Course Outline

PSYC3051

Physiological Psychology

School of Psychology

Faculty of Science

T2, 2020

1. Staff

Position	Name	Email	Consultation times and locations	Contact Details
Course Convenor /Lecturer	Prof. Simon Killcross	s.killcross@unsw.edu.au	By appointment Mathews 1609	Email
Lecturer	Prof. Gavan McNally	g.mcnally@unsw.edu.au	By appointment Mathews 512	Email
Lecturer	Prof. Fred Westbrook	f.westbrook@unsw.edu.au	By appointment Mathews 615	Email
Lecturer	Dr. Kelly Clemens	k.clemens@unsw.edu.au	By appointment Mathews 608	Email
Tutor	Dana Leidl	d.leidl@unsw.edu.au	By appointment	Email
Tutor	Kirsten Abbott	kirsten.abbott@unsw.edu.au	By appointment	Email

2. Course information

Units of credit: 6

Pre-requisite(s): PSYC2001, PSYC2081

Teaching times and locations: PSYC3051 Timetable

2.1 Course summary

This course provides an overview of the neuroscience of learning and memory. Emphasis is placed on contemporary theories and approaches including the role of interactions between environmental events, synapses and genes. Topics include: appetitive and aversive motivation in learning, behaviour and psychopathology; Pavlovian conditioning; instrumental conditioning; how goals are represented and how they drive behaviour; and the development of habitual and compulsive behaviours.

2.2 Course aims

The overall aim of this course is to provide students with an overview of elementary learning processes and their neurobiological substrates. Emphasis is placed on contemporary theories and approaches, including discussion of the role of molecular signalling cascades and neuronal coding in learning and memory, the role of neural systems in supporting behaviour, and examples of where changes in such systems are thought to underpin human mental disorders. The aim of the practical component of the course is to provide experience of various aspects of research in physiological psychology. As such, a component of the course will involve recorded examples of experimentation on animal subjects (rats).

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 physiological basis of learning and behavior.
2. Apply an advanced level of understanding of research methods used in physiological psychology in order to conduct basic experiments and evaluate methodologies used in the field.
3. Apply advanced critical thinking skills in order to evaluate processes and phenomena in physiological psychology from multiple theoretical perspectives and methodological approaches.
4. Understand values and professional ethics in research.
5. Communicate scientific material effectively in verbal and written formats.
6. Apply principles of learning and physiological psychology to broader issues, 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, demonstrations, online activities	Lectures, demonstrations, online activities	Lectures, demonstrations, online activities				Assessment 1, Research proposal and poster, quizzes, final exam
2.		Lectures, demonstrations, online activities	Lectures, demonstrations, online activities			Lectures, demonstrations, online activities	Assessment 1, Research proposal and poster, quizzes, final exam
3.	Lectures, demonstrations, online activities	Lectures, demonstrations, online activities	Lectures, demonstrations, online activities				Assessment 1, Research proposal and poster, quizzes, final exam
4.	Lectures, demonstrations, online activities	Lectures, demonstrations, online activities		Lectures, demonstrations, online activities	Lectures, demonstrations, online activities		Assessment 1, Research proposal and poster, quizzes, final exam
5.				Lectures, demonstrations, online activities	Lectures, demonstrations, online activities		Assessment 1, Research proposal and poster, quizzes, final exam
6.	Lectures, demonstrations, online activities	Lectures, demonstrations, online activities	Lectures, demonstrations, online activities	Lectures, demonstrations, online activities		Lectures, demonstrations, online activities	Assessment 1, Research proposal and poster, quizzes, 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 PSYC3241 Psychobiology of Memory and Motivation in the sense that both courses provide an advanced perspective on issues in biological psychology.

As this course is being delivered entirely online for 2020, there are some important points to note:

1) Some components of the course are completely asynchronous, meaning you have access to them throughout the course and can undertake them in any order (e.g. lectures). However, we strongly recommend you adhere to a weekly schedule and do not try to leave everything until the end of the course. There is strong evidence that spaced learning is better than massed, and there will be too much information to absorb if you try to leave everything until the last few weeks.

