



Faculty of Medicine
School of Medical Sciences

ANAT 1521/2111

Introductory Anatomy

T2- 2019

COURSE OUTLINE

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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

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Appointments with any of the above academics should be arranged **via email**.

Please email from your **official UNSW student account**, include your **student number, course code** and state the **subject** clearly. Content questions preferably should be posted in the Moodle Forum.

Course Details

Units of Credit and Hours of Study

This course is worth six units of credit (6 UOC). This is a blended learning course (i.e. has both face-to-face and online learning activities) and consists of 6 hours per week of scheduled learning activities. These comprise one hour of web-based online video lecture activity, one hour of face-to-face seminar, a three-hour practical laboratory and one hour of online independent tutorial activities each week.

What is anatomy?

Anatomy literally means to break apart or separate the human body into its parts; to dissect the body. The earliest recorded anatomy teachers, Herophilus and Erasistratus, lived in Ancient Alexandria and taught anatomy between 300 BC and the second century AD. However, the roots of anatomy go back much further – perhaps 4,000 years ago – with the mummification practices of the Ancient Egyptians and with the Ancient Greek physicians. The most famous anatomist is the Ancient Roman Galen, whose work remained the standard for almost 1,300 years until the European Renaissance. During and after the Renaissance, anatomy developed into a modern scientific discipline. Therefore, anatomy is one of the oldest scientific fields and one that has always and continues to underpin medicine. It is also a well-established scientific discipline in its own right.

Anatomy is a dynamic and diverse science that considers the structures of the body from the cellular level through to the body's external surface and beyond. Anatomy examines the cells and tissues of the body (cell biology and histology), the systems of the body (integumentary, skeletal, muscular, nervous, cardiovascular, lymphatic, respiratory, alimentary, urinary, genital and lymphoid systems), the joints, movements and biomechanics of the human body, human comparative and evolutionary anatomy (anthropology), the development of the embryo and postnatal growth of the infant and child, as well as clinical and radiographic anatomy. Anatomy at UNSW teaches and researches across most of these areas. Note that the term *gross anatomy* refers to the study of the structures of the body that are observable without the aid of microscopes (i.e. the naked eye) and which can be palpated (touched), while *microanatomy* is sometimes used to refer to the microscopic structures of the body (e.g. tissues; the subject of histology).

Course aims

This course aims provide students with an understanding of the structure and organisation of the human body as it relates to function.

This course provides an introduction to the topographical anatomy of the whole human body, based on the study of prosected human specimens. Topics for study include: general topographical and descriptive anatomy, and the musculoskeletal, nervous, cardiovascular, special sensory organ, respiratory, digestive, urinary and reproductive systems. This course is designed for students who require the broad study of human anatomy, as well as those who wish to proceed to Level III studies or a major in Anatomy.

Student learning outcomes

At the end of the course, students will be able to:

1. Demonstrate an understanding of the ethical considerations, and good practice of, working with human cadaveric tissue
2. Demonstrate the appropriate use of anatomical terminology
3. Demonstrate an understanding of the structure and function of the following body systems and their components: musculoskeletal, nervous, cardiovascular, special sensory organ, respiratory, digestive, urinary, and reproductive system of the human body
4. Explain how the function of body systems is interdependent

The University of NSW has developed a list of attributes which its graduates should possess upon graduation (the 'graduate attributes'). This course has been designed to help students to develop these capabilities. Students completing the course will have gained knowledge and skills that contribute to directly to them acquiring these attributes during their study at UNSW. One way this has occurred is through curriculum mapping of this course.

See medsciences.med.unsw.edu.au/students/undergraduate/advice-students#graduate

Course relationships

Introductory Anatomy is the foundation course for all advanced (Level III) gross anatomy courses at UNSW: *Visceral Anatomy* (ANAT3121), *Anatomy of Head and Neck* (ANAT3131), *Functional Anatomy of Limbs* (ANAT3141; ANAT2451) and *Neuroanatomy* (ANAT3411). A number of other courses offered by anatomy compliment these gross anatomy offerings: *Histology: Basic and Systematic* (ANAT2241) and *Embryology: Early and Systematic Development* (ANAT2341). More generally, anatomy courses compliment the subjects offered by other areas within the School of Medical Science (i.e. Physiology, Pharmacology, Pathology and Health and Exercise Science) as well as courses taught in biological science, biomolecular science and genetics, psychology, biomechanics, vision science, food science and nutrition, medical microbiology and immunology, and engineering.

