

PSYC422 / PSYC970: Selected Topics in Attention  
Fall session, 2015  
Syllabus

Instructor: Daryl Wilson

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Office Hours: by appointment

Class Time: Wednesday 1:00-2:30pm and Friday 11:30-1:00pm

Class Location: Humphrey Hall 223

### What is attention?

“Everyone knows what attention is. It is the taking possession by the mind, in clear and vivid form, of one out of what seem several simultaneously possible objects or trains of thought. Focalization, concentration, of consciousness are of its essence. It implies withdrawal from some things in order to deal effectively with others” (James, 1890)

### Why Study Attention?

Our perceptual systems can process an incredible amount of information. But do we actually want to experience all of the information arriving at our perceptual receptors? Attention functions to select the information that we want to perceive. In fact, many researchers suggest that without attention, we cannot perceive. Attention then, may be the process that underlies our conscious awareness of the world.

### Course Objectives

- To develop an understanding of the classic and current issues within the field of attention.
- To learn how to effectively evaluate and communicate research concepts within the field of attention.
- To learn how to research in depth a question you have regarding one of the issues regarding attentional control.

### Course Format

- The first week will provide an introduction to the history of attention research.
- The next eight weeks will focus on a particular attentional topic. Readings and weekly reflection papers must be done 24 hours prior to the Wednesday class. The reflection papers will be used to spur discussion during the Wednesday class. Presentations of articles related to each week's topic will be done during the Friday class.
- The last three weeks will consist of poster-style presentations of research proposals.

## Workload

### **Participation**

Participation will be evaluated at the end of the term by both your peers and the professor.

### **Weekly Reflection Papers**

For each of eight weeks, you will be required to submit a reflection paper. You have a great deal of flexibility as to what you write about. The goal is to provide evidence that, one you did the readings, and two that you thought about the readings. Do not simply provide a summary of the readings. Rather any ideas, questions, or criticisms you had with the readings would be useful. The maximum length is 1 page single-spaced. These reflection papers will be discussed during the Wednesday class. They are due 24 hours prior to the Wednesday class. That is, they are due Tuesdays at 1pm. Late reflection papers will not be accepted.

### **Topic Presentation**

For your topic presentation, you will identify an article (or possibly an issue) related to that week's topic and provide a 10 minute presentation during one of the Friday classes. You will also provide a one page handout with the key figures and verbally summarize the rationale for the study, the method, and the key findings.

### **Research Proposal Poster Presentation**

- The last three weeks will be used to present your research proposals (see Research Proposal Report) in a poster-style environment.
- Each student will provide a 5 minute poster presentation describing their research proposal (followed by a 5 to 10 minute question period), and a one-page poster handout.
- Both the students and the instructor will evaluate your poster presentation.

### **Research Proposal Report**

On the last day of class, you will submit a research paper on a topic of current interest within the field of attention. This paper will include a review of past research relevant to your topic, and a proposal for future research. Late papers will be penalized 10% per day.

## Evaluation

Class Participation	15%
Reflection Papers	25% (8 papers)
Topic Presentation	10%
Research Proposal Poster Presentation	15%
Research Proposal Report	35%

## Readings

There is no textbook. Readings will consist of articles (typically, review articles).

## Grading Scheme

All components of this course will receive numerical percentage marks. The final grade you receive for the course will be derived by converting your numerical course average to a letter grade according to Queen's Official Grade Conversion Scale:

### *Queen's Official Grade Conversion Scale*

<b>Grade</b>	<b>Numerical Course Average (Range)</b>
A+	90-100
A	85-89
A-	80-84
B+	77-79
B	73-76
B-	70-72
C+	67-69
C	63-66
C-	60-62
D+	57-59
D	53-56
D-	50-52
F	49 and below

## Academic Integrity

Academic integrity is constituted by the five core fundamental values of honesty, trust, fairness, respect and responsibility (see [www.academicintegrity.org](http://www.academicintegrity.org)). These values are central to the building, nurturing and sustaining of an academic community in which all members of the community will thrive. Adherence to the values expressed through academic integrity forms a foundation for the "freedom of inquiry and exchange of ideas" essential to the intellectual life of the University (see the Senate Report on Principles and Priorities <http://www.queensu.ca/secretariat/policies/senateandtrustees/principlespriorities.html>).

Students are responsible for familiarizing themselves with the regulations concerning academic integrity and for ensuring that their assignments conform to the principles of academic integrity. Information on academic integrity is available in the Arts and Science Calendar (see Academic Regulation 1 <http://www.queensu.ca/artsci/academic-calendars/regulations/academic-regulations/regulation-1>), on the Arts and Science website (see <http://www.queensu.ca/artsci/academics/undergraduate/academic-integrity>), and from the instructor of this course. Departures from academic integrity include plagiarism, use of unauthorized materials, facilitation, forgery and falsification, and are antithetical to the development of an academic community at Queen's. Given the seriousness of these matters, actions which contravene the regulation on academic integrity carry sanctions that can range from a warning or the loss of grades on an assignment to the failure of a course to a requirement to withdraw from the university.

## Disability Accommodations

Queen's University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a disability and think you may need accommodations, you are strongly encouraged to contact the Disability Services Office (DSO) and register as early as possible. For more information, including important deadlines, please visit the DSO website at: <http://www.queensu.ca/hcds/ds/>

## Course Schedule and Readings

### Sept. 16 – Class 1

#### Topic

Organizational meeting

Discuss ideas regarding the phenomenon of attention.

