PSYC 3014 – Behavioural and Cognitive Neuroscience

Unit of Study Code: PSYC3014

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E-mail: andrew.kemp@sydney.edu.au
Consultation time: by appointment

Tutors: Joanna Fardell, Callum Hicks, Emily Karanges, Lauren Shone
Your tutor will advise you of their consultation times in the first tutorial.

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: 1. PSYC (2011 or 2911 or 2111) and at least one other Intermediate Psychology Unit from PSYC (2012 or 2112), PSYC (2013 or 2113), PSYC (2014 or 2114).
OR
2. (PSYC2011 or 2911 or 2111 or 2013) and ANAT2010 and PCOL2011.

Assessment:

a) Formal Assessment

One 2hr exam (containing both multiple choice and short answer questions) (50%)

One 2000-2500 word essay (35%) due before 4pm Friday 14 September (Week 7)

One QUIZ held in tutorial (Week 13) assessing the tutorial material not covered in the report (multiple choice) (10%)

Preparation and participation in class debate in Week 11 (5%)

b) Out of class prescribed student workload

2 hrs/wk: Assignment research and background research for tutorials

c) Other expected student workload

Revision of lecture material, readings for tutorials, preparation for quizzes and for exam, preparation of 1 page of notes for the debate in Week 11.

Unit of study general description:
This unit of study will focus on approaches to studying neurosciences incorporating molecular, preclinical and clinical models of brain function. These biological models of brain function will be linked with behavioural, affective and cognitive function and dysfunction. The implications of focal cognitive deficits in neurological patients for models of normal cognitive function will also be explored. Specific topics to be covered will be selected from the following areas: the biological basis of feeding and appetite, psychoneuroimmunology, glial cell function, the neural basis of learning and memory, sensorimotor integration, neurodegenerative disease, social neuroscience, language, visual cognition and praxis. In addition to lectures, a practical component will cover basic neuroanatomy and introduce students to experimental and case-study approaches to studying neurosciences.

Administrative matters:
You should read the general administrative guidelines for submission of written work, penalties for late work, assessment criteria, procedures for applying for extensions and special consideration on the School of Psychology web page:

It is a requirement to pass the course that you attend a minimum of 80% of tutorials. **IT IS YOUR RESPONSIBILITY TO ATTEND THE TUTORIAL YOU ARE ENROLLED IN TO BE MARKED AS PRESENT.** Tutors will NOT contact another tutor to confirm your attendance if you do not attend your enrolled tutorial.

Textbook
This is the recommended text for the course. Most of you would have used it in PSYC2011 and the lecturers will refer to this text.


Some of you may also have the following if you took PSYC2011 prior to 2011 and it may also be a useful reference:

Most chapters contain material related to topics covered in lectures and practicals; lecturers and tutors will direct you to more specific sections as the course progresses.

There are many other texts available that will touch on topics from the course. You are free to use these as additional sources but be aware that content in this field changes quickly and older texts can often contain inaccuracies.

**Graduate Attributes and Student Learning Outcomes for PSYC3014 Behavioural and cognitive neuroscience:** 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, practical classes and assessment activities. They will be assessed in the prac report, prac quiz, class debate and final exam.

1: **Knowledge and Understanding of behavioural neuroscience and cognitive neuroscience**
Display basic knowledge and understanding of major concepts, theoretical perspectives, empirical findings, and historical trends in behavioural and cognitive neuroscience

2: **Research Methods in behavioural and cognitive neuroscience**
Understand, apply and evaluate basic research methods in behavioural and cognitive neuroscience, including design of laboratory and clinical research, data collection, analysis and interpretation, literature searches and review. Demonstrate understanding of technologies used to study brain function and activity.

3: **Critical Thinking Skills in behavioural and cognitive neuroscience**
Respect and use critical and creative thinking, sceptical inquiry, and the scientific approach to solve problems related to the neuroscientific basis of behaviour. Develop ability to identify and evaluate the purposes, research questions, data, perspectives, inferences, concepts, implications and assumptions associated with research presented during the course.

4: **Values in behavioural and cognitive neuroscience**
Value empirical evidence; tolerate ambiguity during the search for greater understanding of behaviour and knowledge structures; use information in an ethical manner (e.g., acknowledge and respect the work and intellectual property rights of others through appropriate citations in oral and written communication); be able to recognise and promote ethical practice in neuroscience research; promote evidence-based approaches to understanding behaviour; respect diversity associated with cognitive and neurological disorder; complete projects within reasonable timeframes.

5: **Communication Skills in behavioural and cognitive neuroscience**
Write a standard research report using American Psychological Association (APA) structure and formatting conventions. Demonstrate effective oral communication skills in various formats (e.g., debate, discussion of materials in pracs) and for various purposes (asking clear questions, explaining and critiquing research). Collaborate effectively, demonstrating an ability to work with fellow students in pracs; manage conflicts appropriately and ethically. Demonstrate effective interpersonal communication skills including the abilities to listen accurately and actively, identify the impact or potential impact of one’s behaviour on others, provide constructive feedback to others, adopt flexible techniques to communicate sensitively and effectively with diverse ethnic and cultural partners, including in the context of team-work.

