

ANAT 3411 NEUROANATOMY 1

COURSE OUTLINE 2014

Staff Contact Details

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Course Information

ANAT3411 Neuroanatomy is a 6UoC course. It is offered as component of the Anatomy major in the BSc and BMedSc or as a year 3 elective in other BSc and BMedSc programs. It is also a compulsory part of the Neuroscience major in the BSc (Adv) program. It builds on the basic knowledge of the nervous system, previously obtained in either ANAT2111, ANAT1551 or ANAT2511 and provides the background (prerequisite) for NEUR3421 Research Topics in Neuroscience (offered in Session 2). It also provides a useful (though not compulsory) basis for NEUR3221 Neurophysiology (offered in Session 2). We try to put student learning in context, with reference to the latest developments in research and discussion of relevant clinical cases and scenarios. Students will also have the opportunity to extend their understanding of a chosen area and to develop skills in self-directed learning and critical evaluation by doing a short research project.

Course Aim

The aim of this course is to provide students in the BSc and BMedSc programs with a basic understanding of the structural organisation of the human central nervous system in sufficient depth to form the basis for further clinical or research studies of the nervous system.

Specific Objectives of the Course

- (i) To provide an overview of the topography and structural organisation of the brain and spinal cord.
- (ii) To describe the basic features of development of the nervous system and to understand how and why common malformations occur in the nervous system.
- (iii) To understand the ultrastructure of neurons and glia and the major cytoarchitectural features of the brain and spinal cord.
- (iv) To obtain a basic understanding of the techniques used to investigate morphology and connections of neurons to provide the basis for further research into the nervous system.
- (v) To obtain an understanding of the functional anatomy of sensory and motor processing and higher cerebral functions such as language and emotions and to be able to apply this knowledge to the clinical situation.
- (v) To understand the principles of the blood supply and venous drainage of the nervous system and to be able to deduce the effects of rupture or occlusion of the major vessels.

Student Learning Outcomes

At the conclusion of the course students will be able to identify the major features of the brain and spinal cord (in prosected specimens, models and cross-sectional images), to describe the structural and functional relationships between these structures, and to apply this knowledge to further research and clinical studies.

Course Relationships

ANAT3411 is offered as component of the Anatomy major in the BSc and BMedSc or as a year 3 elective in other BSc and BMedSc programs and in the BExPhys program. It is also a compulsory part of the Neuroscience major in the BSc and BSc (Adv) programs. It builds on the basic knowledge of the nervous system, previously obtained in either ANAT1521, ANAT2111 or ANAT2511 and provides the background (prerequisite) for NEUR3211 Research Topics in Neuroscience (offered in Session 2). It also provides a useful (though not compulsory) basis for NEUR3221 Neurophysiology also (offered in Session 2).

Changes since 2013

- The Autonomic Nervous System and Blood Supply practical classes have been modified to reduce the detail required.
- Minor changes have been made to the learning activities in some practical classes to accommodate the new version of BrainStorm
- A new lecture on Motor Neuron Disease (non-examinable) has been added.
- There will be a Review lecture on long tracts for the first lecture of week 7. There will be no lecture on the second lecture slot of that week (just after Spot Test)
- The revision class will be run in Week 13, rather than during the exam period

Teaching rationale

Student engagement with the ideas and material covered in the course underpins all the learning activities. The role of the teacher (lecturer/tutor) is to impart knowledge, but also to help students navigate their way through the vast subject that is anatomy. Students should feel free to question and think critically, even about basic knowledge covered; things that might be considered unwavering 'facts'. With this in mind, students are strongly encouraged, and will be supported to be enquiring, to ask questions, make pertinent observations, and to share experiences and knowledge with the lecturer/tutors and classmates. The philosophy of the course is also fundamentally about helping students to develop an enthusiasm for learning. This course also aims to exploit the teaching-research nexus, by feeding research findings and developments, as well as knowledge and skills of the teachers, into teaching and learning.

Teaching Strategies

The course involves 6 hours per week of instruction - 2 lectures and 2 x 2 hour practical classes.

Lectures are intended to give an overview and theoretical framework for each topic, and provide the basis for each practical class. In practical/tutorial classes, students working in small groups under the guidance of their tutor will identify key structures in prosected specimens, models and on sections and MRI images of the brain using

computer software (BrainStorm). Students will also participate in tutorial discussion on relevant functional and clinical aspects.

