</i>, 104(1), 105-114. <p>Figure presentations</p> <p>_____</p> <p><i>Figure 1: Kelly et al.</i> <i>Table 1: Kelly et al.</i></p> <p>Coloring due, Paper preferences for handout & presentation due</p>
Oct. 2 week 4	<p>When children make better predictions from probabilistic data</p> <p>Read:</p> <ol style="list-style-type: none"> Gualtieri, S., & Finn, A.S. (2022) <i>The sweet spot: When children's developing abilities, brains, and knowledge make them better learners</i>, pages 9-11: When children make better predictions from probabilistic data Decker, J. H., Lourenco, F. S., Doll, B. B., & Hartley, C. A. (2015). Experiential reward learning outweighs instruction prior to adulthood. <i>Cognitive, Affective, & Behavioral Neuroscience</i>, 15(2), 310-320. <p>Figure presentations</p> <p>_____</p> <p><i>Figure 1: Decker et al.</i> <i>Figure 2: Decker et al.</i> <i>Figure 3a&b: Decker et al.</i> <i>Figure 3c&d: Decker et al.</i></p> <p>Paper for handout & presentation assigned</p>
Oct 9 week 5	<p>no class, holiday</p>

Oct. 16 week 6	When children have better (or more accurate) memory
	Read: <ol style="list-style-type: none"> 1. Gualtieri, S., & Finn, A.S. (2022) <i>The sweet spot: When children's developing abilities, brains, and knowledge make them better learners</i>, pages 12-14: When children have better (or more accurate) memory 2. Forest, T. A., Abolghasem, Z., Finn, A. S., & Schlichting, M. L. (2023). Memories of structured input become increasingly distorted across development. <i>Child Development</i>, 94(5), e279-e295.
	Figure presentations
	<hr/> <p>Figure 1: Forest et al. Figure 2: Forest et al. Figure 3: Forest et al. Figure 4: Forest et al.</p>
	First page draft of handout
Oct. 23 week 7	Why are younger children sometimes better? Cognitive abilities
	Read: <ol style="list-style-type: none"> 1. Gualtieri, S., & Finn, A.S. (2022) <i>The sweet spot: When children's developing abilities, brains, and knowledge make them better learners</i>, pages 15-20: Cognitive abilities 2. Vlach, H. A. (2014). The Spacing Effect in Children's Generalization of Knowledge: Allowing Children Time to Forget Promotes Their Ability to Learn. <i>Child Development Perspectives</i>, 8(3), 163-168.
	Figure presentations
	<hr/> <p>Figure 1: Vlach Figure 2: Vlach</p>
	Peer review 1st page draft due
Oct. 30 week 8	Why are younger children sometimes better? Asynchronous neurocognitive development
	Read: <ol style="list-style-type: none"> 1. Gualtieri, S., & Finn, A.S. (2022) <i>The sweet spot: When children's developing abilities, brains, and knowledge make them better learners</i>, pages 20-23: Asynchronous neurocognitive development 2. Janacsek, K., Fiser, J., & Nemeth, D. (2012). The best time to acquire new skills: age-related differences in implicit sequence learning across the human lifespan. <i>Dev Sci</i>, 15(4), 496-505.
	Figure presentations
	<hr/> <p>Figure 1: Janacsek et al. Figure 2: Janacsek et al. Figure 3: Janacsek et al. Figure 4: Janacsek et al.</p>
	Complete draft of handout
Nov. 6 week 9	no class, fall reading week
Nov. 13 week 10	Why are younger children sometimes better? Plasticity
	Read: <ol style="list-style-type: none"> 1. Gualtieri, S., & Finn, A.S. (2022) <i>The sweet spot: When children's developing abilities, brains, and knowledge make them better learners</i>, pages 23-28: Plasticity 2. Weikum, W. M., Oberlander, T. F., Hensch, T. K., & Werker, J. F. (2012). Prenatal exposure to antidepressants and depressed maternal mood alter trajectory of infant

speech perception. *Proceedings of the National Academy of Sciences*, 109, 17221-17227.

Figure presentations

Figure 1: Weikum et al.

Figure 2: Weikum et al.

Figure 3: Weikum et al.

Peer review full handout due

Nov. 20
week 11

Why are younger children sometimes better? Prior knowledge

Read:

1. Gualtieri, S., & Finn, A.S. (2022) *The sweet spot: When children's developing abilities, brains, and knowledge make them better learners*, **pages 28-31: Prior knowledge**
2. Carneiro, P., Albuquerque, P., Fernandez, A., & Esteves, F. (2007). Analyzing False Memories in Children with Associative Lists Specific for Their Age. *Child Development*, 78(4), 1171-1185.

Figure presentations

Table 1 Carneiro et al.

Figure 1 Carneiro et al.

Table 2 Carneiro et al.

Final draft of handout

Nov. 27
week 12

In-class presentations of handout

Dec 4.
week 13

In-class presentation of handout