The Neuroscience Major

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The study of neuroscience encompasses a diverse range of disciplines that cross traditional subject boundaries. The study of neuroscience ranges from anatomy to neuronal function, from the cellular and molecular biology of the neuron to the complex phenomena of perception, emotion and memory, from the regulation of breathing and blood pressure to coordination and execution of complex movements, from development to ageing, normal cognition to neurodegeneration, brain trauma and mental illness.

A major in Neuroscience is designed to provide a foundation in the basic biology of the brain’s cells, neuroanatomy as well as fundamentals of cognition. Students are able to choose subjects from anatomy (NEUR subject code), physiology (NEUR subject code), pharmacology (PCOL) and psychology (PSYC) in order to focus their cross-disciplinary studies with a molecular, cellular, anatomical or behavioural concentration.

A cross-disciplinary major requires careful selection of subjects to fulfill the requirements of the major. You will need to complete your particular degree requirements that must include 24 senior credit points from at least two of the three possible subject areas NEUR, PCOL and PSYC.

Qualifying subjects are listed below. All of the recommended units are not required. Senior units must be chosen from the list provided.

You must also complete the requirements of your particular degree, which may include minimum/maximum junior credit points and specific mathematics requirements.

Advice for students commencing a neuroscience major

• Consider your senior units first. This will help determine your focus as you move through your studies. You can change your mind, but it is important to schedule in the foundation subjects for your desired pathway.
• MBLG (junior 1xxx level or intermediate 2xxx level) is a requirement for several of the senior NEUR subjects so it is strongly advised to schedule these in your first few semesters.
• BIOL1003 (human biology), offered in semester I or summer school, is a prerequisite for ANAAT2010 (Concepts in Neuroanatomy) which is, in turn, required for NEUR3005/3905.
• MBLG1001 (or MBLG2xxx) is strongly recommended as it forms a prerequisite for NEUR3005 and NEUR3006.
• For NEUR3006, PHSI2005 is required; 6 units of CHEM are required for PHSI2005.
• Senior units can be applied to one major only. If you are planning two majors, you need 24 distinct credit points towards each major.

Recommended junior units of study – select according to your focus

a) 12 credit points from junior units of study from the science subject area of

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mathematics

b) 24 credit points junior units of study from science subject areas of biology, chemistry, physics, psychology and molecular biology, computer science.

c) BIOL1003/1993/1903

d) MBLG1001/1901

**Recommended intermediate units of study- select according to your focus**


*offered in 2016

**Required senior units of study**

At least 24 credit points (4 subjects) must be chosen from the units of study listed below. Credit points for senior units of study must be selected from at least two (2) of the three (3) subject areas: NEUR, PCOL and PSYC. That could be NEUR+PCOL, NEUR+PSYC or NEUR+PCOL - or better yet, all three to have a truly solid foundation in neuroscience.

**Neuroscience (taught within the Disciplines of Anatomy and Physiology)**

Semester 1  NEUR3005 (3905), NEUR3006 (3906)
Semester 2  NEUR3003 (3903), NEUR3004 (3904)

NEUR3001(3901) and NEUR3002(3902) may be applied towards the major but will not be offered after 2015. These subjects have been re-structured as NEUR3005 and NEUR3006. If you have taken NEUR3001/NEUR3002, you cannot enroll in these new subjects.

**Psychology**

Semester 1  PSYC3013, PSYC3014 (3914)
Semester 2  PSYC3011, PSYC3012

**Pharmacology**

Semester 2  PCOL3022 (3922) Neuropharmacology

**Honours, Graduate Diploma and Post-graduate Research**

Neuroscience research is diverse and vibrant. It is an international priority area, with important work on diseases of the brain, mental illness, pain, brain mapping with new imaging techniques, neuronal and glial cell biology, drug development, neural circuitry and more.

Opportunities for high-achieving students to undertake honours study within the field of neuroscience can be found across the Disciplines. Honours projects can be undertaken within individual disciplines: physiology, anatomy, pharmacology, psychology, pathology and associated research institutes. Students should canvass respective disciplines during their senior studies for details of projects, admission criteria and enrolment details for honours study. Students can also undertake a graduate diploma in one of the disciplines.