# PSYC3013 – Perceptual Systems

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<th>Unit of Study Code:</th>
<th>PSYC3013</th>
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<tr>
<td>Coordinator:</td>
<td>Dr Deborah Apthorp (away 17 to 29 Aug)</td>
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<td>Email: <a href="mailto:deborah.apthorp@sydney.edu.au">deborah.apthorp@sydney.edu.au</a></td>
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| Other Teaching Staff: | Associate Professor David Alais  |
|                      | Office: Room 506 Griffith Taylor Building  |
|                      | Phone: 9351 2873  |
|                      | Email: david.alais@sydney.edu.au  |

|                      | Professor Colin Clifford  |
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|                      | Dr Alex Holcombe  |
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|                      | Professor Bart Anderson  |
|                      | Office: Room 526 Griffith Taylor Building  |
|                      | Phone: 9356 7259  |
|                      | E-mail: barton.anderson@sydney.edu.au  |

| Format of Unit:      | 2 x 1 hour lectures/week x 13 weeks  |
|                      | 1 x 2 hour tutorial/week x 10 weeks  |

| Credit Point Value:  | 6 Credit Points |

| Prerequisite:        | Intermediate Year Psychology units including PSYC (2011 or 2111) and at least one other Intermediate Psychology Unit from PSYC (2012 or 2112), PSYC (2013 or 2113), PSYC (2014 or 2114). |
Assessment:

Class work:
Class Blindspot Experiment Report, max 2500 words (25% of the total mark of the unit)
- includes a Plan Worksheet worth 3%
**due week 5 at end of tute**
- includes the final write-up worth 22% due
**week 8 Friday 17 September**

Group presentation on perceptual disorders (10% of the total mark of the unit)
Done Week 11, **during tutorial 11-15 October**

Tutorial Quiz (15% of total mark; tute attendance contributes 3% of this)
Quiz administered Week 13, **during tutorial 25-29 October**

Examination (50%):
50% Multiple choice questions,
50% short answers of approximately 1 page each
Unit of study general description:

Perception poses many challenges: how do we see colour and movement? How do we perceive surfaces and materials? How does combining information from multiple senses improve our perception? This unit draws on behavioural and neurophysiological perspectives to deepen understanding of current research topics in perception.

The emphasis is on how visual information is processed to accomplish functions such as perceiving a single edge, extracting the contours that form a face, or the spatial relations needed to call offside on the sports field. Students also gain conceptual tools for evaluating the empirical and theoretical worth of recent research in perception. Perception is one of the School of Psychology's strongest research areas, and students will be taught by research-oriented academics with active laboratories.

During the tutorial component of the course students will develop a practical experiment in which they formulate and test a hypothesis. In this way students gain important research experience that gives them valuable insight into the scientific process as it exists both in professional work and in the empirical research project required for the Honours degree.

Evidence of learning:
Assessment of work completed in tutorials will take the form of a quiz. Group class presentation and the report will assess understanding of the topics of selected readings and the ability to design and critically evaluate research. At the end of semester, an examination (short answer and multiple choice) will assess knowledge of the entire course including tutorial work, lecture material, recommended reading and all the stated teaching outcomes.

Lecture Program

(Lectures Mon. 3pm, Wed. 3pm)

Deborah Apthorp (Lectures 1, 11-15):
• The retina, filling in blind spots
• Receptive fields
• Binocular rivalry
• Binocular vision
• Other senses
• Perceptual disorders

Bart Anderson (Lectures 2-4):
• Surfaces (colour, gloss, lightness)
• Segmentation (completion, occlusion, intrinsic image models)
• Material perception (gloss, translucency, etc.)

Alex Holcombe (Lectures 5-10):
• Spatial resolution of vision and attention
• Temporal resolution of vision and attention
• Perception on the pitch
• Noticing visual events
Colin Clifford (Lectures 16-19):
• Visual cortex: structure & function
• Modularity & binding
• Computational approaches to vision
• Motion processing

David Alais, (Lectures 20-25):
• Combining audition and vision: neural structures & functions
• Audiovisual interactions in attention and perception
• Fusing audiovisual information and dealing with discrepancy
• Early vs. late integration; time perception
• ‘Virtual’ auditory space and auditory localisation

NOTE: some changes in lecture program are likely, for notice see WebCT

Tutors: Sarah McIntyre (sarahmc@psych.usyd.edu.au), Susy Natal (susy.natal@gmail.com)

Tutorials are a mix of class demonstrations, computer-based tutorials, and discussion

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<tr>
<th>Week. Lecture dates</th>
<th>Tutorials</th>
<th>Lecturers</th>
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<tbody>
<tr>
<td>1. 26, 28 July</td>
<td>No tute</td>
<td>Apthorp, Anderson</td>
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<tr>
<td>2. 2, 4 Aug</td>
<td>Blindspot and filling in; project info</td>
<td>Anderson</td>
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<tr>
<td>3. 9, 11 Aug</td>
<td>Form groups; plan blindspot experiment</td>
<td>Holcombe</td>
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<tr>
<td>4. 16, 18 Aug</td>
<td>[ECVP] Touch, tactile acuity, receptive fields intro</td>
<td>Holcombe</td>
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<tr>
<td>5. 23, 25 Aug</td>
<td>[ECVP] Work on blindspot project PLAN DUE</td>
<td>Holcombe</td>
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<td>6. 30 Aug, 1 Sep</td>
<td>Receptive fields</td>
<td>Apthorp</td>
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<td>7. 6, 8 Sep</td>
<td>No tute: work on your project</td>
<td>Apthorp</td>
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<tr>
<td>8. 13, 15 Sep</td>
<td>Motion perception PROJECT DUE FRI</td>
<td>Apthorp, Clifford</td>
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<tr>
<td>9. 20, 22 Sep</td>
<td>Signal Detection Theory</td>
<td>Clifford</td>
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AVCC COMMON VACATION WEEK, NO CLASS OR TUTORIAL

