



**UNSW**  
AUSTRALIA

Science

Faculty of Science  
School of Psychology

**PSYC3211**  
**Cognitive Science**

Semester 2, 2015

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1. Information about the Course			
FACULTY	Science		
SCHOOL OR DEPARTMENT	Psychology		
COURSE CODE	PSYC3211		
COURSE NAME	Cognitive Science		
SEMESTER	Semester 2	YEAR	2015
UNITS OF CREDIT	6	LEVEL OF COURSE	3
ASSUMED KNOWLEDGE, PREREQUISITES OR CO-REQUISITES	PSYC2001 and PSYC2071		
SUMMARY OF THE COURSE	see below.		

2. Staff Contact Details				
<b>COURSE COORDINATOR</b>				
Name	Phone	Email	Office	Contact Time & Availability
Professor Brett Hayes	53713	b.hayes@unsw.edu.au	Mathews 713	By appointment
<b>LECTURERS</b>				
Name	Phone	Email	Office	Contact Time & Availability
Dr Tom Beesley	53032	t.beesley@unsw.edu.au	Mat 1006	By appointment
Professor Ben Newell	51606	ben.newell@unsw.edu.au	Mat 712	By appointment
Dr Chris Donkin	59444	c.donkin@unsw.edu.au	Mat 706	By appointment
<b>GUEST LECTURER</b>				
Robert Taylor		r.t.taylor@unsw.edu.au	Mat 721	By appointment
<b>TUTORS &amp; DEMONSTRATORS</b>				
Name	Phone	Email	Office	Contact Time & Availability
Ashley Luckman		a.luckman@unsw.edu.au		By appointment
Arthur Kary		Art.kary@gmail.com		By appointment

3. Course Timetable			
Component	Day	Time	Location
LECTURE	Tuesday	9-10am	Mathews Theatre C
LECTURE	Wednesday	1-2pm	CLB3
LAB	Monday	3-5pm	Mat 104
LAB	Monday	3-5pm	Morven Brown G5
LAB	Tuesday	12-2pm	Mat 311
LAB	Wednesday	9-11am	Mat 308

*NB. Course timetables are subject to change without notice. Students are advised to check regularly for updates on the Blackboard course site.*

4. Summary and aims
<p>This course aims to provide you with an advanced-level understanding of the current theories, methods and controversies in four key areas of cognitive psychology; 1) categorisation and reasoning; 2) human learning; 3) memory; 4) decision-making. Wherever possible we will emphasise the links between these areas as well as links to other areas of Psychology including human development, neuropsychology and clinical psychology.</p> <p>The <i>Categorisation and Reasoning</i> strand a) examines how and why do people organise things in their physical and social environment into groups (e.g., dogs vs. cats, male vs. female, left-wing politician vs. right-wing politician)?, and b) how to they use such knowledge to reason and make predictions ? It will address issues such as how do people learn to categorise? How are categories organised? What are the functions of categories? How do people use categories in reasoning and decision-making? How many types of reasoning are there?</p> <p>The <i>Learning</i> strand will explore foundational issues in human associative learning. How is human learning related to animal learning? How does learning interact with attentional processes? What is the role of awareness in learning? How do computational models explain learning processes?</p>

In *Models of Cognition*, we will look at mathematical models of a range of aspects of cognition. After an introductory lecture extolling the virtues of quantitative models, we will focus on cases in which such models have revealed surprising and important results about the way in which cognition operates.

The *Decision-making* strand attempts to answer the following questions: What is a decision? What makes a decision good or bad? Do we make rational decisions? Are we constrained to fall prey to systematic biases when we make judgments? How do emotions affect our decisions?

This course adds new components to the study of cognitive psychology, particularly focusing on computational analyses of cognition. Some topics are similar to those covered in PSYC2071, but where this is the case, a more detailed treatment will be given to these areas, and an attempt will be made to relate a number of theoretical ideas in learning, memory, decision-making and categorisation processes.