2) Other components of the course are synchronous, meaning you **MUST** attend the activity (typically by Collaborate Ultra within Moodle) at a specific time in the scheduled week. Examples of this include the research proposal and presentations, the group-based peer feedback and poster Q & A session. Attendance at these sessions is compulsory and will be logged by Moodle.

Lectures: This course deals with elementary learning processes and their neurobiological substrates. These include: learning about relations between stimuli (e.g., Pavlovian conditioning); learning about relations between actions and outcomes (e.g., instrumental conditioning); how goals are represented and how they drive behaviour; and the development of habitual and compulsive behaviours. There will be an overview of the role of appetitive and aversive motivation in learning, behaviour and psychopathology. Emphasis will be placed on contemporary theories and approaches, including discussion of the role of molecular signalling cascades and neuronal coding in learning and memory, the role of neural systems in supporting behaviour, and examples of where changes in such systems are thought to underpin human mental disorders. The course is divided into four sections (not necessarily in the following order): 1) McNally: Neural circuits of appetitive and aversive motivation 2) Clemens: Neurobiology of addiction and animal models of mental disorder 3) Westbrook: Behavioural studies of learning 4) Killcross: Neural basis of action and choice.

THE LECTURES ARE ALL PRE-RECORDED AND ALL LECTURES WILL BE AVAILABLE FROM THE START OF COURSE; WE HAVE SUGGESTED HOW THESE LECTURES MAY BE SCHEDULED, BUT YOU ARE FREE TO WATCH THESE AT ANY POINT DURING THE COURSE (but see Point 1, above).

Formative quizzes: These questions will be based on a range of lectures across the whole course (so you may not be able to answer them all when they are first released), and will take the form of a selection of MCQs of the sort that will appear in the final examination. These questions will be presented on Moodle; when, how, and if you choose to complete them is up to you. There will be no formal assessment of your performance in this task – it is entirely to allow you to judge your own performance in, and understanding of, the course at this time, and to help you to prepare for the final examination. It is strongly recommended that you make use of this opportunity to prepare for the final examination, and seek feedback from tutors regarding the correct answers (and the reasons behind them).

Online demonstrations: The primary goal of laboratory demonstration component of the course is to provide experience in various aspects of research in physiological psychology. In current circumstances, this will involve demonstration videos of various forms of appetitive learning in rats. It is imperative that you contact your lecturer as soon as possible if obligations of any kind prevent you from taking part in these activities. Mini-quizzes will form part of these online demonstration packs.

Mini quizzes: are released 9am Monday in weeks 4, 5, 7, 8, & 9, together with their associated demonstration packs or online lesson. There are journal article readings that accompany each of the demonstration packs. These are available through the Moodle website from Week 1. As part of each demonstration pack and the online ethics class you are required to read these articles and a short 10-question mini-quiz will be incorporated into the demonstration pack or online ethics class, testing knowledge from these papers and the associated online activities. You may attempt each quiz as many times as you like, Quiz questions will remain available for revision purposes. These mini-quizzes are formative only (so carry no marks), but are designed to give you an idea of the questions that may be asked in the final exam. When, how, and if you choose to complete them is up to you. There will be no formal assessment of your performance in this task – it is entirely to allow you to judge your own performance in, and understanding of, the course at this time, and to help you to prepare for the final examination.

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 through 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. Although this is an online course, it is expected that students dedicate the same amount of time each week to studying for this course as they would for an 'on-campus' course.

The final exam for this course will take place **ONLINE** during the UNSW examinations period. Students should arrange to be available during the UNSW exam period and specifically at the time and the date of the final exam, when released. Where students are studying from regions with a different timezone, every effort will be made to adjust the examination to occur within a local-time 8am – 6pm window on the date of the exam, but this cannot be guaranteed.

