

University of Waterloo
PSYCH 394
Research in Cognition and Perception
Winter 2015
8:30-9:50 am TTh, PAS 4032

Instructor and T.A. Information

Instructor: Paul Seli
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Course Description

Goal:

The goal of the course is to introduce you to the theoretical and practical aspects of research in cognitive science. Classes and readings will focus on popular topics in the domain of mind wandering and inattention with an 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.

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 that are of interest to those interested in methods. Keep in mind that reading primary-source material is typically more challenging than textbooks so you should be prepared to read papers more than once. All papers will be available on LEARN.

Course Requirements and Assessment

<u>Assessment</u>	<u>Weighting</u>
Quizzes	40%
Summary Presentations (X3)	50%
Participation	10%
Research Experience	4% Bonus

Quizzes (40%)

There will be 10 short quizzes on Thursdays throughout the term (with the exception of the first and last Thursdays of the term). The best 9 of these will constitute 40% of your grade (4.44% each). You will be tested on class material and required readings. Note that with this testing format there will be no cumulative tests or final exam.

Summary Presentations (50%)

The course is centered on presentations and discussion of theoretical articles and research methodology. In class, we will examine a number of published journal articles, and each student will give a summary presentation on three separate articles throughout the term. Each presentation will make up up 16.67% of the final grade for a total of 50%. For these presentations, you will be expected to clearly summarize the articles that you are assigned, and to generate discussion questions. 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 the data showed
- (6) how the data fit with 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 me 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.

Participation (10%)

Your participation is critical to this class being a success! As such, 10% 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

Tuesday January 6: Organizational meeting

- Read syllabus

Thursday January 8: The Researcher's Toolbox

- No assigned readings
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Week 2

Tuesday January 13: Ecological Validity (Guest lecture by Dr. Nate Barr)

- Hintzman, D. L. (2011). Research strategy in the study of memory: Fads, fallacies, and the search for the "coordinates of truth." *Perspectives on Psychological Science*, 6(3), 253-271.

Thursday January 15: Introduction to Mind Wandering

- Smallwood, J., & Schooler, J. W. (2006). The restless mind. *Psychological Bulletin*, 132(6), 946-958.
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Week 3

Tuesday January 20: The Sustained Attention to Response Task (SART)

- Robertson, I. H., Manly, T., Andrade, J., Baddeley, B. T., & Yiend, J. (1997). Oops!': performance correlates of everyday attentional failures in traumatic brain injured and normal subjects. *Neuropsychologia*, 35(6), 747-758.
- Mrazek, M. D., Smallwood, J., & Schooler, J. W. (2012). Mindfulness and mind-wandering: finding convergence through opposing constructs. *Emotion*, 12(3), 442-448.

Thursday January 22: Analyzing SART data in Excel

- No assigned readings

Week 4

Tuesday January 27: Measuring mind wandering behaviourally

- Seli, P., Cheyne, J. A., & Smilek, D. (2012). Attention failures versus misplaced diligence: separating attention lapses from speed–accuracy trade-offs. *Consciousness and cognition*, 21(1), 277-291.
- Seli, P., Cheyne, J. A., & Smilek, D. (2013). Wandering minds and wavering rhythms: linking mind wandering and behavioral variability. *Journal of Experimental Psychology: Human Perception and Performance*, 39(1), 1-5.

Thursday January 29: Measuring mind wandering behaviourally

- Seli, P., Carriere, J. S., Thomson, D. R., Cheyne, J. A., Martens, K. A. E., & Smilek, D. (2014). Restless mind, restless body. *Journal of Experimental Psychology: Learning, Memory, & Cognition*, 40(3), 660-668.

Week 5

Tuesday February 3: Mind wandering and mood

- Smallwood, J., O'Connor, R. C., Sudbery, M. V., & Obonsawin, M. (2007). Mind-wandering and dysphoria. *Cognition and Emotion*, 21(4), 816-842.
- Smallwood, J., & O'Connor, R. C. (2011). Imprisoned by the past: unhappy moods lead to a retrospective bias to mind wandering. *Cognition & emotion*, 25(8), 1481-1490.

Thursday February 5: Mind wandering and mood

- Franklin, M. S., Mrazek, M. D., Anderson, C. L., Smallwood, J., Kingstone, A., & Schooler, J. W. (2013). The silver lining of a mind in the clouds: interesting musings are associated with positive mood while mind-wandering. *Frontiers in Psychology*.

Week 6

Tuesday February 10: Mind wandering in the classroom

- Risko, E. F., Anderson, N., Sarwal, A., Engelhardt, M., & Kingstone, A. (2012). Everyday attention: variation in mind wandering and memory in a lecture. *Applied Cognitive Psychology, 26*(2), 234-242.
- Szpunar, K. K., Khan, N. Y., & Schacter, D. L. (2013). Interpolated memory tests reduce mind wandering and improve learning of online lectures. *Proceedings of the National Academy of Sciences, 110*(16), 6313-6317.