Prerequisite courses: BABS1201 - Molecules, Cells and Genes (UG) or a A pass in BABS1201 plus either a pass in ANAT2241 or BABS1202 or BABS2202 or BABS2204 or BIOC2201 or BIOC 2291 or BIOS1101 or HESC1501 or PHSL2101 or PHSL2121 or VISN1101

Teaching rationale

Student learning and engagement with the content of the course underpins all learning activities.

Online interactive lectures - Students are required to work with online lectures in **preparation** and **prior to attending a weekly one-hour face-to-face seminar**. These lectures are available online (see corresponding weekly folder in Moodle). They aim to present essential concepts and theoretical details on specific topics throughout the course. These lectures are interactive with incorporated sets of questions aimed to guide and reflect on understanding the key concepts. However, these lectures are not designed to provide the entire content required for achieving the learning outcomes for the course. With the help of online interactive lectures, you should be able to navigate the content further independently through the prescribed textbook. In addition to working with online lectures, **in preparation** for the weekly face-to-face seminars and tutorials, students are also required to read corresponding pages in the **prescribed textbook** (see Moodle for instructions).

Face-to-face seminars - These weekly compulsory sessions are designed to **consolidate major concepts** that have been introduced by online lectures and content introduced by independent work with the textbook. During seminars, with the assistance from lecturers, you will be making notes and undertaking activities that aim to apply the material prior to attending the laboratory session.

Laboratory practicals - The purpose of weekly **compulsory** practical sessions is to give students **first-hand experience** of the content covered. During these three-hour weekly sessions, students also will identify the gross anatomical structures and their features, practice anatomical terminology and discuss the concepts studied in preparation to the weekly topic. The anatomy laboratory is the best resource to learning anatomy and is a wonderful place of privilege, discovery and discussion. The gross anatomy laboratory sessions are small group sessions that allow students to explore prosected (professionally dissected) specimens of the human cadaveric material. Although, the tutor is present to guide you through the activities in these sessions, these sessions are meant to be led by students working in groups of 4-5. Working in small teams, you will be consolidating content and apply problem-solving approach. It is also a good opportunity to discuss with peers and teaching staff difficult topics and receive an informal feedback.

Virtual Anatomy Adaptive Tutorials will be made available to students via a link in Moodle during this course and they are included as a part of content delivery and a good way to check your understanding of a topic. These tutorials are a series of interactive questions based on applying the content covered in lectures and laboratory sessions and are a useful resource in consolidating and revised course content. Sessions are structured to encourage student participation in these activities and to enhance your learning. You will benefit most if you undertake these tutorials consistently. Some of these tutorials may also be done during allocated time within the course timetable. The focus of these tutorials is to apply the principles of anatomy to function.

Labelling exercises – these practice tasks allow you to informally check your understanding of the content as well as to independently assess your performance. These practical tasks aim to assist with learning terminology and grasping difficult concepts.

Online quizzes – these online tests are based on the multiple-choice questions (MCQ). Online quizzes will be made available for you in Moodle (see weekly folders) for formative (non-graded) assessment of your own performance. You will be able to practice answering MCQ content-based questions, therefore, preparing for the continuous assessments and final examination, all of which contain MCQ questions.

Independent study - There is insufficient time in the lectures, workshops and practicals for you to develop a deep understanding of the concepts covered in this course. In order for you to achieve the learning outcomes that will be assessed, you will need to revise the material presented in the course regularly. You will probably also need to do additional reading beyond the lecture materials in order to learn effectively. Relevant additional resources, including textbook chapters, will be cited in lecture and practical sessions.

Assessments - Continuous assessment tasks have been chosen as tools to enhance and guide your learning as well as a way of measuring performance and are therefore a central teaching strategy in this course. There are three continuous assessment tasks: **Test 1** is based on the content of the first 3 weeks of the course; **Test 2** includes the content of weeks 4-6; and **Test 3** includes the content of the last 4 weeks of the course. Each test is worth **20% (60% in total)**. Each test comprises of a **practical spot test and a quiz**. The spot test assesses knowledge learned and skills obtained during practical classes through the identification of structures on cadaveric specimens. The multiple-choice quiz component is conducted online. A single 2-hour **written final examination (40%)** will be held during the formal examination period to assess student knowledge of course content and to assess deeper learning (such as the ability to make connections between ideas or to assess capacity for problem-solving). The written exam comprises of multiple choice questions and short answer questions and will test knowledge obtained from seminars, laboratories and online activities.

Attendance

Your attendance at seminars, laboratories and tutorials is IMPORTANT, including Week 1, in which key information such the course structure and assessments, laboratory safety, ethical considerations and procedures will be discussed. Attendance in all activities is highly recommended and our expectation is that **all** practical sessions will be attended.

