# Course Outline

## PSYC3241

## Psychobiology of Memory and Motivation

## School of Psychology

## Faculty of Science

## T1, 2019

Last updated: 26/02/2019 7:55 PM

# 1. Staff

| Position | Name | Email | Consultation times and locations | Contact Details |
|---|---|---|---|---|
| Course Convenor | Prof. Rick Richardson | r.richardson@unsw.edu.au | By appointment, Mathews 511 | 9385 1048 |
| Lecturer | Prof. Rick Richardson | r.richardson@unsw.edu.au | By appointment, Mathews 511 | 9385 1048 |
| Lecturer | Dr Sophie Li | s.h.li@unsw.edu.au | By appointment | 9385 8657 |
| Lecturer | Dr Kathryn Baker | k.baker@unsw.edu.au | By appointment, Mathews 508 | 9385 0552 |
| Lecturer | Dr Kelsey Zimmermann | k.zimmermann@unsw.edu.au | By appointment, Mathews 508 | 9385 0552 |
| Tutors | Sarah Altmann<br>Maddy Bisby<br>Caitlin Finney<br>Sylvia Harmon-Jones<br>Matthew Williams-Spooner | s.altmann@unsw.edu.au<br>m.bisby@unsw.edu.au<br>c.finney@unsw.edu.au<br>s.harmon-jones@unsw.edu.au<br>m.williams-spooner@unsw.edu.au | By appointment | Via email |

# 2. Course information

**Units of credit:** 6

**Pre-requisite(s):** PSYC2001 and PSYC2081

**Teaching times and locations:** PSYC3241 Timetable

## 2.1 Course summary

This course examines research and theory on memory and motivation as they underpin adaptive behaviour. The focus is primarily on animal research but the application of this work to the understanding of memory and motivation in humans will be made explicit. For example, the implications of this work for our understanding of memory disorders in humans, and the origin and treatment of clinical disorders will be discussed. The course is divided into the following broad topics: basic concepts of memory; consolidation and reconsolidation; fear memory; spatial memory; extinction of learned fear; motivation mediating reinforcement learning; forgetting; and translating research from animals to humans.

The laboratory component of the course will provide “hands on” experience in observing various aspects of rodent behaviour that are frequently used in studies on the psychobiology of memory. Further, the laboratory component of the course will provide an opportunity for small group discussion/debate on various issues relevant to the material described in the lecture component of the course (note that this will not involve a revision of the lecture material, but rather consideration of related material).

**Note that the “hands-on” part of the tutorial will involve handling and experimentation on animal subjects (rats);** this work will be group-work (e.g., groups of students will be doing any particular task, and only some will need to actually touch the rats). **Please contact your tutor as soon as possible if you would prefer to not take part in these activities (alternatives will be arranged for those particular tutorials).**

## 2.2 Course aims

The overall aim of this course is for students to develop and gain further understanding of the psychobiology of memory and motivation, with an emphasis on memory. Behavioural experiments demonstrating the basic concepts associated with memory, and forgetting, will be described as will experiments that are aimed at determining the neural bases of memory and forgetting.

## 2.3 Course learning outcomes (CLO)

At the successful completion of this course the student should be able to:

1. Demonstrate an advanced level of knowledge and understanding of the theoretical perspectives, and empirical research relating to the biological basis of behavior, memory, forgetting, and motivation.
2. Understand and apply research methods used in psychobiology.
3. Demonstrate practical skills in laboratory-based behavioural research with rodents.
4. Demonstrate effective verbal and written scientific communication skills.
5. Apply psychological principles to broader issues involving memory and motivation, including their role in understanding human mental disorders.

## 2.4 Relationship between course and program learning outcomes and assessments

| | Program Learning Outcomes | | | | | | |
|---|---|---|---|---|---|---|---|
| **CLO** | 1. Knowledge | 2. Research Methods | 3. Critical Thinking Skills | 4. Values and Ethics | 5. Communication, Interpersonal and Teamwork | 6. Application | **Assessment** |
| 1. | Lectures, tutorials, lab practicals, online activities, formative quiz, discussion forum | Lectures, tutorials, lab practicals, online activities, formative quiz, discussion forum | Lectures, tutorials, lab practicals, online activities | | | | Formative quiz, Mid-session exam, Proposal, Final exam |
| 2. | Lectures, tutorials, lab practicals, online activities, formative quiz | Lectures, tutorials, lab practicals, online activities, formative quiz | Lectures, tutorials, lab practicals, online activities | Lectures, tutorials, lab practicals, online activities, formative quiz | | Lectures, tutorials, lab practicals, online activities, formative quiz | Formative quiz, Mid-session exam, Proposal, Final exam |
| 3. | | Lectures, tutorials, lab practicals, online activities | | Lectures, tutorials, lab practicals, online activities | | Lectures, tutorials, lab practicals, online activities | Mid-session exam, Proposal, Final exam |
| 4. | | | Lectures, tutorials, lab practicals, online activities | | Tutorials, lab practicals, discussion forum | | Proposal |
| 5. | Lectures, tutorials, lab practicals, online activities, discussion forum | | | Lectures, tutorials, lab practicals, online activities, discussion forum | | Lectures, tutorials, lab practicals, online activities, discussion forum | Mid-session exam, Proposal, Final exam |