## 5. Student Learning Outcomes

By the end of this course you will have:

1. A knowledge and understanding of psychology at an advanced level with regard to:	1.1. Historical perspectives on the development of the cognitive science approach in psychology. 1.2. A wide range of topics in cognitive science, including learning and memory, categorisation and decision making. 1.3. The development of computational models and how such models can provide testable theories of cognitive processes.
2. An advanced knowledge of research methods in psychology, enabling you to:	2.1. Describe, apply and evaluate different research methods used in cognitive science. 2.2. Conduct literature searches and critically analyse theoretical and empirical studies. 2.3. Conceive an experiment to examine a question of importance within cognitive science. 2.4. Create suitable materials to conduct an experiment, collect valid and reliable measurements; analyse data using appropriate statistical tools and interpret the results.
3. Developed advanced critical thinking skills in Psychology, enabling you to:	3.1. Apply knowledge of the scientific method in thinking about problems related to behaviour and mental processes. 3.2. Demonstrate an attitude of critical thinking that includes persistence, open-mindedness, and intellectual engagement. 3.3. Evaluate the quality of information, including differentiating empirical evidence from speculation. 3.4. Evaluate issues and behaviour using different theoretical and methodological approaches. 3.5. Use reasoning and evidence to recognise, develop, defend, and criticise arguments and persuasive appeals. 3.6. Demonstrate creative and pragmatic problem solving.
4. Developed effective communication skills in Psychology, including the ability to:	4.1. Write effectively in a variety of formats (essays, research proposals) and for a variety of purposes (e.g., informing, arguing). 4.2. Demonstrate effective oral communication skills in various formats (e.g., group discussion, presentation). 4.3. Demonstrate effective interpersonal communication skills including : listening accurately and actively; provide constructive feedback to others. 4.4. Collaborate effectively, demonstrating an ability to: work with groups to complete projects within reasonable timeframes.

<b>6. Graduate Attributes</b>		
<b>School of Psychology Graduate Attributes*</b>	<b>Level of Focus</b> 0 = No focus 1 = Minimal 2 = Minor 3 = Major	<b>Activities/Assessment</b>
<b>1. Core knowledge and understanding</b>	3	Participation in lectures & tutorials – assessed in exam and research proposal presentation and forming an advanced understanding of the major concepts, theoretical perspectives, empirical findings, and historical trends in multiple aspects of physiological psychology.
<b>2. Research methods in psychology</b>	3	Understand, apply and evaluate basic research methods in psychology, including research design, data analysis and interpretation, and the appropriate use of technologies. This will involve the development of a research proposal, the creation of experiment materials, data analysis and interpretation of results.
<b>3. Critical thinking skills</b>	3	Development of a research literature review as part of a research proposal, showing use of critical and creative thinking, sceptical inquiry, and the scientific approach to solve problems related to behaviour and mental processes.
<b>4. Values, research and professional ethics</b>	2	Value empirical evidence; tolerate ambiguity during the search for greater understanding of behaviour and knowledge structures; act ethically and professionally; understand the complexity of sociocultural and international diversity; and reflect other values that are the underpinnings of psychology as a discipline. This will be addressed by your participation in experimental work.
<b>5. Communication skills</b>	2	Class discussion of theoretical issues in cognitive science. The research project component requires in-class presentation of experimental research design, analysis of findings and theoretical interpretation.
<b>6. Learning and application of psychology</b>	2	Apply psychological principles and theories from cognitive science research to bear on broader issues such as an understanding of the development of cognitive processes and mental disorders as a result of normal aging or abnormal syndromes. Attempts will be made throughout the lectures to identify the applications of key empirical findings from research on decision making, learning, and categorization to understanding the world around us.

### **7. Rationale for the Inclusion of Content and Teaching Approach**

This course provides an advanced treatment of cognitive psychology. It follows on, and assumes knowledge, from PSYC2071 Perception and Cognition.