Please note that should you be unable to attend your practical class for any reason, you will not be able to do “make-up” labs.

Course Structure

It is strongly recommended that students attend all face-to-face workshops and practical laboratories. The workflow of a typical week includes the following activities:

1. **Preparatory activities** – activities available via Moodle (video lectures, readings etc.) should be completed prior to attending face-to-face activities in each week. Please note that there are online activities need to be completed **before** the seminar in Week 1.
2. **Face-to-face seminars (all students)** - Monday (Clancy Auditorium): 11-12pm; please note that in addition to the Mon seminars, there is one seminar (CLB 7 in week 2) that has been scheduled in the ‘Rescheduled seminar/tests’ timeslot at Friday 5-6pm.
3. **Laboratory practical sessions** (D26, level 1, Anatomy labs) – students have been assigned to ONE of these sessions:
2111 Group 1 – Tue, 10am-1pm; Group 2 – Tue, 1-4pm.
1521 Group 1 – Thu, 10am-1pm; Group 2 – Thu, 1-4pm. **Students are only allowed to attend the assigned time slot.**
4. **Online independent activities** (Moodle, weekly folders) - available via Moodle and include adaptive tutorials, trial quizzes, labelling practical activities.

Resources for students

Prescribed Text:

Marieb EN, Wilhelm PB & Mallat J (2017). *Human Anatomy, 8th ed.*, Pearson.

Atlas:

Hutchinson M, Mallat J, Marieb EN, Wilhelm PB (2007). *A Brief Atlas of the Human Body, 2nd ed.*, Pearson Benjamin Cummings. Electronic Resource: Anatomy Practice Lab 3, Pearson.

Other books that are useful and may be used as texts instead (available in the Library):

- Snell, R. (2012). *Clinical Anatomy by Systems. 9th ed.*, Lippincott, Williams and Wilkins.
- Drake, R. et al. (2014). *Gray's Anatomy for Students. 3rd ed.*, Churchill Livingstone (**available ONLINE**)
- Moore, K. & Dalley, A. (2018). *Clinically Oriented Anatomy, 8th ed.* Wolters Kluwer.
- Tortora, G.J. and B.H. Derrickson (2018). *Tortora's Introduction to the Human Body, 11th ed.* John Wiley & Sons Australia Ltd.
- Rohen, J., Yokochi, C. & Lütjen-Drecoll, E. (2006). *Color Atlas of Anatomy: A Photographic Study of the Human Body, 6th ed.* Lippincott, Williams and Wilkins.

See also medicallsciences.med.unsw.edu.au/students/undergraduate/learning-resources

Continual course improvement

For course evaluation, feedback has been gathered at the completion of the course, using among other means, UNSW's Course and Teaching Evaluation and Improvement Process and myExperience. Student feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback.

The Introduction to Anatomy course has been a part of the UNSW 2025 Strategy Inspired Learning Initiative and has been significantly redesigned based on not only student feedback but also on best practices in learning and teaching using an interactive, flipped classroom approach. The changes to the course included:

- We have significantly reviewed and streamlined the course delivery.
- Didactic lectures have been replaced with online interactive mini-lectures, incorporating animations, and PowerPoint voiceovers. This will enable students to engage more easily with content that is delivered and allow students flexibility to pause to make effective notes and to review content as they encounter difficulty.
- Face-to-face seminars have been introduced with interactive workshop-type activities aiming on grasping the major concepts of the weekly content prior to attending the laboratory sessions
- 3 hour laboratory practicals have been introduced instead of 2h labs as follow-up from the seminar. These practicals will allow students to explore the structure and location of the components of each system on human cadaveric specimens. An additional hour will enable students to engage in team-based learning aiming on trouble-shooting, problem-solving and developing deep understanding of the content. This also will allow students to clarify any issues/misunderstanding directly interacting with peers, tutors and academics.
- The online 'trial' quiz questions associated with weekly content will help students to independently assess and reinforce their understanding of key concepts.
- The online components of the course are presented in a weekly format on Moodle and include a variety of activities that students can use to assess and receive immediate feedback on their learning. These include quizzes, videos, adaptive tutorials and self-guided museum visits. This choice of review activities will enable students to select the ones that suit their learning style. These consolidating activities supplement self-directed studies in preparation to spot tests and quizzes as well as a formative type of self-assessment.