10. 6 Oct
    No tutorials (prepare presentations) | Clifford

11. 11, 13 Oct
    Perceptual disorders PRESENTATIONS | Clifford, Alais

12. 18, 20 Oct
    Audition | Alais

13. 25, 27 Oct
    TUTORIAL QUIZ | Alais

READINGS
   (see also: http://www.psy.vanderbilt.edu/faculty/blake/214_F2005/BlakeSekuler.html)
2. Journal articles and chapters from selected books (to be announced in lectures, often on library electronic reserve).
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Graduate Attributes and Learning Outcomes for Perceptual Systems (Psyc3013)

This course is structured around the graduate attributes associated with the scientist-practitioner model, the basis for the training of psychologists in Australia and internationally. Graduate Attributes are the generic skills, abilities and qualities that students should acquire during their university experience and the School of Psychology is committed to providing an environment to promote these skills. In addition, this unit of study will provide students with generalised and transferable skills that will also be useful in careers outside psychology. The following graduate attributes and student learning outcomes will be developed through lectures, tutorial and assessment activities. They will be assessed in the laboratory report, group presentation, tutorial quiz, and final examination.

1: Knowledge and Understanding of Perceptual Systems
Display basic knowledge and understanding of the major concepts, basic facts, and developing understanding of biological perceptual systems. Human visual processing will be the most emphasised aspects, but other senses will also be included.

Student learning outcomes:

(i) Knowledge of several of the perceptual problems the brain must solve (such as combining information from distinct senses)
(ii) Appreciation of common processing principles for how the brain solves perceptual problems (such as adaptation)
(iii) Conceptual understanding of the limits on human perception and how they relate to the underlying mechanisms (such as acuity)
(iv) Understanding of specific perceptual phenomena and how they arise as a consequence of processing architecture, especially in vision and audition
(v) Basic knowledge of the methods and measures commonly used in perception research
(vi) Ability to understand and evaluate empirical studies in perception

2: Research Methods in Perceptual Systems
Understand, apply and evaluate basic research methods in Perceptual Systems, including research design, data analysis and interpretation, and the appropriate use of technologies.

Student learning outcomes:

(i) To develop an understanding of the major methods of perceptual research
(ii) Critically assess research findings and related theories in these areas
(iii) Design and conduct basic studies to address perceptual questions: frame research questions; undertake literature searches; critically analyse theoretical and empirical studies; formulate testable hypotheses; operationalise variables; choose an appropriate methodology; make valid and reliable measurements; analyse data and interpret results; and write research reports.

3: Critical Thinking Skills in Perceptual Systems
Respect and use critical and creative thinking, sceptical inquiry, and the scientific approach to solve problems related to perception.

Student learning outcomes:

(i) Demonstrate an attitude of critical thinking that includes persistence, open-mindedness, and intellectual engagement.
(ii) Evaluate the quality of information, including differentiating empirical evidence from speculation.
(iii) Think about how perception might be achieved mechanistically
(iv) Use reasoning and evidence to recognise, develop, defend, and criticise arguments.
5: Communication Skills in Perceptual Systems
Communicate effectively in a variety of formats and in a variety of contexts

Student learning outcomes:
(i) Write a standard research report using American Psychological Association (APA) structure and formatting conventions.
(ii) Write effectively.
(iii) Demonstrate effective oral communication skills.
(iv) Collaborate effectively, demonstrating an ability to: work with groups to complete projects within reasonable timeframes; manage conflicts appropriately and ethically.

6: Learning and the Application of Perceptual Systems
Understand and apply psychological principles to personal and social issues.

Student learning outcomes:
(i) Develop an awareness of the applications of the theories and findings in the area.
(ii) Apply psychological concepts, theories, and research findings to problems in everyday life and in society.
(iii) Understand major areas of applied Perceptual Psychology
Plagiarism Policy Information for Students

Plagiarism is not permitted

i) Do you know what plagiarism is?
   Please refer to the University policy on plagiarism:

ii) The School of Psychology will severely penalise all submitted work that is plagiarised;

iii) The School of Psychology is using software to detect all forms of plagiarism.

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**Diagram:**

- **PLAGIARISM**
  - More than 50% plagiarised:
    - Unit Coordinator ensures that the student receives no marks for submitted work and requests a resubmission for a mark of zero.
  - Less than 50% plagiarised:
    - Tutor/marker ignores plagiarised section(s) and marks remainder of submitted work, plus 10% penalty.
THE UNIVERSITY OF SYDNEY LIBRARY

The University of Sydney Library is a distributed system of libraries with a collection of over 5 million items. Fisher Library has the most resources relevant to Psychology and is located on Eastern Avenue, Camperdown Campus.

http://sydney.edu.au/library

Faculty Liaison Librarian

Your Faculty Liaison Librarian supports the teaching, learning and research needs of staff, students and researchers for the School of Psychology. Contact details are as follows:


Psychology Guide

Includes links to Psychology databases, internet resources, information on tests and more.

http://libguides.library.usyd.edu.au/psychology

Psychology material in high demand

Reserve (located on Level 2 of Fisher Library) is a 2 hour loan collection of required and recommended items on Psychology reading lists. Reading list material can be searched by unit of study or lecturer via the catalogue:

http://opac.library.usyd.edu.au/search/r