# 3. Strategies and approaches to learning

## 3.1 Learning and teaching activities

This course provides an advanced treatment of the neuroscience of learning, memory, and motivation. It follows on, and assumes knowledge, from PSYC2081 Learning and Physiological Psychology. This course is complementary to PSYC3051 Physiology Psychology in the sense that both courses provide an advanced perspective on issues in biological psychology.

The lecture content of this course is delivered primarily in face to face format. There are three lectures delivered online (see Section 4). PowerPoint Lecture slides will be made available on the course website located at the UNSW Moodle server (moodle.telt.unsw.edu.au), but this should not be seen as being a substitute for the lecture itself because important details may be given in the lecture that are not found in the lecture slides. A recorded version of the lectures will be posted there as well. Please note that due to unforeseen errors in the central Echo recording system, some lectures may never get recorded or may be recorded badly. Consequently, do not rely on these as your main source of information regarding lecture material.

Online modules of various formats provide students with a range of learning activities that relate to topics covered in lectures, tutorials and practicals.

The laboratory component of the course will provide “hands on” experience in observing various aspects of rodent behaviour that are frequently used in studies on the psychobiology of memory and an opportunity for small group discussion/debate on various issues relevant to the material described in the lecture component of the course.

Attendance is monitored in the tutorial/lab component of the course. In order to meet the Course Learning Outcomes attendance at face to face tutorials is essential in accordance with UNSW Assessment Implementation Procedure. Students are required to attend at least 80% of tutorial/lab classes, and be punctual in this attendance (i.e., coming late may mean that you will be marked as absent). **Students should make sure that their name has been marked on the class roll for each class that they attend**. Failure to meet these specified attendance requirements may result in course failure. Explanations for an occasional absence from a class or requests for permission to be absent from a class should be discussed with the lecturer / tutor, and where applicable, accompanied by a medical certificate.

The Discussion Forum on Moodle provides students with an opportunity to question and clarify course content. Students are strongly encouraged to engage with this forum by posting questions or comments, and reading, answering, or replying to other student’s posts to enhance understanding of the content, critical thinking, and written communication skills.

An online formative quiz is available for students and provides an opportunity to evaluate understanding of course material prior to the census date.

## 3.2 Expectations of students

It is expected that students are aware of UNSW Assessment policy and understand how to apply for special consideration if they are unable to complete an assignment/exam due to illness and/or misadventure.

It is expected that students have read the School of Psychology Student Guide.

All news updates and announcements will be made on the ‘Announcements’ forum on the Moodle page and/or by email. It is the student’s responsibility to check Moodle and their student emails regularly to keep up to date.

The final exam for this course will take place during the UNSW examinations period. Students should not arrange travel during the UNSW exam period until the date of the final exam has been released. Students who arrange travel prior to the release of the final exam date will not be granted consideration in the event they are scheduled to be out of country when the final exam is to occur. This is especially important for study abroad students – do not arrange travel home until the final exam date has been released.

Students registered with Disability Support Services must contact the course coordinator immediately if they intend to request any special arrangements for later in the course, or if any special arrangements need to be made regarding access to the course material. Letters of support must be emailed to the course coordinator as soon as they are made available.

# 4. Course schedule and structure

Each week this course typically consists of 2 hours of face-to-face lecture material, 1.5 hours of face-to-face tutorials, and 8 hours of online modules and/or self-determined activities (i.e., reading, work on assessments, exam preparation and revision).