Students registered with Disability Support Services must contact the course co-ordinator 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 lecture material, 1-2 hours of tutorials practicals, and 1-2 hours of online activities. Students are expected to take an additional 7 hours each week of self-determined study to complete assessments, readings, and exam preparation.

Week	Online recorded lecture topics (recommended order, but can be taken in any order)	Tutorial topics	Online activities	Self-determined activities
Week 1 01/06/2020	Neurobiology of addiction and animal models of mental disorders (Clemens)	Introduction to research proposal and poster presentation (recorded presentation with online Q&A)	Online Q&A	
Week 2* 08/06/2020	Neurobiology of addiction and animal models of mental disorders (Clemens)	Journal article presentation (recorded presentation with online Q&A)	Online Q&A	Formative MCQs released (Friday 12/6) Poster template released
Week 3 15/06/2020	Behavioural studies of learning (Westbrook)			Research proposal/poster 1
Week 4 22/06/2020	Behavioural studies of learning (Westbrook)	Research proposal and poster presentation 1 **FACE-to- FACE synchronous activity**	Instrumental conditioning demonstration pack	Mini-quiz on instrumental conditioning
Week 5 29/07/2020	Neural circuits of appetitive and aversive motivation (McNally)		Pavlovian conditioning demonstration pack	Mini-quiz on Pavlovian conditioning
Week 6 06/07/2020	Flex week	Flex week		Research proposal/poster 2 Brief description of future experiments from journal article presentation in Week 2

Week 7 13/07/2020	Neural circuits of appetitive and aversive motivation (McNally)	Research proposal and poster presentation 2a **FACE-to- FACE synchronous activity**	Online lesson: Ethics	Mini-quiz for Ethics
Week 8 20/07/2020	Neural basis of action and choice (Killcross)	Research proposal and poster presentation 2b **FACE-to- FACE synchronous activity**	Pavlovian-instrumental transfer demonstration pack	Mini-quiz on Pavlovian-instrumental transfer
Week 9 27/07/2020	Neural basis of action and choice (Killcross)	Group-based peer feedback on posters, poster Q&A. **FACE-to- FACE synchronous activity**	Conditioned reinforcement demonstration pack	Mini-quiz on Conditioned reinforcement
Week 10 03/08/2020	Time available for review of previous lectures	Time available for development of poster submission		Poster submission (end Week 10)
Study period 08/08/2020 – 10/08/2020				Exam preparation

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: Brief description of future experiments	400 words	10%	/10	End of Week 6 10/07/20
Assessment 2: Research proposal presentation and poster	presentations + poster	45%	/45	Weeks 4, 7 and 8 End of Week 10 07/08/20
Assessment 3: Final exam	75 MCQ	45%	/75	Exam period

Assessment 1: A published journal article will be presented that describes an experiment in behavioural neuroscience of the sort that might form the basis for your research proposal and poster presentation (see below). The tutor's recording will take you through the different aspects of the article (Abstract, Introduction, Methods, Results, Discussion) and will highlight important features of the article in terms of the background and rationale for the study, the experimental methods and design employed, the presentation and analysis of results, and the conclusions that might be drawn from the study and how these might be integrated with existing published work and theory. There will then be an online Q&A forum. Your task will be to write a brief description of an aspect of the article's findings that you found interesting, and how one might follow-up on this finding with a further study (400 word maximum, marks strictly deducted for exceeding this limit: 3% [of 10% available] for anything between 400 and 500 words, and a further 3% [of the remaining 7% available] for 500-600 words, and all marks [10% of 10%] for >600 words – brevity is the key to the exercise). Any descriptions submitted 10 days after the due date will not be marked and will receive an automatic grade of 0.