Thursday February 12: Mind wandering in the classroom

- Szpunar, K. K., Jing, H. G., & Schacter, D. L. (2014). Overcoming overconfidence in learning from video-recorded lectures: Implications of interpolated testing for online education. *Journal of Applied Research in Memory and Cognition, 161-164*.

February 16-20 is READING WEEK – NO CLASSES

Week 7

Tuesday February 24: Reading and mind wandering

- Reichle, E. D., Reineberg, A. E., & Schooler, J. W. (2010). Eye movements during mindless reading. *Psychological Science, 21*(9), 1300-1310.
- Smilek, D., Carriere, J. S., & Cheyne, J. A. (2010). Out of mind, out of sight eye blinking as indicator and embodiment of mind wandering. *Psychological Science, 1-4*.

Thursday February 26: Reading and mind wandering

- Franklin, M. S., Smallwood, J., & Schooler, J. W. (2011). Catching the mind in flight: using behavioral indices to detect mindless reading in real time. *Psychonomic bulletin & review, 18*(5), 992-997.

Week 8

Tuesday March 3: Intentionality of mind wandering

- Shaw, G. A., & Giambra, L. (1993). Task-unrelated thoughts of college students diagnosed as hyperactive in childhood. *Developmental Neuropsychology*, 9(1), 17-30.
- Seli, P., Smallwood, J., Cheyne, J. A., & Smilek, D. (2015). On the relation of mind wandering and ADHD symptomatology. *Psychonomic Bulletin & Review*, 1-10.

Thursday March 5: Intentionality of mind wandering

- Seli, P., Cheyne, J. A., Xu, M., Purdon, C., & Smilek, D. (under review). Motivation, intentionality, and mind wandering: Implications for assessments of task-unrelated thought. *Journal of Experimental Psychology: Learning, Memory, & Cognition*.

Week 9

Tuesday March 10: Mind wandering over time (Guest lecture by Dr. Dan Smilek)

- Thomson, D. R., Seli, P., Besner, D., & Smilek, D. (2014). On the link between mind wandering and task performance over time. *Consciousness and Cognition*, 27, 14 – 26.
- Thomson, D. R., Besner, D., & Smilek, D. (in press). A resource control account of sustained attention: Evidence from mind wandering and vigilance paradigms. *Perspectives on Psychological Science*.

Thursday March 12: Enjoyment of mind wandering/thinking

- Wilson, T. D., Reinhard, D. A., Westgate, E. C., Gilbert, D. T., Ellerbeck, N., Hahn, C., ... & Shaked, A. (2014). Just think: The challenges of the disengaged mind. *Science*, 345(6192), 75-77.
- Jabr, F. (2014). Actually, people still like to think. Online article from *The New Yorker*. Retrieved from: <http://www.newyorker.com/tech/elements/thinking-alone>

Week 10

Tuesday March 17: Benefits of mind wandering

- Baird, B., Smallwood, J., & Schooler, J. W. (2011). Back to the future: autobiographical planning and the functionality of mind-wandering. *Consciousness and cognition*, 20(4), 1604-1611.
- Baird, B., Smallwood, J., Mrazek, M. D., Kam, J. W., Franklin, M. S., & Schooler, J. W. (2012). Inspired by distraction mind wandering facilitates creative incubation. *Psychological Science*, 1-6.

Thursday March 19: Benefits of mind wandering

- Stawarczyk, D., Majerus, S., Maj, M., Van der Linden, M., & D'Argembeau, A. (2011). Mind-wandering: phenomenology and function as assessed with a novel experience sampling method. *Acta psychologica*, 136(3), 370-381.
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Week 11

Tuesday March 24: Methodological Considerations

- Seli, P., Carriere, J. S., Levene, M., & Smilek, D. (2013). How few and far between? Examining the effects of probe rate on self-reported mind wandering. *Frontiers in Psychology*, 1-5.
- Seli, P., Jonker, T. R., Cheyne, J. A., Cortes, K., & Smilek, D. (2015). Can research participants comment authoritatively on their self-reports of mind wandering and task engagement? *Journal of Experimental Psychology: Human Perception & Performance*.

Thursday March 26: Methodological Considerations

- Seli, P. What is(n't) mind wandering? (under review). *Perspectives on Psychological Science*.
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Week 12

Tuesday March 31: Guest Lecture (Dr. Jonathan Smallwood)

- No assigned readings

Thursday April 2: Take-home message and course evaluations

- No assigned readings

Important Dates

Quizzes: Jan. 15, 22, 29; Feb. 5, 12, 26; March 5, 12, 19, 26

Summary 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.