



# PSY 354

## Clinical and Experimental Neuroscience

S1 Day 2019

*Department of Psychology*

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## General Information

Unit convenor and teaching staff

Unit Convenor

Jennifer Cornish

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AHH Level 5

by appointment

Credit points

3

Prerequisites

(39cp at 100 level or above) including ((BIOL247 or BIOL257 or PSY236) or (BIOL122 and (BIOL108 or BIOL115)))

Corequisites

Co-badged status

Unit description

This unit is designed to provide students with advanced knowledge in the field of neuroscience, from both a clinical and experimental perspective. Students are taught by experts in neuroscience, spanning the Department of Psychology, the Department of Cognitive Science, and the Department of Biomedical Sciences. Topics are research led and cover areas such as neuroanatomy, neurophysiology, neuroimaging, neuropsychopharmacology, emotion, language, attention, memory, sensory and motor systems, together with cardiovascular and respiratory neuroscience. Students are also trained in grant writing skills for future research funding.

## Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

## Learning Outcomes

On successful completion of this unit, you will be able to:

Students will gain a deeper understanding of disorders of the nervous system (mental health, cardiovascular, neuroinflammation).

Students will learn contemporary and state-of-the-art techniques in studying how the

brain functions, particularly in reference to mental health disorders (such as anxiety, addiction).

Students will learn the value of using animal models in research and how they translate to the human condition.

Students will gain communication and information technology skills by using electronic data bases to search for papers in neuroscience topics

Students will gain written and oral communication skills by taking part in class discussions, and communication of grant proposal ideas during tutorial time

Students will gain self-awareness skills through identifying and setting targets, time management for on time completion of grant proposals and study of course content in preparation for examinations

Students will gain information skills through formulating arguments, judging the relevance and accuracy of information, comparing different points of view through critical review of neuroscience journal articles

Students will learn how to problem solve by comparing alternative interpretations of neuroscience data and formulating new explanations.

Students will gain skills in creative thinking through the design of a research protocol in the field of neuroscience.

## Assessment Tasks

Name	Weighting	Hurdle	Due
<u>Grant application</u>	30%	No	May 10th, 2019
<u>Midterm test</u>	35%	No	Week 8
<u>Final exam</u>	35%	No	Final examination period

### Grant application

Due: **May 10th, 2019**

Weighting: **30%**

A three page (approx 1500 word) assignment in the form of a grant application, as instructed during tutorials 3 & 4, due by 5pm Friday May 10, 2019 (30%). It is departmental policy that assignments are set in terms of a specified word limit and specified format:

**Word Limit is 3 pages** (approx 1500 word) and must be completed on the GRANT FORM

single-spaced

12-point font

Times New Roman font

Margin of 2.0 cm

Penalty for exceeding word limit: **For each 100 words over the page limit** a penalty of 5% will be applied (you can have 99 words over before penalty). This means that for this assignment that is worth 30%, a 5% penalty will result in the loss of  $5\% \times 30 = 1.5$  marks from your total mark for the assignment. A 5 % penalty is also incurred for each day overdue. **You must use the grant form** to submit your grant proposal, this is to train you for future grant submission. Those who do not use the grant form will be penalised 5%.

See your tutorial guidelines for more information.

On successful completion you will be able to:

- Students will gain a deeper understanding of disorders of the nervous system (mental health, cardiovascular, neuroinflammation).
- Students will learn contemporary and state-of-the-art techniques in studying how the brain functions, particularly in reference to mental health disorders (such as anxiety, addiction).
- Students will learn the value of using animal models in research and how they translate to the human condition.
- Students will gain communication and information technology skills by using electronic data bases to search for papers in neuroscience topics
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- Students will gain information skills through formulating arguments, judging the relevance and accuracy of information, comparing different points of view through critical review of neuroscience journal articles
- Students will learn how to problem solve by comparing alternative interpretations of neuroscience data and formulating new explanations.
- Students will gain skills in creative thinking through the design of a research protocol in the field of neuroscience.

## Midterm test

Due: **Week 8**

Weighting: **35%**

A midterm test (multiple 5-choice format) will be held during the scheduled 2 hr lecture in week 8. This paper will examine the information covered in lectures in weeks 1-5.

On successful completion you will be able to:

- Students will gain a deeper understanding of disorders of the nervous system (mental health, cardiovascular, neuroinflammation).
- Students will learn contemporary and state-of-the-art techniques in studying how the brain functions, particularly in reference to mental health disorders (such as anxiety, addiction).
- Students will learn the value of using animal models in research and how they translate to the human condition.
- Students will gain self-awareness skills through identifying and setting targets, time management for on time completion of grant proposals and study of course content in preparation for examinations
- Students will gain information skills through formulating arguments, judging the relevance and accuracy of information, comparing different points of view through critical review of neuroscience journal articles
- Students will learn how to problem solve by comparing alternative interpretations of neuroscience data and formulating new explanations.

