



Faculty of Medicine & Faculty of
Science

School of Medical Sciences
& School of Psychology

NEUR2201

Neuroscience Fundamentals

COURSE OUTLINE

TERM 2, 2019

CRICOS Provider Code 00098G

WELCOME

Neuroscience Fundamentals is a multi-disciplinary course that brings together neuroscientists from across UNSW to deliver a course that is broad-reaching, up-to-date, and focussed on one of the last great frontiers of knowledge – understanding the brain.

The course is structured into five fortnight-long modules, each taught by members of two or more different neuroscientific disciplines. Each module includes a series of lectures by discipline experts, a hands-on lab, and typically concludes with a tutorial and short quiz. This format allows us to tackle some “big questions” in neuroscience. We hope that you find the course as exciting and fulfilling as we find our own engagement in the research, study and practice of neuroscience.

CONTENTS	Page
Course staff.....	3
Course information.....	4
Approach to Learning & Teaching.....	5
Assessment Overview	6
Continual course improvement	7
Textbooks & Reading List	8
Administrative Matters.....	8

Please read this manual/outline in conjunction with the following pages on the [School of Medical Sciences website](#):

- [Advice for Students](#)
- [Learning Resources](#)

(or see "STUDENTS" tab at medicallsciences.med.unsw.edu.au)

COURSE STAFF

Course Convenors

Course Convenor	Dr Chelsea Goulton Department of Physiology, School of Medical Sciences, 2W room 261, second floor, Wallace Wurth Building, e-mail c.goulton@unsw.edu.au
Co-Convenor	A/Prof Andrew Moorhouse Department of Physiology, School of Medical Sciences, 3NW room 302, third floor Wallace Wurth Building, e-mail a.moorhouse@unsw.edu.au

Primary Tutors

Andrew Moorhouse	a.moorhouse@unsw.edu.au
Chelsea Goulton	c.goulton@unsw.edu.au

Primary Lab Demonstrators

Andrew Moorhouse	a.moorhouse@unsw.edu.au
Chelsea Goulton	c.goulton@unsw.edu.au
Alistair Loutit	a.loutit@student.unsw.edu.au
Brooke Keating	b.keating@student.unsw.edu.au

Other Teaching Staff

UNSW Sydney

Dr Patrick de Permentier	P.Depermentier@unsw.edu.au	Anatomy
Dr Nicole Jones	n.jones@unsw.edu.au	Pharmacology
A.Prof. Pascal Carrive	p.carrive@unsw.edu.au	Anatomy
Prof. Gavan McNally	g.mcnally@unsw.edu.au	Psychology
Dr John Power	john.power@unsw.edu.au	Physiology
Dr Asheeta Prasad	asheeta.prasad@unsw.edu.au	Psychology
A/Prof Ingvars Birznieks	i.birznieks@unsw.edu.au	Physiology
Dr Darren Saunders	d.saunders@unsw.edu.au	Pathology

Affiliated Institutes / Hospitals and Externals

Dr Hanka Laue-Gizzi	Prince of Wales Hospital, Neurology
---------------------	-------------------------------------

Consultations

A/Prof Moorhouse & Dr Goulton are happy to be approached for academic and administrative matters concerning the course. Please arrange an appointment by email, copying both into the email.

The Education Support Team is available to help with problems with enrolment and scheduling, and should be the first point of contact for administrative problems. Please contact via the UNSW Student Web Portal: <http://unsw.to/webforms>

COURSE INFORMATION

Course Structure and Teaching Strategies

Overview: Neuroscience Fundamentals (NEUR2201) is a stage two course worth six units of credit (6 UOC) administered by the School of Medical Sciences. It is delivered across 10 teaching weeks in term 2, with six contact hours per week. NEUR2201 can be undertaken upon successful completion of 12 units of background courses in BABS, BIOS or PSYCH, with many students completing the useful background courses: ANAT2511 BIOC2101 PHSL2101 and/or PSYC2081. The course is a compulsory part of the Neuroscience study plan in Advanced Science (NEURA13972) and in Science (NEURS13970) but is open to other students interested in Neuroscience. In 2018, NEUR2201 will commence in week 1, from Monday 3rd June, and finish in Week 10, Thurs 8th August

Course Structure & Class Times & Locations:

Five, two-week modules around a topic in Neuroscience. Each module consists of

- Two consecutive 1 hr lectures each Monday morning in Wallace Wurth LG03 (9 am-11 am)
- One 3 hour practical class on Wednesdays (10-1 am, or 2-5 pm) in the 1st week of each module held in the Wallace Wurth Physiology Labs (WW120 or WW116). The labs are hands-on activities related to the theme.
- One 2 or 3 hour tutorial on every other Wednesday (10-1 am, or 2-5 pm) in allocated Matthews tute rooms. Tutes comprises a variety of activities aiming to re-inforce or complement the module theme, and includes review or revision of the module content
- An ongoing module in-class assessments held on Thursday at the end of each module in the G06/07 computer labs in WW. This includes a quiz and/or short answer question

Non-contact hours: Students are strongly recommended to allocate at least six hours per week for additional self-directed study, which will include revision for assessments and working on the group project task.