### Sept. 18 – Class 2

#### Topic

History of attention research

#### Readings

Pashler, H. E. (1998). The psychology of attention. Cambridge, MA: The MIT Press. (just the introduction – pp. 1-32)

Tsotsos, J. K., Itti, L., & Rees, G. (2005). A brief and selective history of attention. In L. Itti, G. Rees, and J. K. Tsotsos (Eds.). *Neurobiology of attention* (pp. xxiii-xxxii). San Diego, CA: Elsevier Academic Press.

### Sept. 23 – Class 3

#### Topic

Attentional capacity – Discussion

#### Readings

Franconeri, S. L., Alvarez, G. A., & Cavanagh, P. (2013). Flexible cognitive resources: competitive content maps for attention and memory. *Trends in Cognitive Sciences*, 17(3), 134-141.

Lavie, N. (2005). Distracted and confused?: Selective attention under load. *Trends in Cognitive Sciences*, 9, 75-82.

**Sept. 25 – Class 4**

**Topic**

Attentional capacity – Presentations

**Sept. 30 – Class 5**

**Topic**

Attention in Time – Discussion

**Readings**

Klein, R. M. (2000). Inhibition of return. *Trends in Cognitive Sciences*, 4, 138-147.

Klein, R.M. & MacInnes, W.J. (1999). Inhibition of return is a foraging facilitator in visual search. *Psychological Science*, 10, 346-352.

Shapiro, K. L., Arnell, K. M., & Raymond, J. E. (1997). The attentional blink. *Trends in Cognitive Sciences*, 1, 291-296.

**Oct. 2 – Class 6**

**Topic**

Attention in Time – Presentations

**Oct. 7 – Class 7**

**Topic**

Change / Inattentional Blindness – Discussion

**Readings**

Simons, D. J., & Levin, D. T. (1997). Change blindness. *Trends in Cognitive Sciences*, 1, 261-267.

Simons, D. J., & Rensink, R. A. (2005). Change blindness: past, present, and future. *Trends in Cognitive Sciences*, 9, 16-20.

Chun, M. M., & Marois, R. (2002). The dark side of visual attention. *Current Opinion in Neurobiology*, 12, 184-189.

Simons, D. J. (2000). Attentional capture and inattentional blindness. *Trends in Cognitive Sciences*, 4, 147-155.

Mack, A. (2003). Inattentional blindness: Looking without seeing. *Current Directions in Psychological Science*, 12, 180-184.

**Oct. 9 – Class 8**

**Topic**

Change / Inattentional Blindness – Presentations

**Oct. 14 – Class 9**

**Topic**

Object-Based Attention – Discussion

**Readings**

Scholl, B.J. (2001). Objects and attention: the state of the art. *Cognition*, 80, 1-46.

Moore, C.M., Yantis, S. & Vaughan, B. (1998). Object-based visual selection: Evidence from perceptual completion. *Psychological Science*, 9, 104-110.

Pratt, J., & Sekuler, A.B. (2001). The effects of occlusion and past experience on the allocation of object-based attention. *Psychonomic Bulletin & Review*, 8, 721-727.

**Oct. 16 – Class 10**

**Topic**

Object-Based Attention – Presentations

**Oct. 21 – Class 11**

**Topic**

Attention and Eye Movements – Discussion

**Readings**

Awh, E., Armstrong, K. M., & Moore, T. (2006). Visual and oculomotor selection: links, causes, and implications for spatial attention. *Trends in Cognitive Sciences*, 10, 124-130.

Theeuwes, J., Kramer, A.F., Hahn, S., & Irwin, D.E. (1998). Our eyes do not always go where we want them to go: Capture of the eyes by new objects. *Psychological Science*, 9, 379-385.

Hooge, I.T.C., Over, E.A.B., van Wezel, R.J.A., & Frens, M.A. (2005). Inhibition of return is not a foraging facilitator in saccadic search and free viewing. *Vision Research*, 45, 1901-1908.

**Oct. 23 – Class 12**

**Topic**

Attention and Eye Movements – Presentations

**Oct. 28 – Class 13**

**Topic**

Multifocal Attention – Discussion

**Readings**

Cavanagh, P., & Alvarez, G. A. (2005). Tracking multiple targets with multifocal attention. *Trends in Cognitive Sciences*, 9, 349-354.

Fehd, H. M., & Seiffert, A. E. (2008). Eye movements during multiple object tracking: Where do participants look? *Cognition*, 108, 201-209.

**Oct. 30 – Class 14**

**Topic**

Multifocal Attention – Presentations

**Nov. 4 – Class 15**

**Topic**

Training of Attention – Discussion

**Readings**

Green, C. S., & Bavelier, D. (2003). Action video game modifies visual attention. *Nature*, 423, 534-537.

Green, C.S., & Bavelier, D. (2006). Effect of action video games on the spatial distribution of visuospatial attention. *Journal of Experimental Psychology: Human Perception and Performance*, 23, 1465-1478.

**Nov. 6 – Class 16**

**Topic**

Training of Attention – Presentations

**Nov. 11 – Class 17**

**Topic**

Attention and Memory – Discussion

**Readings**

Kiyonaga, A., & Egner, T. (2014). The Working Memory Stroop Effect When Internal Representations Clash With External Stimuli. *Psychological Science, 25*(8), 1619-1629.

Awh, E., & Jonides, J. (2001). Overlapping mechanisms of attention and spatial working memory. *Trends in Cognitive Sciences, 5*, 119-126.

Downing, P.E. (2000). Interactions between visual working memory and selective attention. *Psychological Science, 11*, 467-473.

**Nov. 13 – Class 18**

**Topic**

Attention and Memory – Presentations

**Nov. 18 to Dec. 4 – Classes 19-24**

**Research Proposal Presentations**

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