\* The *Graduate Attributes of the Australian Undergraduate Psychology Program* was produced as part of the Carrick Associate Fellowship project, "Sustainable and evidence-based learning and teaching approaches to the undergraduate psychology curriculum", and "Designing a diverse and future-oriented vision for undergraduate psychology in Australia", a Discipline-based Initiative funded by the Carrick Institute for Learning and Teaching in Higher Education (see Appendix II), and supported by the Australian Psychological Society, and the University of New South Wales (School of Psychology; Learning and Teaching @UNSW).

## 8. Teaching Strategies

**Lectures:** The primary objective of the lecture course is to investigate cognition in depth and to relate different areas of cognition to each other. You should come away from the course with a good understanding of the main issues in current research on categorisation, reasoning, learning, memory and decision making.

The main aim is to provide a conceptual understanding of the issues. The final exam will test this understanding. We shall attempt to pose questions in this exam that test your conceptual understanding rather than your ability to reproduce the lecture notes.

**Tutorials:** The tutorials will be a combination of demonstrations of 'classic' experimental phenomena, hands on implementation of computational tools and the opportunity to devise, implement and analyse an experiment. As such the tutorials teach specific skills that are of central importance to cognitive scientists. These are: 1) to critically evaluate empirical findings and journal articles; 2) to design novel tests of existing theories and to implement those designs in laboratory-based experiments.

## 9. Course Schedule

Week	Lecture Topic & Lecturer	Tutorial/Lab Content *	Suggested Readings	
1	Intro to Cognitive Science/ Categorisation 1 Hayes	<i>No Tutorial</i>	There is no specific textbook for this course. Readings will be given in the lecture material as the course progresses.	
2	Categorisation 2-3 / Introduction to Lab Exercise Hayes	<i>No Tutorial</i>		
3	Reasoning 1-2 Hayes	<b>Research Experiment (Design 1)/ Categorisation Practical</b>		
4	Learning 1-2 Beesley	Research Experiment (Design 2)		
5	Learning 3-4 Beesley	<b>Computational models of learning</b>		
6	Computational models of language Beesley	<b>MID-SESSION QUIZ</b>		
7	Models of Cognition 1-2 Donkin/Taylor	Research Experiment (Analysis)		
8	Models of Cognition 3-4 Donkin	<b>Memory Practical</b>		
9	Models of Memory 5-6 Donkin	Research Experiment (Presentation)		
<i>MID-SESSION BREAK</i>				
10	Decision Making 1&2 Newell	<i>No Tutorial</i>		
11	Decision Making 3&4 Newell	Decision Making Practical 1		
12	Decision Making 5&6 Newell	<b>Decision Making Practical 2</b>		
13	<i>No Lecture</i>	<i>No tutorial</i>		

\* Lab classes in Bold will involve some hands-on exercises in the School's computer labs

