

PSYC422 / PSYC970: Selected Topics in Attention

Winter session, 2014

Syllabus

Instructor: Daryl Wilson

Office: Humphrey Hall, room 347

Email: daryl.wilson@queensu.ca

Office Hours: by appointment

Class Time: Tuesday 1:00-2:30pm and Thursday 11:30-1:00pm

Class Location: Mac-Corry E230

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.
- A research paper is assigned to give you an opportunity to research in more depth a question you have regarding one of the issues regarding attention.

Course Format

Each week will focus on a particular topic. Readings and weekly thought papers must be done prior to the Tuesday class. The thought papers will be presented during the Tuesday class. During the Thursday class, presentations of related articles will be done by some of the students.

Workload

Participation

Participation is always good in a seminar class!

Weekly Thought

Each week you will be required to email me a question or a thought you have regarding the required readings for that week. Typically, these will be less than 1 page long. These “weekly thoughts” are meant to show me that you have done the

readings and that you have thought about them. We will discuss these thoughts during the Tuesday class. They are due by 6am each Tuesday morning prior to class.

Presentations

You will do three presentations. For each presentation, you will identify an article related to that week's topic and provide a 5 minute presentation of that article during Thursday's class. This will not be a powerpoint presentation. Instead, provide a one page handout with the key figures and verbally summarize the rationale for the study, the method, and the key findings.

Research paper

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	10%
Weekly Thought	20%
Presentations	30%
Research Paper	40%

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

Grade	Numerical Course Average (Range)
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). 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

Jan. 7 – Class 1

Topic

Organizational meeting

Discuss ideas regarding the phenomenon of attention.

Jan. 9 – 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.

Task

**Submit a “weekly thought”.

Jan. 14 – 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.

Jan. 16 – Class 4

Topic

Attentional capacity – Presentations (Group 1)

Jan. 21 – 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.

Jan. 23 – Class 6

Topic

Attention in Time – Presentations (Group 2)

Jan. 28 – Class 7

Topic

Change 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.

Jan. 30 – Class 8

Topic

Change Blindness – Presentations (Group 3)

Feb. 4 – Class 9

Topic

Inattentional Blindness – Discussion

Readings

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.

Feb. 6 – Class 10

Topic

Inattentional Blindness – Presentations (Group 1)

Feb. 11 – Class 11

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.

Feb. 13 – Class 12

Topic

Object-Based Attention – Presentations (Group 2)

Feb. 25 – Class 13

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.

Feb. 27 – Class 14

Topic

Attention and Eye Movements – Presentations (Group 3)

Mar. 4 – Class 15

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.

Mar. 6 – Class 16

Multifocal Attention – Presentations (Group 1)

Mar. 11 – Class 17

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.

Mar. 13 – Class 18

Topic

Training of Attention – Presentations (Group 2)

Mar. 18 – Class 19

Topic

Attention and Memory – Discussion

Readings

Hutchinson, J. B., Turk-Browne, N. B. (2013). Memory-guided attention: control from multiple memory systems. *Trends in Cognitive Sciences, 16(12)*, 576-579.

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.

Mar. 20 – Class 20

Topic

Attention and Memory – Presentations (Group 3)

Mar. 25 – Class 21

Topic

Neurophysiology of Attention – Discussion

Readings

Desimone, R. (1998). Visual attention mediated by biased competition in extrastriate visual cortex. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, 353, 1245-1255.

Kastner, S., & Ungerleider, L. G. (2000). Mechanisms of visual attention in the human cortex. *Annual Review of Neuroscience*, 23, 315-341.

Mar. 27 – Class 22

Topic

Neurophysiology of Attention – Presentations (Group 1)

Apr. 1 – Class 23

Topic

Attention and Awareness – Discussion

Readings

Lamme, V. A. F. (2003). Why visual attention and awareness are different. *Trends in Cognitive Sciences*, 7, 12-18.

Koch, C., & Tsuchiya, N. (2006). Attention and consciousness: two distinct brain processes. *Trends in Cognitive Sciences*, 11, 16-22.

Tong, F. (2003). Primary visual cortex and visual awareness. *Neuroscience, Nature Reviews*, 4, 219-229.

Apr. 3 – Class 24

Attention and Awareness – Presentations (Group 2)

**** Research paper due ****

Copyright of Course Material

This material is copyrighted and is for the sole use of students registered in this course. This material shall not be distributed or disseminated to anyone other than students registered in this course. Failure to abide by these conditions is a breach of copyright, and may also constitute a breach of academic integrity under the University Senate's Academic Integrity Policy Statement.

© Daryl Wilson 2014