Assessment

1. Continuous assessment	60%
Test 1	20%
Test 2	20%
Test 3	20%
2. Theory Exam	40%

Continuous Assessments

This consists of three tests. Each test is worth 20%, totalling 60% for the three tests altogether. Each test comprises of a practical spot test and a quiz. The spot test assesses knowledge learned and skills obtained during practical classes through the identification of structures on cadaveric specimens. The multiple-choice quiz component is conducted online. Students may be required to bring an electronic device capable of accessing the quiz on the Moodle platform.

Theory Exam

A single 2-hour written exam is worth 40%, and it will be held during the formal examination period. It assesses student knowledge of the course content and deeper understanding (such as the ability to make connections between ideas or to assess capacity for problem-solving). The written exam comprises of multiple choice questions and short answer questions and will test knowledge obtained from seminars and laboratories.

Access to previous exam papers

Past exam papers are **not** available to students. **Sample** questions are **provided** during lectures, revision activities and are published via Moodle.

Failure to complete an assessment

In case if you miss any part of your assessment due to misadventure or illness, an application for Special Consideration should be lodged online in myUNSW before the assessment is due.

Failure to sit a test or exam without lodgment of an application for **Special Consideration** will lead to automatic failure of the test. An absence from a test or exam must be supported by a medical certificate or other document that clearly indicates you were unable to be present. That certificate should be dated the same day as the examination.

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

The supplementary examination dates for T2 are: 09/09/19 -13/09/19.

Ethical behaviour and human remains

In this course, you will be required to study human anatomical specimens. Each year, people donate their bodies to UNSW via a Bequeathal Program so that you and your colleagues can learn about the human body. The donations are provided through the extraordinary generosity of the public (our donors and their families). This is a special privilege afforded very few people. By law, responsibility to the donor and their family members, and as a matter of good ethical practice you must treat all human remains with great respect and care (see below). The University operates the Bequeathal Program under the Code of Practice noted below, which all students are required to adhere to.

Code of Practice:

The University recognises the magnitude of the contribution made by those who donate their bodies for the teaching of anatomy and it is committed to treating the human remains entrusted to its care with the utmost respect and professionalism. In keeping with this commitment, the University requires its employees and students to uphold all legal, public health, and ethical standards associated with the handling of bodies and human tissue samples. Any activity which undermines its ability to meet UNSW's legislative obligations, or which devalues the contribution made by those who donate their bodies for the purposes of the teaching of anatomy to students will be in breach of this policy and subject to further action.

See medicalsciences.med.unsw.edu.au/students/undergraduate/advice-students#Practicals

The Use and Handling of Specimens (i.e. human remains) in the dissecting room

Prior to attending the practical classes, you should read the section below on the handling and use of anatomical specimens.

1. In this and other courses, you will be required to study human anatomical (prosected/professionally dissected) specimens. By law, responsibility to the donor and their living family members, and as a matter of good ethical practice, you must treat all human remains with great care, showing them the respect, you would afford a living person. Any inappropriate handling will result in exclusion from the class and possible suspension from the course.
2. Moreover, you must at all times show respect for your tutor and colleagues. Some people react differently to human remains; certain parts of the body may be culturally sensitive or even offensive; some students find working with human heads to be disturbing.
3. Students **must** bring and wear a laboratory coat for all laboratory classes and **must** wear closed toe shoes. Moreover, you **must** wear disposable gloves when handling wet specimens, and at no times are you allowed to eat or drink in the dissecting room. **Failure to comply with these rules will result in you being asked to leave the dissection room.** These are occupational health and safety requirements of the School of Medical Sciences. First aid kits are also provided in the dissection room in the event of an injury during a laboratory class.
4. The solution that most of the human remains are stored in is a mild disinfectant and poses no danger to students when handled correctly. Thus, the floral smell is the disinfectant, and has nothing to do with decomposition of the bodies: they are preserved in formalin and do not decompose under laboratory conditions. They can, however, dry out/discolour through regular use and exposure to air.
5. Due to the delicate nature of the human brain, these specimens are stored in formalin. This chemical emits a strong odour; harmless, unless ingested or exposed to in high concentrations over long periods of time. Please do not spend too long handling such specimens as you might find the fumes cause discomfort. If they do, simply excuse yourself from the class (inform your tutor) and quietly leave the cubicle or laboratory for some fresh air.
6. Some students feel uncomfortable, even physically sick the first time (or few times) they study prosected human remains. This is a common reaction among students and is nothing to be ashamed about. If you feel discomfort when handling remains, simply stand back and observe and communicate with other students in your group while they handle remains. If you feel sick, simply excuse yourself from the class (inform your tutor) and quietly leave the cubicle or laboratory for some fresh air.
7. When handling these materials please be very careful. Always wear gloves, use instruments such as forceps and probes to touch structures, and keep handling to a minimum. Do not move remains from one bench to another. If they need to be moved, ask your tutor to do it.
8. When you have been handling wet specimens always remove your gloves before handling models. Moreover, always wash your hands with soap at the basins in the dissection room when a class has finished (i.e. before leaving the dissection room). Make a habit of practicing good hygiene to look after yourself and others (classmates, other students and your family).
9. Anatomical models must also be treated with great care. Proper handling is essential: do not pick up a cranium by placing your fingers in the orbits, as this will lead to breakage of delicate bones. Instead, pick it up by placing one hand across the braincase, just behind the orbits, and the other hand beneath its base.