## Final exam

Due: **Final examination period**

Weighting: **35%**

A final exam (multiple choice format, 5-choice questions) held in the examination period. This paper will examine the information covered in weeks 6, 7, 9-11 (it does not include weeks 12 and 13).

On successful completion you will be able to:

- Students will gain a deeper understanding of disorders of the nervous system (mental health, cardiovascular, neuroinflammation).
- Students will learn contemporary and state-of-the-art techniques in studying how the brain functions, particularly in reference to mental health disorders (such as anxiety, addiction).

- Students will learn the value of using animal models in research and how they translate to the human condition.
- Students will gain self-awareness skills through identifying and setting targets, time management for on time completion of grant proposals and study of course content in preparation for examinations
- Students will gain information skills through formulating arguments, judging the relevance and accuracy of information, comparing different points of view through critical review of neuroscience journal articles
- Students will learn how to problem solve by comparing alternative interpretations of neuroscience data and formulating new explanations.

## Delivery and Resources

### Classes

Number and length of classes are 1 x 2 hour lecture and 1 x 2 hour tutorial (a total of 4 tutorials – check out below for weeks)

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

### Tutorials

Tutorials will only be run on weeks 3, 4, 5 & 6, see the MQ timetable for locations.

Students should attend all tutorial classes or they may be disadvantaged in assessments.

### Required and Recommended Texts and/or Materials

Prescribed text: Neuroscience, exploring the brain. Bear, Connors and Paradiso, 3rd or 4th Edition. Copies of this textbook have been placed on reserve in the library.

Prescribed unit materials: additional material will be available in class, on ilearn or via e-readings (library).

## Unit Schedule

The unit will be taught weekly through 1 x 2hr lecture. There are also 4 tutorial classes (2 hrs each) as listed above.

**Lectures:** The lectures are designed to advance the students' knowledge in key areas of neuroscience. The reading associated with each lecture topic complements and extends the lecture material and students should be self-directed in reading and summarising this material, and integrating it with the lecture material.

**Tutorials:** Tutorials are designed to enhance the students' research skills by understanding neuroscience techniques, practise in grant writing and analysis, and discussion of contemporary research studies.

Please see your iLearn page for more detail of Lecture and Tutorial topics.

## Learning and Teaching Activities

### Basic understanding of theories and research in neuroscience

Student's basic understanding of theories and research in neuroscience is assessed in a mid-term exam which contains both multiple choice and short answer questions

### Interpret empirical data

The ability to interpret empirical data in relation to theoretical issues and past research literature is assessed using a grant writing exercise, and discussions during tutorials

### Applied Neuroscience

Student's basic understanding of theories and research in applied neuroscience is assessed in an end of year exam

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central\)](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Grade Appeal Policy](#)
- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#) (**Note:** *The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.*)

Undergraduate students seeking more policy resources can visit the [Student Policy Gateway \(https://students.mq.edu.au/support/study/student-policy-gateway\)](https://students.mq.edu.au/support/study/student-policy-gateway). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit [Policy Central \(https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central\)](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central).

## Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/study/getting-started/student-conduct>

## Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit <ask.mq.edu.au> or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

## Learning Skills

Learning Skills (<mq.edu.au/learningskills>) provides academic writing resources and study strategies to improve your marks and take control of your study.

- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module for Students](#)
- [Ask a Learning Adviser](#)

## Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

## Student Enquiries

For all student enquiries, visit Student Connect at <ask.mq.edu.au>

If you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## IT Help

For help with University computer systems and technology, visit [http://www.mq.edu.au/about\\_us/offices\\_and\\_units/information\\_technology/help/](http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/).

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.

## Graduate Capabilities

### Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be



imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

### **Learning outcomes**

- Students will learn contemporary and state-of-the-art techniques in studying how the brain functions, particularly in reference to mental health disorders (such as anxiety, addiction).
- Students will gain communication and information technology skills by using electronic data bases to search for papers in neuroscience topics
- Students will gain written and oral communication skills by taking part in class discussions, and communication of grant proposal ideas during tutorial time
- Students will gain information skills through formulating arguments, judging the relevance and accuracy of information, comparing different points of view through critical review of neuroscience journal articles
- Students will learn how to problem solve by comparing alternative interpretations of neuroscience data and formulating new explanations.
- Students will gain skills in creative thinking through the design of a research protocol in the field of neuroscience.

### **Assessment tasks**

- Grant application
- Midterm test
- Final exam

## **Capable of Professional and Personal Judgement and Initiative**

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

### **Learning outcomes**

- Students will learn the value of using animal models in research and how they translate to the human condition.
- Students will gain communication and information technology skills by using electronic data bases to search for papers in neuroscience topics

- Students will gain written and oral communication skills by taking part in class discussions, and communication of grant proposal ideas during tutorial time
- Students will gain self-awareness skills through identifying and setting targets, time management for on time completion of grant proposals and study of course content in preparation for examinations
- Students will gain information skills through formulating arguments, judging the relevance and accuracy of information, comparing different points of view through critical review of neuroscience journal articles
- Students will learn how to problem solve by comparing alternative interpretations of neuroscience data and formulating new explanations.
- Students will gain skills in creative thinking through the design of a research protocol in the field of neuroscience.