10. Assessment								
Assessment Task	Weight	Learning Outcomes Assessed	Graduate Attributes Assessed	Date of		Feedback		
				Release	Submission	Who	When	How
Mid-session quiz: multiple choice (content from Weeks 1-4)	20	1.1-1.3, 2.1-2.4, 3.1-3.5	1-6	Week 6	Week 6	Tutor	Week 8	Written
Experimental Research Report (including oral group presentation)	30	2.1-2.4, 3.1-3.6, 4.1-4.4	1-6	Week 3	Week 10	Tutor	Week 13	Written
Exam	50	1.1-1.3, 2.1-2.4, 3.1-3.5	1-6	Exam Period	Exam Period	-	-	-
<p>Course Requirements and Assessment:</p> <ul style="list-style-type: none"> <li>A multiple choice quiz in Week 6 will be worth 20% of the total mark. The quiz will be conducted in tutorial/ laboratory classes. This will assess the course content from weeks 1-4 (Lectures 1-8).</li> <li>The Written Assignment will begin in the tutorial in Week 3 and will be due on <b>4pm Thursday October 8, Week 10</b>. In this assignment you will work in groups to design and conduct an experiment, and analyze the data. You will write up an INDIVIDUAL lab report communicating the results. This assignment has a limit of 2000 words and is worth 30% of the total mark. A late submission penalty of 2% per day applies (see School of Psychology Student Guide for more details).</li> <li>The final exam will be worth 50% of the total mark – it will assess content from lectures not assessed by the Mid-session quiz (weeks 5 to 12).</li> </ul> <p>Assessment information and assessment structure.</p> <p>Deferred and alternative assessment materials may be in a different format from the original (i.e. short answers instead of MC questions). 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. These principles will apply to both deferred final examination and alternative in-session assessments.</p> <p>Students can attend the final examination only once, either in the regularly scheduled or deferred examination period. As students will not be permitted to attend both the regularly scheduled and deferred examinations, <b>THEY SHOULD BE ADVISED NOT TO ATTEND THE EXAM AS ORIGINALLY SCHEDULED IF SICK ON THAT DAY</b>. Instead, they should ensure the appropriate medical certificate to support their 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.</p> <p>A deferred examination opportunity for each course will be offered only ONCE.</p> <p>Assessment submissions.</p>								

Hard copies of the Written Assignment must be submitted to the drop box located at the School Office on Level 10 (Mathews Room 1011) by 4.30pm on the day it is due or earlier. These will be date stamped by the School Office and taken as a formal evidence of submission.

In addition, an electronic version must also be lodged into the Blackboard/Moodle course module as a Turnitin assignment for plagiarism checking, and as insurance in the case of misplaced hard copies of submitted assignments. If students fail to do this, there will be no proof that the assignment was handed in on time and onus is on students to prove submission.

Late submissions may not receive detailed feedback.

### 11. Expected Resources for Students

TEXTBOOKS	Specific readings will be provided during the course lectures and tutorials.
COURSE MANUAL	
REQUIRED READINGS	
RECOMMENDED INTERNET SITES	

### 12. Course Evaluation & Development

Courses are periodically reviewed and students' feedback is used to improve them. Feedback is gathered using various means including UNSW's Course and Teaching Evaluation and Improvement (CATEI) process.

### 13. Plagiarism & Academic Integrity

#### What is plagiarism?

Plagiarism is presenting someone else's thoughts or work as your own. It can take many forms, from not having appropriate academic referencing to deliberate cheating.

UNSW groups plagiarism into the following categories:

- **Copying:** using the same or very similar words to the original text or idea without acknowledging the source or using quotation marks. This also applies to images, art and design projects, as well as presentations where someone presents another's ideas or words without credit.
- **Inappropriate paraphrasing:** changing a few words and phrases while mostly retaining the original structure and information without acknowledgement. This also applies in presentations where someone paraphrases another's ideas or words without credit. It also applies to piecing together quotes and paraphrases into a new whole, without referencing and a student's own analysis to bring the material together.
- **Collusion:** working with others but passing off the work as a person's individual work. Collusion also includes providing your work to another student before the due date, or for the purpose of them plagiarising at any time, paying another person to perform an academic task, stealing or acquiring another person's academic work and copying it, offering to complete another person's work or seeking payment for completing academic work.
- **Duplication:** submitting your own work, in whole or in part, where it has previously been prepared or submitted for another assessment or course at UNSW or another university.

#### Where can I find out more information?

In many cases plagiarism is the result of inexperience about academic conventions. The University has resources and information to assist you to avoid plagiarism. The first place you can look is the section about referencing and plagiarism in each Course Guide, as this will also include information specific to the discipline the course is from. There are also other sources of assistance at UNSW:

- **How can the Learning Centre help me?**

The Learning Centre assists students with understanding academic integrity and how to not plagiarise. Information is available on their website: <http://www.lc.unsw.edu.au/academic-integrity-plagiarism>. They also hold workshops and can help students one-on-one.