Please consult the Course Schedule on Moodle for further details and for any updates

Course schedule

The current course timetable is on the NEUR2201 Moodle website. Please check the schedule and summary of each Module for any updates.

Requirements for Practical Classes

Practicals involving the use of animal or human specimens are a privilege, and must be treated with respect and professionalism. Students are expected to adhere to the [Australian code of practice for the care and use of animals for scientific purposes](#), and the [National Statement of Ethical Conduct in Human Research](#)

Students must take due care with biological and hazardous material and make sure all equipment is left clean and functional. Those unwilling to follow these basic laboratory rules will be marked absent. **Enclosed shoes are compulsory in all practical classes.** These must completely cover the feet. Some labs will require lab coats. Punctual arrival is expected, and mobile phones must be switched off before entering the class. Practical classes that involve student participation may require the subject to sign a witnessed, informed consent form.

Please see the printed Lab Manuals for details about each practical class and its Health and Safety requirements, and any pre-reading.

For more details see [Advice for Students-Practical Classes](#)

APPROACH TO LEARNING AND TEACHING

The philosophy underpinning this course and its Teaching and Learning Strategies is based on [“Guidelines on Learning that Inform Teaching at UNSW”](#). The teaching of Neuroscience Fundamentals is based on conceiving neuroscience as a core field of knowledge to which many different disciplines contribute. The course is structured in two-week modules that cover topics that are fundamental, but still active frontiers of investigation. Each topic is taught by several members of faculty drawn from different disciplines. In this way the scope and range of approaches in tackling major issues in neuroscience are made clear. Neuroscience is primarily an experimental discipline and so a proper appreciation of neuroscience requires an understanding of both what is known, and of the limitations imposed by our study tools.

Lectures provide the concepts and theory essential for understanding neuroscience. The practical classes assist in the development of research and analytical skills, and allow more interactive learning. The tutorials are a mix of case presentations, video material, critical analysis of literature and informal discussion to support the exploration of the material in more depth.

The primary source of information for this course is the material delivered in lectures, practical classes and tutorials, but effective learning can be enhanced through self-directed use of other resources such as textbooks. Your practical classes will be directly related to the lectures and it is essential to prepare for practical classes before attendance. It is up to you to ensure you perform well in each part of the course; preparing for classes; completing assignments; studying for exams and seeking assistance to clarify your understanding.

Students are strongly encouraged to attend the lectures in person, to enhance the learning experience and to keep up to date with the content most effectively. Where this is not possible, and for revision purposes, lectures will be recorded via the UNSW Lecture Recording+ system. Students are expected to attend 100% of practical classes and tutorials, and should provide the convenors a Medical certificate or similar supporting information when this is not possible. Class rolls will be marked in pracs and tutes.

Aims of the Course and Student Learning Outcomes

The overall aim of the course is to introduce students to the study of Neuroscience through a focus on current Neuroscience topics. Each topic is approached from different discipline perspectives, and from a scale ranging from molecular and cellular processes, through to the level of the whole animal. We aim for this course to provide a solid introduction to neuroscience that will facilitate further study in discipline focussed, more advanced, Neuroscience subjects.

Student learning outcomes

By the end of this course students are expected to have gained:

1. A knowledge of the broad scope of neuroscience as demonstrated by communicating examples of how different disciplines contribute to the study of a common challenge in Neuroscience
2. An understanding of the major cellular and whole animal features of the five modules – Neurotrauma, Epilepsy, Stress, Neuroplasticity and Motor Control Disorders. This understanding should be demonstrated by being able to communicate a basic description of the relevant aspect of normal brain function and how it is affected in the disease state leading to the disease symptoms.
3. An insight into the methods by which problems in neuroscience are investigated that includes a basic description of questions that may be addressed by such approaches and some limitations on the interpretations of this experimental data.
4. Experience and expertise in locating and appraising information related to neuroscience and succinctly presenting conclusions related to these enquiries. This expertise is demonstrated by being able to integrate media and scientific literature around a specific Neuroscience topic and presenting these conclusions in written and oral form.
5. Skills in working collaborately within a small group on a common Neuroscience project that is demonstrated by identifying strengths and weaknesses related to your teamwork experience and by producing a coherent and well integrated group project

Graduate attributes developed in this course

UNSW programs aspire to graduate:

- a) **Scholars** capable of independent and collaborative enquiry, rigorous in their analysis, critique and reflection, and able to innovate by applying their knowledge and skills to the solution of novel as well as routine problems;
- b) **Entrepreneurial leaders** capable of initiating and embracing innovation and change, as well as engaging and enabling others to contribute to change;
- c) **Professionals** capable of ethical, self- directed practice and independent lifelong learning;
- d) **Global citizens** who are culturally adept and capable of respecting diversity and acting in a socially just and responsible way.