## **Assessment tasks**

- Grant application
- Midterm test
- Final exam

## **Commitment to Continuous Learning**

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

## **Learning outcomes**

- Students will gain self-awareness skills through identifying and setting targets, time management for on time completion of grant proposals and study of course content in preparation for examinations
- Students will learn how to problem solve by comparing alternative interpretations of neuroscience data and formulating new explanations.
- Students will gain skills in creative thinking through the design of a research protocol in the field of neuroscience.

## **Assessment tasks**

- Grant application
- Midterm test

- Final exam

## Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

### Learning outcomes

- Students will gain a deeper understanding of disorders of the nervous system (mental health, cardiovascular, neuroinflammation).
- Students will learn contemporary and state-of-the-art techniques in studying how the brain functions, particularly in reference to mental health disorders (such as anxiety, addiction).
- Students will learn the value of using animal models in research and how they translate to the human condition.
- Students will gain communication and information technology skills by using electronic data bases to search for papers in neuroscience topics
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- Students will gain skills in creative thinking through the design of a research protocol in the field of neuroscience.

### Assessment tasks

- Grant application
- Midterm test
- Final exam

## Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

### Learning outcomes

- Students will gain a deeper understanding of disorders of the nervous system (mental health, cardiovascular, neuroinflammation).
- Students will learn contemporary and state-of-the-art techniques in studying how the brain functions, particularly in reference to mental health disorders (such as anxiety, addiction).
- Students will learn the value of using animal models in research and how they translate to the human condition.
- Students will gain communication and information technology skills by using electronic data bases to search for papers in neuroscience topics
- Students will gain written and oral communication skills by taking part in class discussions, and communication of grant proposal ideas during tutorial time
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- Students will learn how to problem solve by comparing alternative interpretations of neuroscience data and formulating new explanations.
- Students will gain skills in creative thinking through the design of a research protocol in the field of neuroscience.

### Assessment tasks

- Grant application
- Midterm test
- Final exam

## Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative

in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

## **Learning outcomes**

- Students will learn contemporary and state-of-the-art techniques in studying how the brain functions, particularly in reference to mental health disorders (such as anxiety, addiction).
- Students will gain communication and information technology skills by using electronic data bases to search for papers in neuroscience topics
- Students will gain written and oral communication skills by taking part in class discussions, and communication of grant proposal ideas during tutorial time
- Students will gain self-awareness skills through identifying and setting targets, time management for on time completion of grant proposals and study of course content in preparation for examinations
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- Students will learn how to problem solve by comparing alternative interpretations of neuroscience data and formulating new explanations.
- Students will gain skills in creative thinking through the design of a research protocol in the field of neuroscience.

## **Assessment tasks**

- Grant application
- Midterm test
- Final exam

## **Effective Communication**

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

## **Learning outcomes**

- Students will learn contemporary and state-of-the-art techniques in studying how the brain functions, particularly in reference to mental health disorders (such as anxiety,

addiction).

- Students will gain communication and information technology skills by using electronic data bases to search for papers in neuroscience topics
- Students will gain written and oral communication skills by taking part in class discussions, and communication of grant proposal ideas during tutorial time
- Students will gain information skills through formulating arguments, judging the relevance and accuracy of information, comparing different points of view through critical review of neuroscience journal articles
- Students will gain skills in creative thinking through the design of a research protocol in the field of neuroscience.

## **Assessment tasks**

- Grant application
- Midterm test
- Final exam

## **Engaged and Ethical Local and Global citizens**

As local citizens our graduates will be aware of indigenous perspectives and of the nation's historical context. They will be engaged with the challenges of contemporary society and with knowledge and ideas. We want our graduates to have respect for diversity, to be open-minded, sensitive to others and inclusive, and to be open to other cultures and perspectives: they should have a level of cultural literacy. Our graduates should be aware of disadvantage and social justice, and be willing to participate to help create a wiser and better society.

This graduate capability is supported by:

## **Learning outcomes**

- Students will learn the value of using animal models in research and how they translate to the human condition.
- Students will gain communication and information technology skills by using electronic data bases to search for papers in neuroscience topics
- Students will learn how to problem solve by comparing alternative interpretations of neuroscience data and formulating new explanations.
- Students will gain skills in creative thinking through the design of a research protocol in the field of neuroscience.

## **Assessment tasks**

- Grant application
- Midterm test

- Final exam

## Socially and Environmentally Active and Responsible

We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

This graduate capability is supported by:

### Learning outcomes

- Students will gain self-awareness skills through identifying and setting targets, time management for on time completion of grant proposals and study of course content in preparation for examinations
- Students will gain skills in creative thinking through the design of a research protocol in the field of neuroscience.

### Assessment tasks

- Grant application
- Midterm test
- Final exam