- **How can Elise help me?**

ELISE (Enabling Library & Information Skills for Everyone) is an online tutorial to help you understand how to find and use information for your assignments or research. It will help you to search databases, identify good quality information and write assignments. It will also help you understand plagiarism and how to avoid it. All undergraduate students have to review the ELISE tutorial in their first semester and complete the quiz, but any student can review it to improve their knowledge: <http://subjectguides.library.unsw.edu.au/elise>.

- **What is Turnitin?**

Turnitin is a checking database which reviews your work and compares it to an international collection of books, journals, Internet pages and other student's assignments. The database checks referencing and



whether you have copied something from another student, resource, or off the Internet. Sometimes students submit their work into Turnitin when they hand it in, but academics can also use it to check a student's work when they are marking it. You can find out more about Turnitin here: <https://teaching.unsw.edu.au/elearning>.

### **What if plagiarism is found in my work?**

If plagiarism is found in your work when you are in first year, your lecturer will offer you assistance to improve your academic skills. They may ask you to look at some online resources, attend the Learning Centre, or sometimes resubmit your work with the problem fixed. However more serious instances in first year, such as stealing another student's work or paying someone to do your work, may be investigated under the Student Misconduct Procedures.

Repeated plagiarism (even in first year), plagiarism after first year, or serious instances, may also be investigated under the Student Misconduct Procedures. The penalties under the procedures can include a reduction in marks, failing a course or for the most serious matters (like plagiarism in a honours thesis) even suspension from the university. The Student Misconduct Procedures are available here

<https://www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf>

### **Examples of plagiarism**

#### **Using the internet appropriately**

A first year student handed in an assignment where she had copied from a website. Her lecturer realised she didn't understand you have to reference websites in the same way you reference books and journal articles. The lecturer explained how to reference and sent her to a workshop at the Learning Centre to help her improve her skills.

#### **Working together on a math assignment**

A group of Mathematics students worked together on an assignment when they had been told this was not allowed. All questions where the students had worked together were given zero, and this led to some student failing the assessment.

#### **No referencing in an assessment**

A third year student submitted a major assessment that included material from a journal article published in Canada. When his essay was submitted into Turnitin, it let the academic know that the student didn't reference the material. The student was given zero for the essay, and because it was worth 50 per cent he failed the course.

#### **Copying design work**

A final year design student used images of someone else's designs in her work and he said the designs were his own. The matter was formally investigated by his Faculty and he was found to have committed academic misconduct and failed the course.

#### **Further information and assistance**

If you would like further information or assistance with avoiding plagiarism, you can contact the Learning Centre. The Learning Centre at The University of New South Wales has two locations:

#### **UNSW Learning Centre**

Lower Ground Floor, North Wing, Chancellery Building  
(C22 Kensington Campus – near Student Central)

[www.lc.unsw.edu.au](http://www.lc.unsw.edu.au)

**Phone:** 9385 2060

**Email:** [learningcentre@unsw.edu.au](mailto:learningcentre@unsw.edu.au)

#### **Opening Hours:**

Monday to Thursday: 9am - 5pm and

Friday: 9am - 2.30pm

#### **COFA Campus Learning Centre**

**Email:** [cofalearningcentre@unsw.edu.au](mailto:cofalearningcentre@unsw.edu.au)

Phone: 9385 0739

#### 14. Administrative Matters

The *School of Psychology Student Guide*, available on <http://www.psy.unsw.edu.au/current-students/student-guide>

contains School policies and procedures relevant for all students enrolled in undergraduate or Masters psychology courses, such as:

- Attendance requirements;
- Assignment submissions and returns;
- Assessments;
- Special consideration in the event of illness or misadventure;
- Student Code of Conduct;
- Student complaints and grievances;
- Student Equity and Disability Unit; and
- Occupational Health & Safety.

Students should familiarise themselves with the information contained in this *Guide*.