Lectures

Monday	1-2 p.m.	Biomed B
Thursday	5-6 p.m.	Biomed E

Tutorial/Practicals

Thursday	1-3 or 3-5 p.m.	Dissecting Room (101) WW
and Friday	10-12 or 12-2 p.m.	Dissecting Room (101) WW

Some practical classes (involving computers) will be also use WW Rm G16 (Thursdays) or G08 (Fridays).

Lecture recordings

Digital recording of all lectures will be made via the University's *Echo* system. Lecture PowerPoint presentations will also be available for the student to view whilst listening to these recordings (within a couple of days of the lecture being given). Lectures will also be downloadable as PodCasts. Note that hardcopies of the lecture will not be provided. Lectures and accompanying materials will be available prior to the lectures on the *Moodle* course homepage.

Diagrams for Lectures

When diagrams are required for students to complete during lectures they will be uploaded to be the Moodle course website on the day before each lecture. If you wish to use these, please print them and bring them to the lectures with you.

Attendance

Students are expected to attend **at least 80% of all scheduled learning activities**.

Attendance at practical classes will be recorded and students who do not attend at least 80% of practical classes may be prevented from undertaking examinations in this course. Please note that absences due to illness or misadventure will be factored into the 20% of allowable absences.

Please read University the rules for attendance at the following URL:

<https://my.unsw.edu.au/student/atoz/AttendanceAbsence.html>

Guidelines on extracurricular activities affecting attendance can be found at:

<http://medicalsciences.med.unsw.edu.au/sites/soms.cms.med.unsw.edu.au/files/Extra-curricularActivitiesSOMS.pdf>

Resources for Students

Text Book:

John Nolte: The Human Brain: An Introduction to its Functional Anatomy, 6th ed. C.V. Mosby, 2008. This is a comprehensive text.

OR

Crossman, A.R. and Neary, D. Neuroanatomy An Illustrated Colour Text, 4th ed. Churchill Livingstone, 2010. This text is adequate but covers just the essentials.

BrainStorm Software:

Now available online. Login details will be provided at the commencement of the course.

Previous version:

E.Tancred and G. Coppa: BrainStorm: Interactive Neuroanatomy 3.6 (for both PC and Mac computers) available on CD from UNSW Bookshop (online) or from Carmen Robinson, Rm G27 Biosciences Bldg.

Good Reference Books Available in Library

M.F. Bear, B.W. Connors and M.A. Paradiso. Neuroscience – Exploring the Brain, 3rd ed., Lippincott Williams and Wilkins, 2007.

Waxman, S, G., Clinical Neuroanatomy, 26th ed. McGraw Hill, 2010.

M.J.T. Fitzgerald, J. Folan-Curran. Clinical Neuroanatomy and Related Neuroscience, 4th ed., W.B.Saunders, 2001.

J.A. Kiernan: Barr's The Human Nervous System. An anatomical Viewpoint, 9th Edition. J. B. Lippincott, 2008.

D. E. Haines: Neuroanatomy. An Atlas of Structures, Sections and Systems: 7th Edition. Urban and Schwarzenberg, 2007.

E.R. Kandel, J.H. Schwartz, T.M. Jessell, S.A. Seigelbaum, and A.J. Hudspeth. Principles of Neural Science, 5th ed. Elsevier, 2013

C. Watson, M. Kirkcaldie, and G. Paxinos, The Brain. Elsevier, 2010

Revision Facilities

BrainStorm is available on all student computers in the Wallace Wurth Building, including those in G08 and G16/17. Models and dissections of anatomical structures are available in the Anatomy Museum (Rm G9). The Anatomy Museum is open from 8 a.m. – 5 p.m. Monday to Friday.

Assessment

Spot Test 1	20%
Spot Test 2	20%
Assignment (due Monday week 12)	15 %
Final exam (2hr written paper)	45%

Practical and theory examinations will be based on the specific objectives, learning activities and recommended reading listed for each class. For practical examinations (Spot tests) you will be expected to be able to identify structures shown in bold type in the class notes and to answer simple theory questions about these structures.