ASSESSMENT

Assessment tasks

1) Ongoing on-line assessment quizzes (best 4 out of 5)	20%
2) Short answer practice & peer marking	10%
3) Group project <i>Neuroscience in the Media</i>	20%
4) Final exam	50%

1) Each module has a short quiz at the end of the fortnight, run during the Thursday assessment class. These quizzes are done online, and take about 15 minutes to complete. A variety of forms of assessment are used in the quizzes including multiple choice, single word answers, labelling figures and filling gaps in text. Each quiz is scaled to be worth 5%, with your best four results summed to give the 20% final mark. These quizzes also help you keep up to date on the content.

This assessment item addresses the course learning objectives 1, 2 & 3

Immediate feedback is given, providing an indication on your level of study and understanding of the content from lectures, tutes and practical classes in the preceding module

2) To give you some experience with the written question format of the final exam we will have in-class short answer questions (SAQs) at the end of each module. This will be peer-marked using a provided marking scheme, under moderation by your tutors. Part of the mark is allocated for your answer, and part of the mark is allocated for your peer assessment. The best four out of five SAQ marks will contribute to your final mark (2.5% each, total of 10%). These help you keep up to date on the content, and also provide some generic skills and practice in answering the SAQs in the final exam.

This assessment item addresses the course learning objectives 1, 2 & 3

Peer review enables you to get immediate feedback on short answer writing and on your own answer

3) The group project comprises submission of a group Wiki page on a Neuroscience topic of your choice, presentation of a summary of this topic to the class, reflection on teamwork, and participation in critical appraisal of a peer's Wiki. The details of the various components are described in detail in the Wiki link on Moodle.

This assessment item addresses the course learning objectives 4 & 5

Feedback on your Wiki will be provided by the end of Week 10 and you will get immediate feedback from peers and tutors during your presentation

4) The final exam is 2 hours long, and consists of thirty multiple choice questions, and five short answer questions (one per topic), of which you are required to answer four. The short answer Qs are similar in format to the practice written exams.

This assessment item addresses the course learning objectives 1, 2 & 3.

The final exam will be held some time between **16-31st August**

Marks will be incorporated into a final grade and released by UNSW

Any assessments not completed on the due dates will be marked as zero unless special consideration is granted. For assessments 1 and 2, this is typically via a supplemental assessment. For the final exam, this is typically in the form of a supplemental exam.

TEXTBOOKS AND READING LIST

Textbook:

Neuroscience: Exploring the Brain 3rd edition
Mark F. Bear, Barry W. Connors, Michael A. Paradiso
Lippincott Williams & Wilkins ISBN:0781760038
(recommended for students continuing in neuroscience)

or

Neuroanatomy and Neuroscience at a Glance 4th edition
Roger A. Barker, Francesca Cicchetti
Wiley-Blackwell ISBN:9780470657683

Recommended reading:

Principles of Neural Science; Kandel, Schwartz, Jessell, Siegelbaum & Hudspeth; McGraw-Hill

Medical Physiology, a cellular and molecular approach; Boron & Boulpaep; Saunder

Neuroscience; Purves, Augustine, Fitzpatrick et al.
Sinaur

The books are available from the UNSW Bookshop, and are held by the UNSW library.

Special Consideration

If you fall ill prior to, or during, an assessment you may be eligible for Special Consideration. This is now managed centrally, so please see this link for details:

<https://student.unsw.edu.au/special-consideration>

The course convenors no longer have input into the special consideration process. If your request for consideration is granted, a supplemental assessment may be organised, or increased weighting may be applied to completed assessments. If you miss the final exam, a supplementary exam (to be held between the 9th & 13th of September 2019) may be granted.

Student Policies and Resources

Please see <https://medicallsciences.med.unsw.edu.au/students/undergraduate/advice-students>

Student Administrative Matters

Please direct all enquiries via the UNSW Student Portal Web Forms <http://unsw.to/webforms>

Further Study

UNSW has a broad range of subjects dealing with Neuroscience, and you can take a major in Neuroscience as part of the BSc or BScAdv. Talk to Dr Vickery, who is the Program Authority for Neuroscience, if you would like more information on further study options.