

University of Waterloo
PSYCH 398
Research in Memory
Winter 2014
10:30-12:20TTh, RCH 212

Instructor and T.A. Information

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Course Description

Goals:

The goal of the course is to introduce you to the theoretical and practical aspects of memory research. Classes and readings will focus on popular topics in memory research with emphasis on the research process. As well, the course will focus on learning how to read and evaluate primary source material in a critical manner, and development of presentation and writing skills.

Readings:

There is no textbook for this course. Readings for the course will consist of primary source material (i.e., journal articles). The reason for the use of journal articles rather than a textbook is that textbooks tend to gloss over many of the details which are of interest to those interested in methods. Keep in mind that reading primary source material is typically much more challenging than textbooks so you should be prepared to read papers more than once. All papers are available on LEARN.

Course Requirements and Assessment

<u>Assessment</u>	<u>Weighting</u>
Quizzes	50%
Summary presentation	15%
Paper	15%
Idea presentation	15%
Participation	5%
Research Experience	4% Bonus

Quizzes (50%)

There will be 9 short quizzes on Thursdays throughout the term. The best 8 of these will constitute 50% of your grade (6.25% each). You will be tested on in class material and required readings. Note that with this testing format there will be no cumulative tests or final exam.

Summary Presentation (15%)

The course is centered on presentations and discussion. We will examine, in class, a number of published journal articles. Each student will present one such article to the class. You are expected to give a considerable amount of care and attention to the preparation of your presentation. It must be relatively concise, but you are the resource expert for the paper that you are presenting. In other words, you should have a lot of the details of the paper at your fingertips (i.e., in memory) in the event that a question is asked (e.g., how many subjects were tested? were the conditions blocked or randomized? was factor Y significant in the analysis as a main effect? was there feedback after every trial? etc).

There should be enough detail that your audience can understand:

- (1) what question was investigated
- (2) what the experiment consisted of (i.e., explain what was actually manipulated, and how the experiment was done)
- (3) what the specific predictions were
- (4) what the data are (please SHOW us the data in the presentation)
- (5) what the analysis of this data said (without specifying the size of the F, or the degrees of freedom)
- (6) how the data fit or undermine the theoretical hypotheses.

You will be expected to submit your slides the day before your presentation so that they can be distributed to the other students in the class. Also, I strongly encourage you to meet with the instructor or TA (or at least send us your slides) a day or two prior to the presentation so that we can review the slides and make suggestions/recommendations if needed.

Paper (15%)

You will each choose one brief article taken from a journal. Please read the article and become familiar with the research in it. You will then write a 4 page research paper based on your article.

These papers will consist of two components:

- a) Summary. You should write a summary of your article, indicating the goal of the research, the design of the experiments, the principal results, and how these results were interpreted theoretically. This should be two typed, double-spaced pages (i.e., not an abstract). It should be clearly written in normal prose (i.e., not "point form").

b) Extension. Using your own ideas, you should suggest one way in which the research in your article might be extended in a meaningful way. Provide sufficient methodological and theoretical detail for a good understanding of the experiment you propose. This should be a principled and substantive proposal, taking two pages. You are most welcome (and encouraged) to consult with me about your ideas.

The final product will be a 4-page paper (not longer), with 1-inch margins and double-spaced. Type font must not be smaller than 12-pitch elite. You may not use either of the Summary pages for Extension (or vice versa). Note that this paper is meant to be a self-contained task, so use of reference material is not required. A title page with a brief descriptive title of your own creation should be the first page of your submission. You are also responsible for keeping a copy of the final version of your paper.

Idea Presentation (15%)

In the last two weeks of this class you will each give a brief (approx. 10 min.) presentation based on your paper. The first few minutes will be dedicated to providing a very quick overview of the article you selected (Summary) and then you will describe the idea you outlined in your paper (Extension). We will discuss more details later on in class.

Participation (5%)

Your participation is critical to this class being a success. As such, 5% of your grade will be based on the extent to which you are actively engaged throughout the term.

Research Experience Marks (bonus 4%)

Further information available on LEARN and in latter portion of syllabus.

Schedule of Readings

Week 1 **January 7 & 9**

Organizational Meeting (Tues.)

History (Thurs.)

Bower, G. H. (2000). A brief history of memory research. In E. Tulving and F.I.M. Craik (Eds.), *The Oxford handbook of memory* (pp. 3-32). New York: Oxford University Press.

