PSYC3013 – Perceptual Systems

Unit of Study Code: PSYC3013

Coordinator: Dr Deborah Apthorp (away 23rd Aug to 7th Sept)  
Office: Room 514 Griffith Taylor Building  
Phone: 9351 4329  
Email: deborah.apthorp@sydney.edu.au

Other Teaching Staff:  
Associate Professor David Alais  
Office: Room 506 Griffith Taylor Building  
Phone: 9351 2873  
Email: david.alais@sydney.edu.au

Professor Bart Anderson  
Office: Room 526 Griffith Taylor Building  
Phone: 9356 7259  
E-mail: barton.anderson@sydney.edu.au

Professor Colin Clifford  
Office: Room 508 Griffith Taylor Building  
Phone: 9351 6810  
Email: colin.clifford@sydney.edu.au

Dr Alex Holcombe  
Office: Room 504 Griffith Taylor Building  
Phone: 9351 2883  
E-mail: alex.holcombe@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 Blind spot Experiment Report, max 2000 words (25% of the total mark of the unit)
- includes a Plan Worksheet worth 3%
  due week 6 at end of tutorial
- includes the final write-up worth 22%
  due week 8 Friday 16 September

Group presentation on perceptual disorders (10% of the total mark of the unit)
Done Week 11, during tutorial 10-14 October

Tutorial Quiz (15% of total mark; tute attendance contributes 3% of this)
Quiz administered Week 13, during tutorial 24-28 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 offsides 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 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 1-6):
• The retina, filling in blind spots
• Receptive fields
• Binocular rivalry
• Binocular vision
• Other senses
• Perceptual disorders

Colin Clifford (Lectures 7-11):
• Visual cortex: structure & function
• Motion processing: plaids & the aperture problem
• Motion processing: optic flow & 3-D structure-from-motion
• Motion processing: adaptation
• Motion processing: attentional modulation

Bart Anderson (Lectures 12-14):
• Surfaces (colour, gloss, lightness)
• Segmentation (completion, occlusion, intrinsic image models)
• Material perception (gloss, translucency, etc.)

Alex Holcombe (Lectures 15-20):
• Spatial resolution of vision and attention
• Temporal resolution of vision and attention
• Perception on the pitch
• Noticing visual events

David Alais, (Lectures 21-25):
• 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 Blackboard

Tutors: Martin Goldzieher (mgol6527@uni.sydney.edu.au), Shi-Yu Lo (shlo9320@uni.sydney.edu.au)

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

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture dates</th>
<th>Tutorials</th>
<th>Lecturers</th>
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<tbody>
<tr>
<td>1</td>
<td>25, 27 July</td>
<td>No tute</td>
<td>Apthorp</td>
</tr>
<tr>
<td>2</td>
<td>1, 3 Aug</td>
<td>Blind spot and filling in; project info</td>
<td>Apthorp</td>
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<tr>
<td>3</td>
<td>8, 10 Aug</td>
<td>Touch, tactile acuity, receptive fields intro; form groups</td>
<td>Apthorp</td>
</tr>
<tr>
<td>4</td>
<td>15, 17 Aug</td>
<td>Receptive fields; work on project</td>
<td>Clifford</td>
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<tr>
<td>5</td>
<td>22, 24 Aug</td>
<td>Motion perception</td>
<td>Clifford</td>
</tr>
<tr>
<td>6</td>
<td>29, 31 Aug</td>
<td>Work on blind spot project; PLAN DUE</td>
<td>Anderson</td>
</tr>
<tr>
<td>7</td>
<td>5, 7 Sep</td>
<td>No tute: work on your project</td>
<td>Anderson</td>
</tr>
<tr>
<td>8</td>
<td>12, 14 Sep</td>
<td>Signal Detection Theory; PROJECT DUE FRI</td>
<td>Holcombe</td>
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<tr>
<td>9</td>
<td>19, 21 Sep</td>
<td>Introduction to Fourier analysis</td>
<td>Holcombe</td>
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AVCC COMMON VACATION WEEK: NO CLASSES OR TUTORIALS

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<thead>
<tr>
<th>Week</th>
<th>Lecture dates</th>
<th>Tutorials</th>
<th>Lecturers</th>
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<tbody>
<tr>
<td>10</td>
<td>5 Oct</td>
<td>No tutorials (prepare presentations)</td>
<td>Holcombe</td>
</tr>
<tr>
<td>11</td>
<td>10, 12 Oct</td>
<td>Perceptual disorders PRESENTATIONS</td>
<td>Holcombe, Alais</td>
</tr>
<tr>
<td>12</td>
<td>17, 19 Oct</td>
<td>Audition</td>
<td>Alais</td>
</tr>
<tr>
<td>13</td>
<td>24, 26 Oct</td>
<td>TUTORIAL QUIZ</td>
<td>Alais</td>
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READINGS
   (see also: http://www.sinauer.com/wolfe2e/home/startF.htm
2. Journal articles and chapters from selected books (to be announced in lectures, often on library electronic reserve).
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, skeptical 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.

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
Research and resource support for Psychology students

The University of Sydney Library has 12 libraries in different locations, on different subjects with different facilities. Fisher Library is where you will find the physical collection of most relevance to your Psychology studies. Fisher Library is located on Eastern Ave, Camperdown campus. We also have loads available online – find us at sydney.edu.au/library/

You can contact your Psychology Faculty Liaison Librarian at library.psychology@sydney.edu.au. The Psychology Librarian is located at Badham Library, level 1, Badham Building, Science Rd, Camperdown Campus. You can phone 91141292 or send an email psychology.library@sydney.edu.au

Psychology books in high demand

Reserve (located on Level 2 of Fisher Library) is a 2 hour loan collection. Most of your required and recommended items will be here. Details of these can are located in the catalogue, you search for these at http://opac.library.usyd.edu.au/search/r

Psychology subject guide

There is a comprehensive subject guide that includes links to psychology databases, internet resources, information on tests and measurements and more. Take a look at http://libguides.library.usyd.edu.au/psychology

Need a refresher after the long vacation?

Watch and listen to these online learning objects and get back up to speed with information literacy skills on topics such as research, essay writing and referencing. http://www.library.usyd.edu.au/skills/