| Week | Lecture topic/s | Tutorial/lab topics | Online modules | Self-determined activities |
|---|---|---|---|---|
| **Week 1**<br>18/02/2019 | Memory consolidation and modulation | No labs | Memory podcast – interview of Lynn Nadel | Readings on:<br>• memory consolidation<br>• memory modulation |
| **Week 2**<br>25/02/2019 | Memory reconsolidation | How to write a research proposal;<br>Play and USV animal demonstrations | Videos on neuroanatomy and neural staining | Reading on:<br>• memory reconsolidation<br>Revision; mid-semester exam prep; work on research proposal |
| **Week 3**<br>4/03/2019 | Fear memory;<br>Development of fear memory | Hands-on animal exercises | Formative quiz;<br>Lecture on spatial memory development | Readings on:<br>• fear memory<br>• neurogenesis and memory<br>Revision; mid-semester exam prep; work on research proposal |
| **Week 4**<br>11/03/2019 | Neurogenesis and memory;<br>Behavioural and neural aspects of fear extinction (Part 1) | Hands-on animal exercises | Lecture on neurogenesis and memory | Reading on:<br>• fear memory development<br>Revision; mid-semester exam prep; work on research proposal |
| **Week 5**<br>18/03/2019 | Behavioural and neural aspects of fear extinction (Part 2)<br>Mid-term exam | Hands-on animal exercises | Unlearned fear exercise | Reading on:<br>• neural mechanisms of fear extinction<br>Revision; mid-semester exam; work on research proposal |
| **Week 6**<br>25/03/2019 | Mechanisms of sex differences in extinction;<br>Sex differences in cognitive processes | Class presentations | | Readings on:<br>• sex differences<br>• sex hormones and memory<br>Revision; work on research proposal |

| | | | | |
|---|---|---|---|---|
| **Week 7**<br>1/04/2019 | Translational Fear: From men to mice and back again;<br>Reinforcement Learning and Behavioural Flexibility – Implications for Psychopathology | Class presentations | | Readings on:<br>• Cognitive rigidity<br>• Genetic risks for PTSD<br>Work on research proposal |
| **Week 8**<br>8/04/2019 | Adolescence and fear regulation | Ethics | Video on retrieval-extinction in humans | Reading on:<br>• adolescence and fear regulation<br>Work on research proposal |
| **Week 9**<br>15/04/2019 | Spatial memory | Brain Debate | Lecture on forgetting | Readings on:<br>• spatial learning in rats<br>• spatial memory across species<br>Work on research proposal |
| **Week 10**<br>22/04/2019 | Transgenerational effects;<br>Individual differences in memory | No labs | | Reading on:<br>• individual differences in memory<br>Work on research proposal |
| **Week 11**<br>29/04/2019 | Individual difference in memory (Tuesday lecture only this week) | | Brain game exercise | |
| **Study period**<br>2/05/2019 | | | | Exam preparation, revision |
| **Exam period**<br>6/05/2019 | | | | Exam preparation, revision |

# 5. Assessment

## 5.1 Assessment tasks

All assessments in this course have been designed and implemented in accordance with UNSW Assessment Policy.

| Assessment task | Length | Weight | Mark | Due date |
|---|---|---|---|---|
| **Assessment 1:** Formative quiz | 3 MCQ & 1 short answer | 0% (formative) | N/A | N/A |
| **Assessment 2:** Mid-session exam | 45 min | 20% | /100 | 21/03/2019 |
| **Assessment 3:** Research proposal | 1500-2000 words | 30% | /100 | 26/04/2019 |
| **Assessment 4:** Final exam | 2 hrs | 50% | /100 | Exam period |

**Assessment 1:** This online quiz will consist of 3 multiple-choice questions and one short-answer question, and will be released on Friday 8 March. Students can take it whenever they wish, but it is designed to provide some formative feedback in terms of whether the course material is being understood. The answers are given at the end of the quiz.

**Assessment 2:** This 45-min exam (could consist of multiple choice, short-answer, and/or fill-in-the-blank questions; more specific details will be provided prior to the exam) will be given on Thursday 29 March at 2- 3pm (i.e., in regularly-scheduled lecture time period). This exam will be based on material covered in lectures from February 19 - March 12 (first 7 lectures, all by RR), and the readings and online material for those lectures.

**Assessment 3:** This involves a written research proposal on a proposed experiment (based on material/ideas covered in the course). An electronic version of the assignment must be submitted to the course's Moodle module by 4 PM on 26th April (Friday of Week 10) to allow for plagiarism checks via Turnitin. Penalties will be imposed for late submission of this assignment (see 5.3), and for plagiarism. The deadline for absolute fail (i.e., the date of submission after which the task will not be assessed is 10th May).

**Assessment 4:** This 2-hr exam (which could consist of multiple choice, short-answer, and/or fill-in-the-blank questions; more specific details will be provided prior to the exam) will be given during the formal exam period. This exam will cover material from the lectures given after 12 March, and the readings and online materials for those lectures.

**UNSW grading system:** https://student.unsw.edu.au/grades

**UNSW assessment policy:** https://student.unsw.edu.au/assessment

## 5.2 Assessment criteria and standards

Further details and marking criteria for each assessment will be provided to students closer to the assessment release date (see 4.1: UNSW Assessment Design Procedure).