Week 2 **January 14 & 16**

Methods (Tues.)

Lockhart, R.S. (2000) Methods of memory research. In E.Tulving and F.I.M Craik (Eds.), *The Oxford handbook of memory* (pp.45-57). New York: Oxford University Press.

History/Future (Thurs.)

Hintzman, D. (2011). Research Strategy in the Study of Memory: Fads, Fallacies, and the Search for the "Coordinates of Truth". *Perspectives in Psychological Science*, 6(3) 253–271.

Week 3 **January 21 & 23**

Exceptional Memory (Tues.)

Ericsson, K. A., & Chase, W. G. (1982). Exceptional memory. *American Scientist*, 70, 607-615.

Brady, T.F. (2008) Visual long-term memory has a massive storage capacity for object details. *PNAS*, 105(38), 14325-14329.

Exceptional Memory (Thurs.)

Smilek, D., Dixon, M.J., Cudahy, C., and Merikle, P.M. (2002). Synesthetic color experiences influence memory. *Psychological Science*. 13, 548–552.

Week 4 **January 28 & 30**

Amnesia (Tues.)

Beecher Scoville, W. & Milner, B. (1957) Loss of Recent Memory After Bilateral Hippocampal Lesions. *J. Neurol. Neurosurg. Psychiat.*, 20, 11-21.

Ryan, J. D., Althoff, R. R., Whitlow, S. & Cohen, N. J. (2000) Amnesia is a deficit in relational memory. *Psychological Science*, 11(6):454–61.

Amnesia (Thurs.)

Heinrichs, M., Meinlschmidt, G., Wippich, W., Ehlert, U. & Hellhammer, D. H. (2004) Selective amnesic effects of oxytocin on human memory. *Physiology & Behavior*. 83,31–38.

Week 5 **February 4&6**

Learning (Tues.)

Berman MG, Jonides J, Kaplan S. 2008. The cognitive benefits of interacting with nature. *Psychological Science*, 19:1207–12.

Lahl, O., Wispel, C., Willigens, B., & Pietrowsky, R. (2008). An ultra short episode of sleep is sufficient to promote declarative memory performance. *Journal of Sleep Research*, 17, 3–10.

Learning (Thurs.)

Roediger, H.L., & Karpicke, J. (2006). Test-Enhanced Learning: Taking Memory Tests Improve Long Term Retention. *Psychological Science*, 17(3), 249–255.

Week 6

February 11 & 13

Emotion (Tues.)

Talarico, J.M. & Rubin, D.C. (2003). Confidence, Not Consistency, Characterizes Flashbulb Memories. *Psychological Science*, 14(5), 455–461.

MacKay, D. G., & Ahmetzanov, M., V. (2005). Emotion, memory, and attention in the taboo Stroop paradigm: An experimental analog of flashbulb memories. *Psychological Science*, 16, 25–32.

Emotion (Thurs.)

Kensinger EA & Corkin S. (2004). Two routes to emotional memory: distinct neural processes for valence and arousal. *PNAS*, 101(9):3310–15.

Reading Week

Week 7

February 25 & 27

Semantic memory (Tues.)

Spellman, B. A., Holyoak, K. J. & Morrison, R. G. (2001) Analogical priming via semantic relations. *Memory & Cognition*, 29:383–93.

Yee E, Ahmed SZ, Thompson-Schill SL (2012) Colorless green ideas (can) prime furiously. *Psychological Science*, 23: 364–369.

Everyday Events (Thurs.)

Loftus, E.F. et al. (1992). Who Remembers Best? Individual differences in memory for events that occurred in a science museum. *Applied Cognitive Psychology*, 6, 93-107.

Week 8

March 4 & 6

Adaptive Memory (Tues.)

Nairne, J. S., Thompson, S. R., & Pandeirada, J. N. S. (2007). Adaptive memory: Survival processing enhances retention. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 33, 263–273.

Sandry, J., Trafimow, D., Marks, M., , & Rice, S. (2013). Adaptive memory: Evaluating alternative forms of fitness relevant processing in the survival processing paradigm. *PLOS One*.

Involuntary Memory (Thurs.)

Berntsen, D. (2010). The unbidden past: involuntary autobiographical memories as a basic mode of remembering. *Current Directions in Psychological Science*, 19(3), 138–142.

