

MACQUARIE
UNIVERSITY



FACULTY OF
HUMAN SCIENCES

Department of Psychology

PSY 246: Cognitive Processes I

UNIT STUDY GUIDE

Semester 1, 2011

ABOUT THIS UNIT

The aim of this course is to build upon the introductory course on Cognition which was presented in PSY 105: Introduction to Psychology II it will treat each topic in more depth and will introduce new topics. Cognition is the study of mechanisms with which organisms encode sensory information in order to create an internal representation of the world and to act on that representation. We cannot attend to everything that impinges on the senses so we select and attend only to part of the available input. What do we then do with that encoded information? How do we store it? How do we retrieve it? How do we integrate different pieces of information to make sense of the world around us?

The lecturing staff on the course, Assoc. Prof. Coltheart and Assoc. Prof. Kinoshita, will lecture on mechanisms of auditory and visual attention, psycholinguistics (visual word recognition and skilled reading) and short- and long-term memory. Although the focus of these lectures will be on normal cognition, disorders of cognitive processes will be considered in later lectures.

An understanding of cognition is important for many areas of psychology: cognitive development and education, clinical psychology and neuropsychology, ergonomics and occupational psychology.

Practical/tutorials will supplement the lecture material and will introduce research concepts on cognition. Another aim of the unit is to teach generic (general) skills. In practical/tutorial classes, students will learn how to use computer software and will practice oral communication. Written communication will be practised in essay examinations and students will need to use problem solving skills in multiple choice exams. Web/IT skills will be required in order to use the parts of the course housed on the unit web page.

This unit is worth 3 credit points. The prerequisites are Pass grades in Psy104, Psy105 and Psy122/Stat170

It is University policy that the University issued email account will be used for official University communication. All students are required to access their University account frequently.

***** Extremely Important: ***** Students are strongly advised to maintain regular attendance at lectures and practicals in Psy246. Powerpoints, printed notes and web material do not represent the entire content of the course. They are not a substitute for attendance and note taking and reading the text and relevant references. The course demands a detailed understanding of theoretical accounts and research findings in Cognition. Vague ideas and incomplete factual knowledge are insufficient for achievement of a pass on the course.

Students who are absent because of medical or other extenuating circumstances must submit an Advice of Absence form (and Professional Authority if reason is medical clearly stating the reasons for the absence). The form is available outside the Psychology office or can be downloaded from <http://www.reg.mq.edu.au/USSAbsence/pdf>. This should be submitted to the Student Enquiry Services with a copy to Psychology Office in C3A334 as soon as possible.

The unit's Webpage can be accessed via <http://learn.mq.edu.au>

TEACHING STAFF

Convenor

Assoc. Prof. Veronika Coltheart
Room: C5C 414, Telephone: 9850 8104
email: veronika.coltheart@mq.edu.au
Consultation hours: Mon 3-5pm

Assoc. Prof. Sachiko Kinoshita
Room: C5C 496, Telephone: 9850 8004
email: sachiko.kinoshita@mq.edu.au
Consultation hours: Mon 9-10am, Fri 9-10am

Administrative Assistants:

The staff in the Undergraduate Psychology Office C3A 334 Ph: 9850 8050
Psy_off@mq.edu.au

Your practical tutors will assist you with any questions you have about the unit. The Psychology Office staff will also assist you with any questions related to the administration of the unit. We have been asked to include the following statement in this study guide:

"Students experiencing difficulty in a single unit should approach their tutor or the unit chair. On more wide-ranging academic issues they should make an appointment to see the Dean of Students. Those with personal problems should see a Student Counsellor. On matters pertaining to regulations, the Registrar's Office should be consulted or within the Department, Dr Julia Irwin. Students with disabilities who have problems within the Department should consult Ms Radha Pathy, the Disability Liaison Officer. If your difficulties cannot be resolved by these members of staff you should consult the Head of Department."

REQUIRED TEXT

The following textbook is available in the Co-op Bookshop:

Eysenck M & Keane M T *Cognitive Psychology* 6th Edition. Hove: East Sussex: Psychology Press.