## 5.3 Submission of assessment tasks

**Assessment 3:** In accordance with UNSW Assessment Policy the research proposal must be submitted online via Turnitin. No paper or emailed copies will be accepted.

**Late penalties**: deduction of marks for late submissions will be in accordance with School policy (see: Psychology Student Guide).

**Special Consideration:** Students who are unable to complete an assessment task by the assigned due date can apply for special consideration. Students should also note that UNSW has a Fit to Sit/Submit rule for all assessments. If a student wishes to submit an application for special consideration for an exam or assessment, the application must be submitted prior to the start of the exam or before an assessment is submitted. If a student sits the exam/submits an assignment, they are declaring themselves well enough to do so and are unable to subsequently apply for special consideration. If a student becomes ill on the day of the exam, they must provide evidence dated within 24 hours of the exam, with their application.

Special consideration applications must be submitted to the online portal along with Third Party supporting documentation. Students who have experienced significant illness or misadventure during the assessment period may be eligible. Only circumstances deemed to be outside of the student's control are eligible for special consideration. Except in unusual circumstances, the duration of circumstances impacting academic work must be more than 3 consecutive days, or a total of 5 days within the teaching period. If the special consideration application is approved, students may be given an extended due date, or an alternative assessment/supplementary examination may be set. For more information see https://student.unsw.edu.au/special-consideration.

**Alternative assessments**: will be subject to approval and implemented in accordance with UNSW Assessment Implementation Procedure.

**Supplementary examinations:** will be made available for students with approved special consideration application and implemented in accordance with UNSW Assessment Policy.

## 5.4. Feedback on assessment

Feedback on all pieces of assessment in this course will be provided in accordance with UNSW Assessment Policy.

| Assessment | When | Who | Where | How |
|---|---|---|---|---|
| Formative quiz | Immediate | Richardson | Online | Moodle |
| Mid-session exam | 04/04/2019 | Richardson | Online | Moodle |
| Research proposal | 14/05/2019 | Tutor | Online | Moodle |
| Final exam | TBA | N/A | N/A | N/A |

# 6. Academic integrity, referencing and plagiarism

The APA (6th edition) referencing style is to be adopted in this course. Students should consult the publication manual itself (rather than third party interpretations of it) in order to properly adhere to APA style conventions. Students do not need to purchase a copy of the manual, it is available in the library or online. This resource is used by assessment markers and should be the only resource used by students to ensure they adopt this style appropriately:

**APA 6th edition.**

**Referencing** is a way of acknowledging the sources of information that you use to research your assignments. You need to provide a reference whenever you draw on someone else's words, ideas or research. Not referencing other people's work can constitute plagiarism.

Further information about referencing styles can be located at https://student.unsw.edu.au/referencing

**Academic integrity** is fundamental to success at university. Academic integrity can be defined as a commitment to six fundamental values in academic pursuits**:** honesty, trust, fairness, respect, responsibility and courage.[1] At UNSW, this means that your work must be your own, and others' ideas should be appropriately acknowledged. If you don't follow these rules, plagiarism may be detected in your work.

Further information about academic integrity and **plagiarism** can be located at:

- The *Current Students* site https://student.unsw.edu.au/plagiarism**,** and
- The *ELISE* training site http://subjectguides.library.unsw.edu.au/elise

The *Conduct and Integrity Unit* provides further resources to assist you to understand your conduct obligations as a student: https://student.unsw.edu.au/conduct.

# 7. Readings and resources

| | |
|---|---|
| **Textbook** | Nil |
| **Course information** | Available on Moodle |
| **Required readings** | School of Psychology Student Guide. |
| **Recommended internet sites** | UNSW Library<br>UNSW Learning Centre<br>ELISE<br>Turnitin<br>Student Code of Conduct<br>Policy concerning academic honesty<br>Email policy<br>UNSW Anti-racism policy statement<br>UNSW Equity and Diversity policy statement<br>UNSW Equal opportunity in education policy statement |

# 8. Administrative matters

The School of Psychology 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

[1] International Center for Academic Integrity, 'The Fundamental Values of Academic Integrity', T. Fishman (ed), Clemson University, 2013.

- Assessments
- Special consideration
- Student code of conduct
- Student complaints and grievances
- Disability Support Services
- Health and safety

It is expected that students familiarise themselves with the information contained in this guide.

# 9. Additional support for students

- The Current Students Gateway: https://student.unsw.edu.au/
- Academic Skills and Support: https://student.unsw.edu.au/academic-skills
- Student Wellbeing, Health and Safety: https://student.unsw.edu.au/wellbeing
- Disability Support Services: https://student.unsw.edu.au/disability-services
- UNSW IT Service Centre: https://www.it.unsw.edu.au/students/index.html