Week 9

March 11 & 13

Technology and Memory (Tues.)

Sparrow, B., Liu, J., Wegner, D.M., 2011. Google effects on memory: cognitive consequences of having information at our fingertips. *Science*, 333, 776–778.

Barr, N., Pennycook, G., Stolz, J.A., & Fugelsang, J.A. (submitted) Cognitive miserliness through a new medium: Smartphones and the extended mind.

Technology and Memory (Thurs.)

Henkel, L.A. (2013). Point-and-Shoot Memories: The Influence of Taking Photos on Memory for a Museum Tour. *Psychological Science*, 1-7.

Week 10

March 18 & 20

Creativity (Tues.)

Dijksterhuis, A., & Meurs, T. (2006). Where creativity resides: The generative power of unconscious thought. *Consciousness and Cognition*, 15, 135-146.

Barr, N., Pennycook, G., Stolz, J.A., & Fugelsang, J.A. (submitted) Reasoned connections: A dual-process perspective on the role of analytic processing in creative thought.

Consciousness & Memory (Thurs.)

Merikle, P.M. & Daneman, M. (1996). Memory for Unconsciously Perceived Events: Evidence from Anesthetized Patients. *Consciousness and Cognition*, 5, 525–541.

Tulving, E. (1985). Memory and consciousness. *Canadian Psychology*, 26(1), 1–12.

Week 11

March 25 & 27

Idea Presentations

Week 12

April 1 & 3

Idea Presentations

Important Dates

Quizzes: Jan. 16, 23, 30; Feb. 6, 13, 27; March 6, 13, 25

Paper due: Friday, March 21st by Midnight

Summary Presentations: Will vary by individual.

Idea Presentations: Will vary by individual.

Research Experience Marks Information and Guidelines

Experiential learning is considered an integral part of the undergraduate program in Psychology. Research participation is one example of this, article review is another. A number of undergraduate courses have been expanded to include opportunities for Psychology students to earn grades while gaining research experience.

Since experiential learning is highly valued in the Department of Psychology, students may earn a **"bonus" grade of up to 4%** in this course through research experience. Course work will make up 100% of the final mark and a "bonus" of up to 4% may be earned and will be added to the final grade if/as needed to bring your final grade up to 100%.

The two options for earning research experience grades (participation in research and article review) 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 in LAB studies is worth 0.5 participation credits (grade percentage points) for each 30-minutes of participation. Participation in ONLINE studies is worth .25 credits for each 15-minutes of participation. Researchers will record student's participation and will advise the course instructor of the total credits earned by each student at the end of the term.

How to participate?

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. You must get started early in the term.

[INSTRUCTIONS/DATES/DEADLINES: How to log in to Sona and sign up for studies](#)

**** 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:
[REG Participants' Homepage](#)

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 your TA 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 before the [last day of lectures](#). Late submissions will NOT be accepted under ANY circumstances.**
- Be typed
- Fully identify the title, author(s), source and date of the article. A copy of the article must be attached.
- Identify the psychological concepts in the article and indicate the pages in the textbook that are applicable. Critically evaluate the application or treatment of those concepts in the article. If inappropriate or incorrect, identify the error and its implications for the validity of the article. 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.
- Clearly evaluate the application or treatment of those concepts in the article.
- Keep a copy of your review in the unlikely event we misplace the original.

Institutional-required statements for undergraduate course outlines approved by Senate Undergraduate Council, April 14, 2009

Cross-listed course

Please note that a cross-listed course will count in all respective averages no matter under which rubric it has been taken. For example, a PHIL/PSCI cross-list will count in a Philosophy major average, even if the course was taken under the Political Science rubric.

Academic Integrity

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.

Discipline: A student is expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for his/her actions. 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](#).

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](#).

Appeals: A student may appeal the finding and/or penalty in a decision made under Policy 70 - Student Petitions and Grievances (other than regarding a petition) or Policy 71 - Student Discipline if a ground for an appeal can be established. Read [Policy 72 - Student Appeals](#).

Other sources of information for students

[Academic integrity](#) (Arts) [Academic Integrity Office](#) (uWaterloo)

Accommodation for Students with Disabilities

Note for students with disabilities: The [AccessAbility Services office](#), located in Needles Hall Room 1132, 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.