FACULTY OF SCIENCE
SCHOOL OF PSYCHOLOGY

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Seeing is an amazing achievement, taking up 40% of the visual cortex. However, the relationship between the visual information carried by the photons bombarding our retinas and the visual experience that results is not a simple one. The problem of visual processing will be considered from ecological, physiological, philosophical, and computational perspectives. The general orientation of the course is a theoretical one but the applied aspects such as the role of basic perceptual processes in disorder such as autism and schizophrenia, and the implications for design of effective visual displays will be discussed as well.

The main objectives of this course are to:

- Provide an advanced-level coverage of theoretical issues and research in visual perception through lectures and tutorials with an emphasis on the interdisciplinary nature of the scientific study of perceptual processes;
- Encourage you to critically evaluate

	Vision and the coding of natural images I Olshausen & Field (2003) Vision and the coding of natural images, American Scientist, 88, 238-245. Gilchrist, A. (2006) Seeing in Black and White. Scientific American (Mind) 42-49. *Vision and the coding of natural images II*

Imagery (JP)
Kosslyn, S. M., Ganis, G., & Thompson, W. L. (2001). Neural foundations of imagery. Nat Rev Neurosci, 2(9), 635-642.
Pylyshyn, Z. (2003). Return of the mental image: Are there really pictures in the brain? Trends Cogn Sci, 7(3), 113-118.

Visual perceptual learning (JP)
Sasaki, Y., Nanez, J. E., & Watanabe, T. (2010). Advances in visual perceptual learning and plasticity. *Nature Reviews Neuroscience*, *11*(1), 53–60. doi:10.1038/nrn2737
Sagi, D. (2011). Perceptual learning in Vision Research. *Vision Research*, *51*(13), 1552–1566.

Mid-session exam	15% (or 25%)	Friday, 26 April 2013
Assignment 1 (*Research Article Assignment)*	15 %	Weeks 5 & 6 tutorials
Group research project and report:	30%	Week 8 (5%) and Week 13 (10%, 15%)
Final exam	40% (or 30%)	UNSW exam period

Mid-Session Exam:

The mid-session exam (Week 7: Friday 26 April) will consist of multiple-choice and short essay questions (Weeks 1-4 material). The performance on this exam will count towards 15% of your final grade. However, if you perform better on the midterm exam than on your final exam, midterm exam will count 25% and the final exam will count only 30% toward your final grade. The performance comparison on these two exams will be based on the standardized z-scores (not the raw scores).

Final Exam:

The final examination will be in the University Examination period and will be worth 40% of the final grade (but see above Mid-Session Exam section). The final exam will contain approximately 9 short essay questions. These questions will be drawn from the lectures, tutorials, and the readings.

Students can attend the final examination only once, either in the regularly scheduled or deferred examination period. As you will not be permitted to attend both the regularly scheduled and deferred examinations, you are advised not to attend the exam as originally scheduled if sick on that day. Instead, ensure that you have the appropriate medical certificate to support your case for deferred medical exam. In such a case, a formal application for special consideration must be submitted to Student Central within three working days of the assessment to which it refers. Deferred examination opportunity for each course will be offered only once.

Deferred and alternative assessment materials may be in a different format from the original (i.e. short answers instead of MC questions, oral examination instead of written examination etc). In addition, the original and deferred assessment materials may also differ in the specific content, although overall both will be sampled for the same relevant course material.

Research Article Review (Weighting: *15% (oral presentation and accompanying PowerPoint slides)*:

Group research project and report: (*30% total)*

As part of this course you will be required to design and conduct a small-scale empirical research project in the area of visual perception. First you will be asked to present a brief proposal of your project in Week 8 (worth 5%). After the completion of your project, you will be asked to make a poster summary of your research projects with a short oral presentation (15-20 minutes) on your project (worth 10%). All members of the research group are required to take part in these presentations, as you will be awarded a single mark as a group. However, written research reports on this project are expected to be individually written and submitted and will receive individual mark worth 15%. The report should be formatted as a research report for the journal Psychological Science and should be approximately 2000 words in length.

Your tutor will be available to advise you during all stages of your project.

Components:

Presentation of research proposal (5%)

- one Powerpoint research proposal per group; one group mark for all members; due in Week 8 tutorials;

Research project poster presentation (10%)

- all group members A0 0 0 Tm809

There is no textbook set for this course. The course is organized around review articles taken from journals such as Trends in Neuroscience, Trends in Cognitive Science, Annual Review of Neuroscience, Vision Research, Current Biology, Nature, Nature Neuroscience or similar. These articles can be downloaded via the UNSW Library holdings or from the course Blackboard website.

Lecture notes will be made available on the course website located at the UNSW Blackboard server (telt.unsw.edu.au), but this should not be seen as being a substitute for the lecture itself because important details may be given in the lecture that are not found in these notes.