PSYC3013 – Perceptual Systems

Unit of Study Code: PSYC3013

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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 in mid-semester break, Monday 24 September**

Group presentation on perceptual disorders (10% of the total mark of the unit)
Done Week 11, **during tutorial 15-18 October**

Tutorial Quiz (15% of total mark; tute attendance contributes 3% of this)
Quiz administered Week 13, **during tutorial 29 October to 1 Nov**

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

Alex Holcombe (Lectures 1, 7-12):
- The retina, filling in blind spots
- Spatial resolution of vision and attention
- Temporal resolution of vision and attention
- Visual packaging and objects

Frans Verstraten (Lectures 2-6):
- Receptive fields
- Perceptual disorders
- more to be announced

Bart Anderson (Lectures 13-16):
- Surfaces (colour, gloss, lightness)
- Segmentation (completion, occlusion, intrinsic image models)
- Material perception (gloss, translucency, etc.)

David Alais, (Lectures 17-21):
- 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
Colin Clifford (Lectures 22-25):
• Visual cortex: structure & function
• Motion processing: plaids & the aperture problem
• Motion processing: optic flow & 3-D structure—from-motion
• Motion processing: adaptation & attentional modulation

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

Tutors: Frans Verstraten (frans.verstraten@sydney.edu.au)
Martin Goldzieher (mgol6527@uni.sydney.edu.au)
Shih-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>
<th>Who’s away</th>
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<tbody>
<tr>
<td>1</td>
<td>30 Jul, 1 Aug</td>
<td>No tute</td>
<td>Holcombe, Verstraten</td>
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<tr>
<td>2</td>
<td>6, 8 Aug</td>
<td>Blind spot and filling in; project info</td>
<td>Verstraten</td>
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<tr>
<td>3</td>
<td>13, 15 Aug</td>
<td>Touch, tactile acuity, receptive fields intro; form groups</td>
<td>Verstraten</td>
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<tr>
<td>4</td>
<td>20, 22 Aug</td>
<td>Receptive fields; work on project</td>
<td>Holcombe CC, FV from 22, DA</td>
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<td>5</td>
<td>27, 29 Aug</td>
<td>Signal Detection Theory</td>
<td>Holcombe CC, FV, DA</td>
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<tr>
<td>6</td>
<td>03, 05 Sep</td>
<td>Work on blind spot project; PLAN DUE</td>
<td>Holcombe CC, FV, DA</td>
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<tr>
<td>7</td>
<td>10, 12 Sep</td>
<td>No tute: work on your project</td>
<td>Anderson CC, FV returns 11th, DA</td>
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<tr>
<td>8</td>
<td>17, 19 Sep</td>
<td>Applied Vision Science</td>
<td>Anderson CC</td>
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PROJECT DUE MONDAY 24 SEP
AVCC COMMON VACATION WEEK: NO CLASSES OR TUTORIALS

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<tr>
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<th>Lecturers</th>
<th>Who’s away</th>
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<tbody>
<tr>
<td>9</td>
<td>3 Oct Sep</td>
<td>No tutorials (prepare presentations)</td>
<td>Alais CC</td>
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<tr>
<td>10</td>
<td>8, 10 Oct</td>
<td>Audition</td>
<td>Alais</td>
<td></td>
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<tr>
<td>11</td>
<td>15, 17 Oct</td>
<td>Perceptual disorders PRESENTATIONS</td>
<td>Alais</td>
<td></td>
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<tr>
<td>12</td>
<td>22, 24 Oct</td>
<td>Motion perception</td>
<td>Clifford AH</td>
<td></td>
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<tr>
<td>13</td>
<td>29, 31 Oct</td>
<td>TUTORIAL QUIZ</td>
<td>Clifford</td>
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READINGS
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) Evaluate issues using different theoretical and methodological approaches.
(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
Academic Dishonesty and Plagiarism
1. It is your responsibility to know what academic dishonesty and plagiarism are. Here is the link to the University’s policy:


Make sure that you understand what counts as academic dishonesty and the various types of plagiarism. The Library’s http://www.library.usyd.edu.au/skills/ ‘Plagiarism and Academic Honesty’ program will help.

2. Note that:

i) the School of Psychology will penalise all submitted work that is plagiarised.

ii) Students should note that all assignments (including group projects) will be run through similarity detecting software. This software detects similarities between (a) your assignment and both print and online sources, and (b) assignments submitted by other students, from both current and previous years. If similarities are found, they will be investigated so as to determine the nature of the plagiarism. See Part 5 of the University’s policy.

Avoiding plagiarism – key points
• Plagiarism is a serious offence and may result in failure in the course. Even where students are completing an exercise together, each student must submit separate written work. Incorporation of any material from another student’s assignment is regarded as plagiarism.
• In writing essays or reports to meet coursework requirements, you should use your own words. In some contexts (e.g., theoretical research) it is appropriate to use an occasional quotation. This should be indicated in the conventional way by enclosing the passage within quotation marks and by providing a precise (page number) reference for the source of the quote. In many contexts, especially reports of empirical work, quotations are best avoided.
• “Using your own words” means that you should not borrow from the writing of others – whether from fellow students or published authors. For example, it is not acceptable to base an essay on text from various sources that you have then edited to some degree – even if you cite these sources. First of all, there is the ethical issue arising from the dishonesty of presenting as your own work something which is essentially the work of others. In addition, there are good educational reasons for avoiding this, even where you feel that someone else has expressed some idea far more clearly than you could. One reason is that you must learn to express yourself clearly in writing; like most other skills, this only comes with practice. Another, is the failure to understand information or ideas at all thoroughly if all you have done is reproduce (with some editing) what someone else has written about the topic.
• When you express in your own words what you have learned from various sources, you should cite each source. The standard convention for most written work in psychology is to list references at the end of your essay or report, rather than, for example, to use footnotes. To express some idea without giving a citation implies
• University of Sydney – Syllabus of Senior Psychology 3, 2012 page 6that it is your own idea. Therefore, if it is in fact an idea obtained from someone else, this needs to be acknowledged. Listing a set of sources implies that you have read them all. Therefore, you should list as references only those you have actually read. If you are depending on a secondary source, then make this clear, e.g., ... salivary conditioning (Pavlov, 1927; cited in Mazur, 1998).
• The points made here also apply to non-textual material. For example, graphs or tables of data included in a report should be your own work and not copied from others. Very occasionally you may need to ‘quote’ a figure from some other source; if you do so, you should make its origin quite clear.
• In general, avoid letting other students use your work for any kind of assessment. On the rare occasion where this may be appropriate, make sure that the other student acknowledges your contribution as the original author.
• In some cultures, students show their respect for a teacher by copying what the teacher has said or written. In Australian University education, copying a teacher (even if paraphrasing) is plagiarism if the source is not cited.
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/

Matthew Davis is the Faculty Liaison Librarian for Psychology. Matthew is available to help you find and use library resources for your assignments or research. You can email him at library.psychology@sydney.edu.au or phone on 9351 3629. The Psychology Librarian is located at Badham Library, level 1, Badham Building, Science Rd, Camperdown Campus.

Psychology books in high demand
The 2 hour collection is located on Level 3 of Fisher Library. Most of your required and recommended items from the reading lists will be here. You can find a list of your required readings in the catalogue by searching under your Unit of Study code. Some material in the list is also available to read online.

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
You can also enrol in free research, database and EndNote training classes on this site.

Need a refresher after 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/