COURSE ASSESSMENT

The objectives of the course are to familiarize you with research findings and theories in Cognition and your knowledge and understanding of the findings and theories will be tested in the examinations.

There are three components to the assessment of this course:

1. Mid-term exam (15 multiple choice and 2 1-page essays) **Worth 35% of final grade, essays 20%, multiple choice 15%**
2. Final exam (40 multiple choice, and 2 1-page essays as in Mid-term exam) **Worth 60% of final grade, essays 30%, multiple choice 30%**
3. Research participation of 3 hrs in Cognition experiments = **5%**
Projects for research participation can be found at the following site:

<http://mq-psy.sona-systems.com/>

You will be registered on the Psych Sona site as a Psy246 student and be sent a temporary password that you should change to VERY memorable one. If you are a late enrolment, please email the administrator asking to be registered. The email address is psy_pool.admin@mq.edu.au. You can then log on and select experiments and times to participate. The researchers will provide references on the topic of the study. Although this material will not be examinable it will provide further opportunities to learn more about research in Cognition and provide information about some of the possible projects that can be undertaken in Honours and beyond.

Please note that on the PSY246 page on Blackboard there will be a folder: [Course Assessment Information](#). Click on this to get all details of assessment and samples of past questions.

The mid-session exam is to be held on **Tuesday, March 29th** in the usual lecture hall **X5B T1** at the usual lecture time **11-1 pm**. The class will be divided up so that half do the test in the first hour and half in the second hour. You must attend at the right time. Please bring a pencil (2B), eraser and a pen. **Mobile phones are not permitted in the room.**

Students who are unable to sit the mid-semester exam at the specified time must advise the Psychology Office via email and must also submit an Application for Special Consideration form (and Professional Authority if reason is medical, clearly stating the reasons for the absence from the exam). The form is available outside the Psychology office or can be downloaded from <http://www.reg.mq.edu.au/Forms/APScons.pdf> This should be submitted to the Student Enquiry Services within five days from the day of the examination. The unit chair(s) will determine eligibility for a late mid-semester exam and the Psychology Office will notify the eligible students about the time and location of the exam. There will be only one alternative time.

The final exam (2 hours) will be held at the end of the semester **and will examine the whole course.**

The University **Examination period is from 6th – 24th June 2011.**

You are expected to present yourself for examination at the time and place designated in the University Examination Timetable. The timetable will be available in Draft form approximately eight weeks before the commencement of the examinations and in Final form approximately four weeks before the commencement of the examinations. <http://www.timetables.mq.edu.au/exam>

The only exception to not sitting an examination at the designated time is because of documented illness or unavoidable disruption. In these circumstances you may wish to consider applying for Special Consideration. Information about unavoidable disruption and the special consideration process is available at <http://www.reg.mq.edu.au/Forms/APSCon.pdf>

If a Supplementary Examination is granted as a result of the Special Consideration process, the examination will be scheduled after the conclusion of the official examination period.

Supplementary Examination in the Department of Psychology will be held on the: 7th and 8th of July, 2011 for Semester 1, 2011.

Supplementary Exams are only offered to students who have satisfactorily completed all other assessments for the unit and were unable to sit the final exam.

Instructions on applying for sitting of a supplementary exam are available from the website, www.psy.mq.edu.au/speccond. It is the student's responsibility to follow the steps outlined in this website. When a supplementary exam has been granted an email will be sent to the student. It is the student's responsibility to check the Department of Psychology Special Consideration website for information relating to the date and location of the supplementary exam. Students who are granted to sit for a supplementary exam must make themselves available to sit for the supplementary exam on the specified dates. There will be only one alternative time. It is the student's responsibility to email the Psychology Office, psy_off@mq.edu.au to confirm attendance to the supplementary exams.

You are advised that it is Macquarie University policy not to set early examinations for individuals or groups of students. All students are expected to ensure that they are available until the end of the teaching semester, that is the final day of the official examination period.

CLASSES

The lecture program will run from Week 1 to Week 13. The lectures will run at the following times:

Lectures: Tuesday (2 hours) 11am-1pm X5B T1

Practical are held in Weeks 2-13 and you should attend in odd or even weeks as assigned to your tutorial group

Week	beginning	Tues 2 hrs	Practicals
1	Feb-21	Introduction VC	----- Short-term
2	Feb-28	Short-term memory VC	memory
3	Mar-7	Auditory Attention SK	Short-term memory
4	Mar-14	Visual Attention VC	Stroop effect
5	Mar-21	Episodic Memory SK	Stroop effect
6	Mar-28	Mid-term Test	Levels of Processing
7	Apr-4	Prose & Scenes Memory VC	Levels of Processing
	Apr-11-26	<u>Mid-term break</u>	
8	Apr-26	Anzac Day	Test feedback
9	May-03	Reading VC	Test feedback
10	May-10	Semantic Memory SK	Change Detection
11	May-17	Categories & Concepts SK	Change Detection
12	May-24	Cog Neuropsych VC	Lexical Decision
13	May-31	Cog Neuropsych VC Revision	Lexical Decision

***The Mid-term Test March 29th, 11-1pm is compulsory and must be attended by all students, including Composite mode and Part-time/Evening students.**

LECTURE SUMMARIES:

Short-term Working Memory (Assoc. Prof. Coltheart)

Immediate memory for rapidly presented brief lists of numbers, words or pictures will be examined. Evidence for coding used by short-term working memory and a model of the processes will be discussed. Short-term memory performance of congenitally deaf and speechless individuals will also be considered. The role of working memory in various cognitive tasks will be considered.

Textbook Reference: Chapter 6.

Attention (Assoc. Prof. Kinoshita)

The term attention is used to refer to a number of related concepts, including alertness, arousal, concentration, and the ability to select part of the input for further processing. Most theories of attention emphasise the selectivity of processing. Focused attention is studied by presenting people with two or more stimulus inputs simultaneously, and instructing them to process and respond to only one. Studies of focused attention can tell us how effectively people can select certain inputs rather than others, and it enables us to investigate the nature of the selection process and the fate of the unattended stimuli. We will discuss three models of selective attention: Broadbent's filter model, Triesman's attenuation model and Deutsch & Deutsch's late selection model. Divided attention in contrast is studied by presenting people with two or more simultaneous inputs, but with instructions that all stimulus inputs must be attended to and responded to. Studies of divided attention provide useful information about an individual's processing limitations and about attentional mechanisms and their capacity. Finally, we will look at the issue of automaticity.

Textbook reference: Chapter 5.

Visual Attention and visual STM (Assoc. Prof. Coltheart)

The visual scene typically consists of a complex array of objects many of which are not noticed. How do we select relevant information? This question has been tackled by experiments on visual search initially by Treisman. Visual search for certain sorts of targets is fast and effortless but for other types it is slow and appears to involve a serial process. We will consider explanations the phenomena such as Treisman's Feature Integration Theory. Visual attentional limits also occur when rapidly presented sequences are shown, e.g., the attentional blink. How is visual information retained in memory? Early forms of visual memory: iconic memory and visible persistence as well as visual STM will be discussed.

Textbook reference: Chapter 5.

Episodic memory (Assoc. Prof. Kinoshita)

The basic architecture of memory is usually viewed as consisting of three types of memory: sensory memory, short-term memory and long-term memory. Long-term

memory may be distinguished into episodic memory, which refers to memory for events with specific temporal and spatial context (e.g., what you had for breakfast this morning) and semantic memory, which refers to memory for facts and general knowledge (e.g., dogs have four legs). We will briefly review Atkinson & Shiffrin's multistore model of memory, which served as the starting point in PSY105, and point out the inadequacies of the view that long-term memories are formed as a result of the contents of the short-term memory store being transferred into the long-term store. We will then look at explanations that focus on encoding processes, and retrieval processes. Disorder of episodic memory, that is, amnesia will also be discussed.

Textbook reference: Chapters 6, 7 and 8.

Word Recognition and Text Reading (Assoc. Prof. Coltheart)

Different forms of writing system will be described. Research on word recognition by skilled readers will be discussed along with theories of written word recognition. Investigations of text reading have found the pattern of eye movements and fixations to yield interesting information about the underlying processes of comprehension. Eye movement research will be examined.

Textbook reference: Chapter 9 and 10.

Comprehending and Remembering Prose and Scenes (Assoc. Prof. Coltheart)

Evidence from comprehension and memory experiments indicates that people actively process stories and prose passages. Inferences are drawn and background knowledge influences their interpretation of what they hear and read. Research on text memory and comprehension will be considered. Studies of picture comprehension and memory show rapid comprehension and the use of higher order knowledge. Research on memory for pictures and scenes will be discussed.

Textbook reference: parts of Chapters 4 and 10.

Semantic memory (Dr. Kinoshita)

Studies of semantic memory have focused on the structure of semantic memory organisation. We will consider three theories: the hierarchical network model, the spreading activation model, and the feature comparison model. These theories are based on data from sentence verification task. We will then take a different perspective on the question of semantic organisation and consider the nature of representation by comparing localised vs. distributed representations. Finally, we will look at disorders of semantic memory.

Textbook reference: Chapter 7.

Categories, concept formation and reasoning (Dr. Kinoshita)

Our experiences need to be organised in an economic and informative fashion. That is, if each experience was stored as unique, we would not be able to generalise to similar new experiences (e.g., if we treated each episode of having a flu as unique, we would not be able to take an appropriate remedy when we experience another episode); on the other hand, if we generalised all of our object concepts to too few categories (e.g., animals, plants and everything else), we would not be able to discriminate between different members of a category (e.g., between dogs and cats). We will consider different explanations on how concepts (categories) are formed. First we will discuss the classic study by Bruner, Goodnow and Austin (1956) which used artificial categories to study different strategies people used to identify concepts. We will then consider how natural categories differ from artificial categories, based on Rosch's ideas about the structure of natural categories.

We will then revisit the issue of how categories are formed, and consider three different views, namely, the prototype view, exemplar-based view, and the explanation-based view.

Textbook reference: Chapter 13 and 14.

Cognitive Neuropsychology (Assoc. Prof. Coltheart)

Theories of cognitive processing derived from laboratory research on adults with intact cognitive functions have been used to explain performance of patients after head injuries. We will examine research on several types of reading disorder caused by brain injury in previously skilled readers. We will also consider research on memory deficits caused by head injuries or disease. Theories of word recognition and of memory will be used to account for the reading and memory performance observed.

Textbook Reference: Chapters 7 and 9.

PRACTICAL CLASSES

The practical program will run from Week 2 to Week 13 inclusive. The practical sessions will be available at a range of times, and will be in room C4A 335.

Changes to all units can be done on-line via eStudent. (Students in units which have streamed tutorials will be allocated a stream by the Psychology Office. A draft list will be available in week one of semester and the final list in week three. The list will be displayed on Blackboard and on the notice boards in the corridor of level three in building C3A.) After week 2, no further changes will be entertained unless supporting documentation is provided.

Students may not change from one practical session to another without the permission of the Student Liaison Officer (in C3A) as well as both of the tutors involved.

You will be required throughout the semester to attend six 1-hour tutorials. Students will be divided into two streams, A and B. Stream A will attend one tutorial in each of

weeks 2, 4, 6, 8, 10, and 12. Stream B will attend one tutorial in each of weeks 3, 5, 7, 9, 11, and 13. The content of the practical classes is identical for both streams.

Class times are on Monday 12-1, Monday 1-2, Tuesday 1-2, Tuesday 2-3, Tuesday 3-4, Wednesday 1-2, Wednesday 2-3, Wednesday 3-4, Thursday 3-4, and Thursday 4-5, Thursday 7-8, Friday 11-12.

You must attend the practical time you are assigned.

The timetable for classes can be found on the University web site at

<http://www.timetables.mq.edu.au>

Students enrolled in the External Composite attendance mode (Xc1) can access the iLecture recording of the lecture, but must attend the compulsory tutorial/practical class”.

Copies of tutorial materials and handouts will be made available on Blackboard as appropriate. There are readings set at the end of each tutorial. You may want to look at these after each class. The practicals are selected from CogLab 2.0 by G. Francis, I. Neath & D. Van Horn. Thomson-Wadworth, 2008.

LEARNING OUTCOMES

The aim of this unit is to familiarize you with basic phenomena, research findings and theories in Cognition. You will acquire knowledge of phenomena and theories of attention, memory, and other areas of information processing. This knowledge is a fundamental part of the discipline of psychology.

GRADUATE CAPABILITIES DEVELOPED

In addition to discipline-based learning outcomes, all academic programs at Macquarie seek to develop students’ generic skills in a range of areas, developing key graduate capabilities. One of the aims of this unit is that students develop their skills in the following:

Foundation skills of literacy, numeracy and information technology;

Communication skills;

Critical analysis skills;

Problem-solving skills

ACADEMIC HONESTY

Academic honesty is an integral part of the core values and principles contained in the Macquarie University Ethics Statement. The Policy covering Academic Honesty is available on the web at:

http://www.mq.edu.au/policy/docs/academic_honesty/policy.html

Plagiarism is an example of dishonest academic behaviour and is defined by the Policy on Academic honesty as: “Using the work or ideas of another person and presenting this as your own without clear acknowledgement of the source of the work or ideas”.

Plagiarism is a serious breach of the University's rules and carries significant penalties. The Academic honesty Procedure is available at http://www.mq.edu.au/policy/docs/academic_honesty/procedure.html

This procedure notes the following responsibilities for students:

- Act in accordance with the principles of the Academic Honesty Policy.
- Become familiar with what academic dishonesty is, what are appropriate referencing techniques and the consequences of poor practice.
- Seek assistance from the unit convenor (or their nominee) to remedy any deficits or if you are unsure of discipline specific practice.
- Submit only work of which you are the author or that properly acknowledges others.
- Do not lend your original work to any other person for any reason.
- Keep drafts of your own authored work and notes showing the authorship or source of ideas that are not your own.

The penalties which can be applied for academic dishonesty are outlined in the Academic Dishonesty – Schedule of Penalties which can be found at:

http://www.mq.edu.au/policy/docs/academic_honesty/schedule_penalties.html

The penalties range from applying a fail grade for the assessment task or requiring the student to re-submit the assessment task for a mark no greater than 50 to applying a fail grade to the unit of study and referral to the University Discipline committee.

You must read the University's Policy and Procedure on Academic Honesty.

UNIVERSITY POLICY ON GRADING

Academic Senate has a set of guidelines for the achievement of grades across the range from fail to high distinction. Your final result will include one of these grades plus a standardised numerical grade (SNG).

On occasion your raw mark for a unit (i.e., the total of your marks for each assessment item) may not be the same as the SNG which you receive.

For more information please refer to the Macquarie University Handbook.

STUDENT SUPPORT SERVICES

Macquarie University provides a range of Academic Student Support Services. Details of these services can be accessed at <http://www.student.mq.edu.au>.

On matters pertaining to the regulations, the Registrar's Office should be consulted or, within the Department of Psychology, Dr Julia Irwin, Director of Undergraduate Studies. Students with disabilities who have problems within the Department should consult Ms Radha Pathy, the Disability Liaison Officer. If your difficulties cannot be resolved by these members of staff you should consult the Head of Department.

If you have a major difficulty associated with writing skills, you could enrol in a short course on writing skills. For details go to:
http://www.ling.mq.edu.au/support/writing_skills/index.htm

APPEALS AGAINST GRADES

APPEALS AGAINST FINAL GRADES

If a student wishes to appeal against a final grade, the student should see the course chair first. To appeal against your final grade after the meeting with the course chair please refer to the Macquarie University Handbook.

Failure to follow the procedures is likely to result in a request/appeal being disallowed.