The theory examination will include both multiple choice and written questions and will test understanding of the structural organization of the brain, spinal cord and cranial nerves and its relationship to function according to the Specific Objectives defined earlier.

Neuroanatomy Assignment

The Neuroanatomy assignment is a compulsory component of the course. It will provide an opportunity for students to develop their critical thinking skills by undertaking a literature review of current research on a topic of their interest.

The purpose of this assignment is to help you to develop skills in the (UNSW) graduate capabilities listed below:

- *Research, inquiry and analytical thinking abilities.* Technical competence and discipline specific knowledge. Ability to construct new concepts or create new understanding through the process of enquiry, critical analysis, problem solving, research and inquiry
- *Communication.* Effective and appropriate communication in both professional (intra and inter disciplinary) and social (local and international) contexts
- *Information literacy.* Ability to make appropriate and effective use of information and information technology relevant to their discipline.

This assignment is **compulsory** and is worth 15% of your final mark for this subject

Your assignment should be **no longer than 2000 words in length** and you are encouraged to use diagrams where appropriate. References should be cited in the body of the assignment.

Due Date:

This report should be handed in to **Rm G27 in the BioSciences Bldg by 4.30 p.m. on Monday May 26 (beginning of Week 12)**. Marks will be deducted for assignments that are handed in after this time, unless Special Consideration is granted.

Assignment Topics and Assessment Criteria for 2014:

These will be distributed separately after the commencement of the course.

Supplementary Exams

It is intended that the supplementary exam (if required) for ANAT3411 in Semester 1, 2013 will be held on **the 16th, 17th or 18th of July, 2014**. Please note that applications for Special Consideration for supplementary exams are not usually accepted except in TRULY exceptional circumstances.

Applications for Special Consideration

The School of Medical Sciences follows UNSW guidelines when you apply for special consideration on the basis of sickness, misadventure or other circumstances beyond your control. For further information, see:

<https://my.unsw.edu.au/student/atoz/SpecialConsideration.html>

Please note the following:

1. Applications must be submitted online to UNSW Student Central. It would also be appropriate for you to inform the course convenor that you have lodged an application.
2. You must submit the application as soon as possible and certainly within three working days of the assessment to which it refers. Late applications will only be considered in exceptional circumstances.
3. Submitting a request for Special Consideration does *not* automatically mean that you will be granted additional assessment or awarded an amended result.
4. Your application will be assessed by the course convenor on an individual basis. Note that UNSW Guidelines state that special consideration will not be granted unless academic work has been hampered to a substantial degree (usually not applicable to a problem involving only three consecutive days or a total of five days within the teaching period of a semester). Under such circumstances, the School of Medical Sciences reserves the right to determine your result on the basis of completed assessments.
5. You should note that if you are granted additional assessment or a supplementary examination (which is *not* guaranteed), that assessment may take a different form from the original assessment. Furthermore, the results of the original assessment may then be overridden by the results of the additional assessment, at the discretion of the course convenor. Also be aware that a revised mark based on additional assessment may be greater or less than the original mark.

Applications for Review of Results

Application for a review of results must be made within 15 working days of receiving the result. For further information and application form for a review of results go to:

<https://my.unsw.edu.au/student/academiclife/assessment/Results.html>

Official Communication by email and Moodle

All students in ANAT3411 Neuroanatomy are advised that email is the official means by which the School of Medical Sciences at UNSW will communicate with you. All email messages will be sent to your official UNSW email address (e.g. z1234567@student.unsw.edu.au) and, if you do not wish to use the University email system you MUST arrange for your official mail to be forwarded to your chosen address. The University recommends that you check your email at least every other day. Facilities for checking email are available in the School of Medical Sciences and in the University Library.

Official announcements relating to the course will also appear on the ANAT3411 page in Moodle, so please make sure that you check this regularly.

Equity and Diversity issues

Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course convener prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Equity and Diversity Unit (9385 4734 or www.studentequity.unsw.edu.au/)

Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements.

Grievance Officer

In case you have any problems or grievance about the course, you should try to resolve it with the Course Organizer. If the grievance cannot be resolved in this way, you should contact the Head of Department or the Department's Grievance Officer (Dr. Priti Pandey (Office: 32 Botany St, Randwick; email: p.pandey@unsw.edu.au)).