Assessment 2: You are expected to conceive, design, and propose a research project in Behavioural Neuroscience. The specific research area and research question is determined by you. However, it is expected to be based upon the current literature. You will be expected to systematically review the relevant literature, identify an outstanding question of interest, and design an experiment that will address this question. This project will be assessed in two parts. The first part comprises oral presentations of your research proposal in Week 4 during tutorials. In the first presentation (3 minutes maximum) you will very briefly review your proposed topic area and identify a research question. Your tutor will provide you with feedback in the time available – if your presentation takes the full time allotted, then there will be little feedback, so plan your presentation carefully**.** Based on this feedback, you will prepare a second presentation, which covers in more detail your research question, a proposed experiment, and some potential findings and possible interpretations and implications. You will have 5 minutes for this presentation, which should cover primarily your experimental design and possible results. These oral presentations will be made in Weeks 7 or 8 (as assigned by your tutor) and will form the basis of your final poster submission. **Completion of the oral presentations is a condition of completing the entire assessment.** In week 9 you will also have the opportunity to present your poster to other students within the tutorial (in small Collaborate Ultra breakout groups) in order to allow you to both receive and give peer feedback prior to completion of your final poster for submission. The oral presentations count for 15% of your overall mark. The first presentation in week 4 is simply to get the ball rolling, and so completion of this presentation will result in a score of 5%

towards your final mark provided you present an original idea to the tutorial group (i.e. it is pass/fail with a fixed award of 5%). The presentations in week 7 or 8 will be worth 10% of your final mark, based on quality. Electronic copies of your final poster must be submitted at the end of week 10 (07/08/20) following the standard procedure. These electronic submissions will be checked by Turnitin. This poster accounts for 30% of your final mark for the course. This poster will be based on the presentations and peer/tutor feedback given in class, allowing you to incorporate feedback from your presentations (and those of others) into your final completed work. Any posters submitted 10 days after the week 10 due date will not be marked and will receive an automatic grade of 0.

Assessment 3: The final examination will be held in the usual end of session examination period, and will assess both the lecture material and learning from the demonstration packs, online ethics class and associated readings. This will take the format of a 75-question multiple choice examination which will be delivered online in a secure format. The time allowed per question will be limited. There will be 15 questions from each of the 4 sections of the course delivered by different lecturers (lecture content and associated readings), and 15 questions derived from the online demonstration packs and online ethics class delivered in weeks 4, 5, 7, 8 and 9 and associated readings. Further details of the arrangements for this examination will be made via announcements on the course pages in Moodle.

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

Written assessments: In accordance with UNSW Assessment Policy written pieces of assessment must be submitted online via Turnitin.

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. Special consideration applications must be submitted to Student Central within 3 working days of the assessment due date along with a physical copy of the 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 (see - https://student.unsw.edu.au/special-consideration). In the case of take-home assessment tasks, misadventure must occur for at least 3 consecutive days during the assessment period. If approved, students may be given an extended due date to complete take-home assessments, or an alternative assessment may be set.

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. Supplementary examinations are offered ONLY ONCE for this course.

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
Brief description of future experiments	Within 10 days of due date	Tutor	Online	Moodle
Research proposal presentation and poster	Within 10 days of due date	Tutor	F2F online via collaborate	Verbal
Mini-quizzes	As taken	Tutor	Online	Moodle
Final exam	N/A	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/presenting

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.

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

7. Readings and resources

Textbook (recommended)	You may find the textbooks listed below helpful. You are not required to purchase either of these books; they are listed simply to provide you with another source of information for some of the materials covered in the lectures. Carlson, N. R. (2012). *Physiology of Behavior*.11th Edn. Pearson Education. Pearce, J.M. (2008). *Animal Learning & Cognition*. 3rd Edn. Psychology Press.
Course information	Available on Moodle
Required readings	The course is organized around review articles taken from journals such as the Annual Review of Psychology, the Annual Review of Neuroscience, Trends in Neurosciences, Nature Neuroscience Reviews or similar. These articles can be downloaded via the University Library holdings or in some cases from the Moodle website. School of Psychology Student Guide.
Recommended internet sites	UNSW Library UNSW Learning Centre ELISE Turnitin Student Code of Conduct Policy concerning academic honesty Email policy UNSW Anti-racism policy statement UNSW Equity and Diversity policy statement 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
- 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