6: **Learning and the application of behavioural and cognitive neuroscience**
Understand and apply psychological principles to personal and social issues. Relate concepts, theories, and research findings in behavioural and cognitive neuroscience to solving problems in everyday life and in society. Reflect on one’s own experiences and in order to identify and articulate one’s personal, sociocultural, and professional values related to issues raised in the course. Apply psychological principles to promote personal development through self-regulation in setting and achieving career and personal goals; self-assess performance accurately; incorporate feedback for improved performance; purposefully evaluate the quality of one’s thinking (metacognition, part of critical thinking). Develop a capacity for independent learning that will sustain personal and professional development in the rapidly changing field of neuroscience.
LECTURE AND TUTORIAL TIMETABLE (DRAFT – any changes will be announced on Blackboard)

Lectures are held on Mondays at 11am in Bosch Lecture Theatre 4 and Thursdays at 11am in Bosch Lecture Theatre 1

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture #</th>
<th>Topic</th>
<th>Lecturer</th>
<th>Tutorial (2 hrs)</th>
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</thead>
<tbody>
<tr>
<td>30 July</td>
<td>1</td>
<td>A history of the neurosciences</td>
<td>LC</td>
<td>No tutorial</td>
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<tr>
<td>Week 1</td>
<td>2</td>
<td>Sleep</td>
<td>LC</td>
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<tr>
<td>06 Aug</td>
<td>3</td>
<td>Biological Rhythms</td>
<td>LC</td>
<td>Neuroanatomy</td>
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<td>Week 2</td>
<td>4</td>
<td>Long term potentiation</td>
<td>LC</td>
<td></td>
</tr>
<tr>
<td>13 Aug</td>
<td>5</td>
<td>Neural bases of Pavlovian conditioning</td>
<td>LC</td>
<td>Behavioural Neuroscience I</td>
</tr>
<tr>
<td>Week 3</td>
<td>6</td>
<td>Motivation</td>
<td>LC</td>
<td>Behavioural Neuroscience II</td>
</tr>
<tr>
<td>20 Aug</td>
<td>7</td>
<td>Goal-directed Learning</td>
<td>LC</td>
<td></td>
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<tr>
<td>Week 4</td>
<td>8</td>
<td>Habit Learning</td>
<td>LC</td>
<td></td>
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<tr>
<td>27 Aug</td>
<td>9</td>
<td>Movement and motor control I</td>
<td>JH</td>
<td>Parkinson’s Disease</td>
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<tr>
<td>Week 5</td>
<td>10</td>
<td>Movement and motor control II</td>
<td>JH</td>
<td></td>
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<tr>
<td>03 Sep</td>
<td>11</td>
<td>Dementias</td>
<td>JH</td>
<td>Dementia</td>
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<tr>
<td>Week 6</td>
<td>12</td>
<td>Semantic memory</td>
<td>KC</td>
<td></td>
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<tr>
<td>10 Sept</td>
<td>13</td>
<td>Word retrieval</td>
<td>KC</td>
<td>No tutorial: finalize your report. Reports due before 4pm on Friday 14 September</td>
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<tr>
<td>Week 7</td>
<td>14</td>
<td>Speech Production</td>
<td>KC</td>
<td></td>
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<tr>
<td>17 Sep</td>
<td>15</td>
<td>Aphasias</td>
<td>KC</td>
<td>Aphasias</td>
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<tr>
<td>Week 8</td>
<td>16</td>
<td>Brains vs. Computers I</td>
<td>AH</td>
<td></td>
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**Mid-semester break – Sep 24th to Oct 1st**

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture #</th>
<th>Topic</th>
<th>Lecturer</th>
<th>Tutorial (2 hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 Oct</td>
<td>-</td>
<td>No Lecture (Labour Day)</td>
<td>AH</td>
<td>No tutorial</td>
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<tr>
<td>Week 9</td>
<td>17</td>
<td>Brains vs. Computers II</td>
<td>AH</td>
<td>Simulating lil’ brains</td>
</tr>
<tr>
<td>08 Oct</td>
<td>18</td>
<td>Attention and the parietal lobe I</td>
<td>AH</td>
<td></td>
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<tr>
<td>Week 10</td>
<td>19</td>
<td>Attention and the parietal lobe II</td>
<td>AH</td>
<td></td>
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<tr>
<td>15 Oct</td>
<td>20</td>
<td>Affective neuroscience</td>
<td>AK</td>
<td>Debate</td>
</tr>
<tr>
<td>Week 11</td>
<td>21</td>
<td>Affective neuroscience</td>
<td>AK</td>
<td></td>
</tr>
<tr>
<td>22 Oct</td>
<td>22</td>
<td>Affective neuroscience</td>
<td>AK</td>
<td>Human Psychophysiology</td>
</tr>
<tr>
<td>Week 12</td>
<td>23</td>
<td>Affective neuroscience</td>
<td>AK</td>
<td></td>
</tr>
<tr>
<td>29 Oct</td>
<td>24</td>
<td>Affective neuroscience</td>
<td>AK</td>
<td>Quiz on tutorial work</td>
</tr>
<tr>
<td>Week 13</td>
<td>25</td>
<td>Affective neuroscience</td>
<td>AK</td>
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LC = Laura Corbit, JH = Justin Harris, AH = Alex Holcombe, AK = Andrew Kemp
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 that 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/