Anatomical terms

One of the largest challenges for new students in anatomy is learning anatomical terms. In many ways the process is like learning a new language. All scientific disciplines have a set of terms and across the whole of science they are derived mostly from Latin and Ancient Greek words. Why Latin and Ancient Greek? Latin, in particular, is a 'dead' language, meaning that no one alive today uses it as the 'mother' tongue. Thus, it is not subject to fashions and constant change, like most living languages, especially English. Moreover, the spelling of Latin and Ancient Greek words has been agreed to for a long time.

In Australia and other English-speaking countries, anatomical terms are Anglicised (translated to English). This means that in many cases the terms we teach are the English equivalent of the Latin or Greek word (e.g. Latin = *Corpus ossis ilii*; English = Body of the ilium). There are, however, still plenty of Latin and Greek terms used. Their pronunciation, however, is an entirely different matter. It varies greatly across English speaking countries; even at UNSW you will find lecturers employing different pronunciations, partly as a result of where they learned their anatomy! What matters is that we all know which structure we are referring to when we use a particular term; there are no points for correct pronunciation as most of the variants are equally correct!

An international organisation called the *Federative Committee on Anatomical Terminology* with representatives from many countries has published the standard (agreed) set of anatomical terms that anatomists follow. It is called *Terminologia Anatomica* and the last edition was published in 1998. Most internationally oriented textbooks (such as *Gray's Anatomy*) apply *Terminologia Anatomica*. In this course, we strive also to use this standard set of anatomical terms as much as possible as we believe that is represents best international practise as well, as making it easier for you to learn. The terms that you need to know in laboratory classes are given in **bold**. You should, however, endeavour to understand all of the information given in laboratories in order to do well in the course.



Student Risk Management Plan

Hazards	Risks	Controls
<p>Physical Cold temperature (16°C) Sharp bone/plastic</p> <p>Biological Fungi, bacteria (tetanus), hepatitis B and C</p> <p>Chemical Formaldehyde Methanol 2-phenoxyethanol</p>	<p>Cold Penetrating wound of foot</p> <p>Infection</p> <p>Corrosive/Flammable Irritant/toxic Irritant</p>	<ul style="list-style-type: none"> Wear laboratory coat over appropriate warm clothing Wear enclosed shoes with full coverage of the dorsum of the foot Have appropriate immunisation Do not eat, drink or smoke in the Gross Anatomy Lab Do not place anything (e.g. pens, pencils) into your mouth Use disposable gloves when handling wet specimens and do not cross-contaminate models or bones with wet specimens Always wash hands with liquid soap and dry thoroughly with disposable paper towel before leaving Low concentrations of chemicals used Chemicals used in well ventilated area Safety Data Sheets for chemicals available in the laboratory

Personal Protective Equipment required

 Closed in Footwear	 Lab. Coat	 Gloves	
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Emergency Procedures

In the event of an alarm sounding, stop the practical class and wait for confirmation to evacuate from demonstrators. Then wash your hands and pack up your bags.
Follow the instructions of the demonstrators regarding exits and assembly points.

Clean up and waste disposal

- Cover wet specimens with the towels provided. Make sure that towels do not hang over the edge of the table, because this allows fluid to drip onto the floor. Fluids on the floor are a major safety hazard and should be reported to staff immediately.
- Replace stools under the tables in your cubicle.
- Remove your gloves and dispose in the biowaste bins provided.
- Wash your hands and instruments thoroughly with the soap provided and dry your hands with the paper towel.
- Remove your laboratory coat when you leave the dissecting room.

Ethics Approval

This type of practical has been previously considered and approved by the UNSW Human Research Ethics Advisory Panel (HC180115)

Declaration

I have read and understand the safety requirements for this practical class and I will observe these requirements.

Signature:.....Date:.....

.....
Student number: