



UNSW
AUSTRALIA

Medical Sciences
Medicine

ANAT2451

**FUNCTIONAL ANATOMY
OF THE LIMBS**



**Semester 1, 2016
Course Outline**

CRICOS Provider Code 00098G

ANAT2451: FUNCTIONAL ANATOMY OF THE LIMBS

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*It is your responsibility to make sure that you read and sign the **Student Risk Assessment Form** included in this outline before you attend your first prac in the dissecting room. Keep the signed form in your prac manual and bring it to classes with you. It is not necessary to give it to your tutor or Course Convenor).*

Please read this 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 Convenor/Course Authority:

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Co-convenor:

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If you would like an appointment with the teaching staff, please arrange this via email.

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 7 hours per week of scheduled learning activities. These comprise two hours of lectures, two two-hour practical laboratory and one hour team-based learning sessions, and at least one hour of an online activity each week.

Students are expected to attend all scheduled learning. Please note that for a 6 UOC course, UNSW recommends 150 hours of study and learning activities. The scheduled learning activities in this course consists of approximately 84 hours throughout the semester and students are expected to contribute the remaining number of hours in self-directed learning and study.

What is Anatomy?

Anatomy is derived from the Greek words 'ana' (meaning to *separate, apart from*), and 'temnein' (meaning to *cut up, cut open*). Anatomy, therefore, is the study of body structure or morphology. Anatomy is one of the earliest of the medical sciences and has a colourful and prestigious recorded history that spans some 4000 years, with the earliest documents found in Egypt (the Edwin Smith Papyrus, dated 1600BC).

Many of the earliest known medical scientists and physicians were devoted to understanding anatomy including the Greek physician Hippocrates (460-377BC) who first discovered the tricuspid valve of the heart. This was around the same time that cadavers were first used in anatomical research by Herophilus and Erasistratus in Alexandria, Egypt (4BC) and when the Sushruta Samhita, an Ayurvedic medical text including detailed anatomy descriptions was compiled in India. But by far the most notable of the early anatomists is Galen (2AD) who also compiled much of the anatomical knowledge known to date into what is probably **the** first anatomy textbook that reigned unchallenged for almost 1500 years - most of this text was destroyed during the Dark Ages.

Anatomy really flourished around the 17th and 18th centuries largely due to the invention of the printing press that facilitated the exchange of ideas. Because anatomy was based on observations and drawings, the best anatomists were usually excellent artists (*au fait* with Latin) who attended dissections and published their drawings for money – these included, Michelangelo, Rembrandt and Da Vinci.

Today, anatomy is the bedrock of medicine and of an array of allied health disciplines. Anatomical research today is diverse and focuses on understanding anatomical function from that of a single cell to through to the inter-relation of systems and function, biomechanics and movement, and embryology and development. This is done via techniques in cell and molecular biology, dissection as well as the use of clinical and radiological techniques.

The privilege of studying from cadaveric specimens is the cornerstone of this course and will provide you with an appreciation of the anatomy of the musculoskeletal system and its adaption to function.

Course Aims

This course covers the musculoskeletal anatomy of the **Limbs and Back** focusing on its function and role in movement. It includes a study of the functional aspects of muscles and joints, and consideration of the mechanical properties of tissues. Laboratory classes involve study of prosected specimens, radiography images and surface anatomy.

The course aims to:

- provide students with a knowledge of the musculoskeletal anatomy of the upper limb and lower limb, and the back.
- develop students' understanding of the functional principles underlying joint movements and muscle actions of the upper limb and lower limb, and the back.
- develop students' understanding of the ways in which the structure and function of muscle and joints relates to human movement and biomechanics.

In addition to these, the UNSW Australia has developed a list of attributes that its graduates should possess upon graduation – these are referred to as the '**Graduate Attributes**'. *'Graduate attributes are the qualities; skills and understandings a university community agrees its students should develop during their time with the institution. These attributes include, but go beyond, the disciplinary expertise or technical knowledge that has traditionally formed the core of most university courses. They are qualities that also prepare graduates as agents for social good in an unknown future'* (Bowden et al., 2000). These generic graduate attributes for UNSW can be found at:

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

In addition to these, the Department of Exercise Physiology has identified the following **graduate attributes for Health and Exercise Science** students:

- develop a thorough understanding of the relationship between physical activity and health
- develop a broad range of communication skills and an ability to work as a member and a leader of a team
- develop advanced problem solving skills and a capacity for critical thinking
- attain competencies in conducting a broad range of exercise-based clinical tests
- attain skills and detailed clinical knowledge relevant to cardiac, musculoskeletal, or neuromuscular rehabilitation

How the course relates to the Exercise Physiology profession

This course provides students with an understanding of the application of functional anatomy and biomechanics to human movement. In their careers as exercise physiologists, graduating students will require a detailed knowledge of the joint movements and muscle actions involved in exercise activities, activities of daily living and workplace tasks. This course delivers the necessary theoretical background in functional anatomy, highlighting its close link with biomechanics, thus enhancing understanding of movement processes and injury risk.

How the course relates to the Exercise Physiology program

ANAT2451 Functional Anatomy for Health and Exercise Science is a course offered to those students enrolled in the Exercise Physiology Program. It is undertaken in Semester 1 of Stage 2. The course builds on the Stage 1 course Introductory Exercise Science (HESC1501) and Introductory Anatomy (ANAT1551), and complements the Stage 2 course in biomechanics (BIOM2451). Your knowledge in functional anatomy will be directly applied in subsequent courses in the program; specifically movement assessment and instruction (HESC2452) and the Stage 3 courses course of muscle and motor control (HESC3101), movement rehabilitation (HESC3532) and neuromuscular rehabilitation (HESC3592).

Student learning outcomes

The course focuses on the organisation and structure of the musculoskeletal system that underpins function especially in movement. Student engagement particularly through the anatomy practicals will equip them to be able to identify the anatomical features of each of the joints and their related muscles studied on dissected human specimens, bones and models, as well as apply these to discussions of functional and applied aspects of the musculoskeletal system.

At the end of the course, the student should:

1. better understand the functional anatomy of the upper limb and lower limb
2. know the anatomical features the skeletal elements of the upper limb and lower limb
3. know the structural features of each of the joints of the upper limb and lower limb
4. know the factors that contribute to stability and/or dislocations, and limit movement of each of the joints of the upper limb and lower limb
5. know the anatomical features and actions of the muscles that function to move the upper limb and lower limb
6. know the organization of the major limb nerve plexuses
7. know the peripheral nerves that innervate the muscles of the upper limb and lower limb.
8. know the major vessels (arteries, veins and lymphatic channels) that supply/drain the limbs.
9. apply anatomical knowledge in evaluating movement of the limbs , and in understanding the effect of peripheral nerve lesions
10. apply anatomical knowledge to the understanding of muscle testing
11. appreciate the link between functional anatomy and biomechanics
12. know the surface anatomy related to the structures of the upper limb and lower limb
13. demonstrate practical laboratory skills in anatomy and an understanding of the ethics of working with human remains

Course Structure and Attendance

It is strongly recommended that students attend all lectures as they provide the basis for the practical and subsequent classes. In order to satisfy the requirements of the course you are expected to attend **at least 80% of practical classes** and failure to do so (without good reason) may result in a fail.

Lectures/Workshops	Tutorial	Lab
Mondays	Tuesdays	Thursdays
9h00-10h00: Webster Theatre B AND 11h00-12h00: Colombo Theatre C	13h00-14h00 Matthews 102	9h00-11h00 OR 11h00-13h00 WW101(Anatomy Lab)

Teaching rationale and strategies

Student interaction and engagement with the content of the course underpins all learning activities. Students are initially introduced anatomical region in the form of lectures incorporating multimedia-learning tools. With this knowledge in hand, students engage in learning activities during the laboratory sessions where the teacher/tutor guides the student and encourages each student to actively participate in their learning.

Students are always encouraged to question, observe and share knowledge and experiences that help their learning and that of their peers. The anatomy laboratory is a wonderful and fascinating environment for discovery and students are given every opportunity to explore cadaveric specimens, participate in active discussions and find answers for themselves.

Lectures – This approach is used to present relatively large amounts of information within a given time on specific topics throughout the course. Lecture notes will be available online (see below in COURSE RESOURCES section) prior to or after each lecture, so you should be able to think about and develop an understanding of the lecture concepts as they are presented, rather than writing voluminous notes. However, there will be information and explanations presented in lectures in addition to those covered in the notes that you should take down if they help you to understand the material.

The lecturer will also try to allow some time for interaction and activities in each lecture to provide you with an opportunity to clarify or reinforce the ideas that have been presented. You should take these opportunities to think about the information that has been presented and ask questions to enhance your understanding.

Laboratory practical sessions – The purpose of the practical sessions is to give students first-hand experience of the content covered. The anatomy laboratory is the best resource to learning anatomy and is a wonderful place of privilege, discovery and discussion. The laboratory sessions are small group sessions that allow students to explore prosected specimens of the musculoskeletal system. 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 3-4.

Tutorials – These sessions are designed for you to apply the concepts that you have learnt in the course. In these sessions, you will work in small groups of about 5 students each. You will be presented with discussion questions based on case studies or movement analysis images, and you will work in these groups to find solutions to these. Alternatively, you maybe required to complete activities using the Virtual Anatomy Adaptive Tutorial.

Virtual Anatomy Adaptive Tutorials (VAnAT) – The VAnAT will be made available to students periodically via a link in Moodle during this course. These are virtual tutorials based on high quality images of prosected specimens. The 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 do these tutorials consistently. Some of these tutorials will also be done during allocated time within the course timetable. The focus of these tutorials will be to apply the principles of functional anatomy of the limbs.

Independent study – There is insufficient time in the lectures, tutorials 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.

Recommended Texts and other Resources

See also [Learning Resources](#).

*In addition to the **course manual**, you will need a textbook **AND** an atlas of human anatomy for this course*

Recommended text

1. Moore K.L., & Agur A. M. R., Dalley A.F. (2013) **Clinically Oriented Anatomy**. 7th edi; Lippincott Williams & Wilkins: Baltimore

OR

Drake, R.L., Vogl, W. & Mitchell, A.W.M. (2009). **Gray's anatomy for students**. (2nd ed.). Philadelphia ; London : Elsevier/Churchill Livingstone.

(Available online through the library or via the course Moodle site

Recommended Atlas

2. Tank P.W. and Gest T.R. (2009) **Atlas of Anatomy**. Lippincott, Wilkins and Williams
(note: This comes as a bundle with Clinically Oriented Anatomy from the UNSW bookshop)

OR

Abrahams, PH, Spratt, JD, Loukas M, and van Schoor A-N (2013) McMinns & Abrahams' **Clinical Atlas of Human Anatomy** . Elsevier Health

Other useful textbooks are:

3. Hamill, J. & Knutzen, K.M.(2009). **Biomechanical Basis of Human Movement**, 3rd Edition, Lippincott, Williams & Wilkins. ISBN: 0781734053 (*Library call no. 612.76/177*)
4. RohenJ.W., Yokochi, C, Lutjen-Drecoll, E (2006). **Colour Atlas of Anatomy: A photographic study of the Human Body**. 6th ed. Lippincott Williams & Wilkins: Philadelphia

Online resources

5. Virtual Anatomy Adaptive tutorials – accessed via the course Moodle site
6. Anatomy videos – accessed via the course Moodle site
7. Acland's anatomy videos – accessed via the UNSW Library
8. [Arnold's Glossary of Anatomical Terms](#)

Revision Facilities

1. Anatomy Museum is located on the ground floor of the Wallace Wurth East. The museum contains a variety of bottled anatomical dissections. Please do not remove museum jars from shelves. The museum also contains computers loaded with Anatomy software and Internet access. Access to the museum is by swipe card and is restricted to only anatomy students, between 8.30 a.m. and 5.30 p.m. Monday to Friday. NO photography is allowed in the Anatomy Museum.
2. Rooms G06/G07 in Wallace Wurth East contain computers with a variety of anatomical software, and can be used to access the Virtual Adaptive Anatomy Tutorials (VAnATs). Access to this laboratory is by student swipe card only. Students may use them, provided **the rooms are not required for other classes**. Again these are accessible by swipe card only.

Assessment

a. Practical Quizzes	10%
b. Team Assignment	10%
c. Adaptive Tutorials	10%
d. Spot tests (mid-semester and end-of-semester)	35%
e. Theory exam	35 %

Continuous assessment (a, b, c)

In these assessments, you will need to:

- demonstrate a thorough knowledge of the functional anatomy of the limbs and back
- analyse and evaluate the involvement of muscles in movement.
- demonstrate and understanding of the link between functional anatomy and biomechanics
- demonstrate practical laboratory skills in anatomy and an understanding of the ethics of working with human remains questions.

Continuous assessments are usually in the form of short tests consisting of multiple choice question (MCQ) randomly given at the beginning of practical sessions, and in the form of Virtual Adaptive Anatomy Tutorials (VAnATs) that are completed online.

Spot test

In addition to the above, spot tests assess your ability to identify and correctly name significant structures in prosected human specimens, models and radiographs. In addition, it examines the ability to answer relevant short theory questions.

In a spot test, students will usually have 3 minutes at each of 10 stations (rest spots maybe included, if necessary) to identify 4-5 labeled structures on the specimen and answer questions related to these structures (each station is worth 10 marks). Theory questions may be included at some stations as well.

Spot test 1 will cover lectures and practical sessions up to and including week 6.

Spot test 2 will cover lectures and practical sessions from week 7-13, inclusive.

Theory examination

The purpose of this exam is to test your understanding of the concepts covered in the ENTIRE COURSE and to assess deeper learning (i.e. the ability to inter-relate information and concepts) and critical thinking. This is one 2-hour paper written during the formal Semester 1 examination period. The final examination will consist of multiple choice questions and short

answer questions. The exam will be held during the end-of-session exam period. The outcomes for this assessment are as for those above.

Team based learning and assignment

During the first week of the course you will be divided into 4 practical/tutorial groups and each group will be further subdivided teams of 4-5 students each. Each team will have a mixture of abilities and backgrounds. The use of team-based learning is designed to improve your learning experience through peer-teaching in an interactive discussion facilitated by a tutor. Students will work in teams for each practical session.

You will receive your group and team allocations by week 2. You will also work in these teams during the practical sessions, tutorials and for the team assignment.

To complete the team assignment task:

- Research the topic well - your research should include the underlying anatomy as well as include functional and clinical considerations related to the anatomy of your topic.
- Then produce a learning resource (e.g. a wiki, 10-minute video, or an adaptive tutorial) that explains to your peers the anatomy as well as the clinical and functional implications of the topic. Ideally, your resource should include some accompanying multiple choice questions (MCQs). You are encouraged to discuss your ideas with the course convenor prior to beginning.
- After submitting your team learning resource, your team will be assigned two peer submissions to review - your assessment of these will contribute to the assignment mark. You will be provided with an assessment rubric to guide you in this task.
- During the process of completing the assignment and in working in teams, you should be reflecting on teamwork as a whole. Your reflections will be recorded in WordPress and will be submitted on specific dates throughout the course.

Deadlines for team assignment tasks

By 10 March 2016:

- Provide the details of your team name and team members to your lab tutor
- If as a team, you would prefer an alternate topic of your choice, please email Dr Nalini Pather by 13 March 2016 to negotiate.

By 8 May 2016:

Submit your team learning resource that explains the topic and the underlying anatomy concisely

By 18 May 2016:

- Review two submissions assigned to your group using the assessment rubric. Your peer review will also comment on how well the MCQs have been constructed and their relevance to the topic.

ePortfolio

- During this semester, you will be using an ePortfolio to record your reflections on your learning and team work. It is expected that you would have a total of at least one reflection (of approximately 300 words in length) submitted by each of the following dates (i.e. minimum of 4 reflections):
 - **20 March 2016, 17 April 2016, 10 May 2016, 29 May 2016**

Marks will be deducted for submissions that are submitted after the deadline.

Supplementary Examinations

It is intended that supplementary exams for the School of Medical Sciences in Semester 1, 2016 will be held on the 14th, 15th and 16th July, 2016. If you are eligible for these, you will be notified of the exact date and time as soon as possible after final exam marks have been resolved. Please note, supplementary and deferred examinations may have a significant oral component.

Enrolment and administrative help

Ms Carmen Robinson and Ms Justine Maguire-Scarvelli are available to help with problems with enrolment and scheduling, and should be the first point of contact for administrative problems. They can be found in the BSB Student Office, Room G27, Ground floor of the BioSciences Building. ph:9385 2464, Email: Carmen.Robinson@unsw.edu.au; j.maguire-scarvelli@unsw.edu.au

Official Communication

All communicate will be via your official UNSW email please see [Advice for Students-Official Communication](#) for more details.

Attendance Requirements

For details on the Policy on Class Attendance and Absence see [Advice for Students](#) and the [Policy on Class Attendance and Absence](#).

Guidelines on extra-curricular activities affecting attendance can be found on the School of Medical sciences Website. <http://medicalsciences.med.unsw.edu.au/sites/default/files/Extra-curricularActivitiesSOMS.pdf>

Attendance at practical classes is compulsory, and must be recorded in the class roll at the start of each class. Arrival more than 15 minutes after the start of the class will be recorded as non-attendance. It is your responsibility to ensure that the demonstrator records your attendance and no discussions will be entered into after the completion of the class. Satisfactory completion of the work set for each class is essential. It should be noted that non-attendance for other than documented medical or other serious reasons, or unsatisfactory performance, for more than 1 practical class during the session may result in an additional practical assessment exam or ineligibility to pass the course. Students who miss practical classes due to illness or for other reasons must submit a copy of medical certificates or other documentation to the course coordinator.

Practical Classes

The practical class is an opportunity for students to develop graduate attributes by behaving in an ethical, socially responsible and professional manner within the practical class.

Students must take due care with biological and hazardous material and make sure all equipment is left clean and functional. In the interests of safety, special attention should be paid to any precautionary measures recommended in the notes. If any accidents or incidents occur they should be reported immediately to the demonstrator in charge of the class who will record the incident and recommend what further action is required.

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

Handwriting

Please see [Student Advice-handwriting](#).

Special Consideration

Please see [UNSW-Special Consideration](#) and [Student Advice-Special Consideration](#)

The supplementary exams for the School of Medical Sciences in Semester 1, 2016 will be held on the 12th, 13th and 14th July, 2016.

If you unavoidably miss any assessment in ANAT2511, you must lodge an application with UNSW Student Central for special consideration. If your request for consideration is granted an alternative assessment will be organised which may take the form of a supplementary exam.

Student Support Services

Details of the available student support services can be found at [Student Advice-Student support services](#).

Appeal Procedures

Details can be found at [Student-Advice-Reviews and Appeals](#)

Academic Integrity and Plagiarism

The [UNSW Student Code](#) outlines the standard of conduct expected of students with respect to their academic integrity and plagiarism.

More details of what constitutes plagiarism can be found [here](#)

Feedback

This is a challenging course. The course convener will endeavour to make this course interesting, relevant and a rewarding learning experience for you. Problem based questions have been included at the end of each practical in your course manuals – you are encouraged to work through these to provide yourself with feedback on your progress through the course.

During the practical sessions, you will also have an opportunity to try some practice spot-test-style questions. Answers for these will be provided as feedback to you on your progress. The continuous assessment MCQ is designed to give you continuous feedback on your progress. Answers to these will be discussed immediately following the assessment. In addition, the virtual adaptive anatomy tutorials will be made available via a link in Blackboard. These will provide you with immediate feedback and are to be used as a formative assessment tool.

Course evaluation and development

From the experience of the course authority and students feedback in 2015, the following changes were made to this course:

- Virtual Adaptive Anatomy Tutorials (V-AnATs) have been incorporated formally into this course
- The team-based assignment for this course has been revised to incorporate greater flexibility in the nature of the learning resource produced, and allocated time in the class schedule.

Student feedback is welcome and taken seriously. A Course and Teaching Evaluation and Improvement (CATEI) survey will be provided in the final weeks of the course to formally gather student feedback. The feedback received is used to enhance the course.

There will also be opportunities for representatives from this course to meet with the course convener at regular intervals during the course. This will provide you with an opportunity to discuss (via these reps) how the course is progressing and any issues that have arisen or difficulties in concepts etc. As CATEIs are usually at the end of the course, this student representative panel is an opportunity for issues to be addressed, corrected or amended while the course is still progressing so that it is rewarding and engaging to the current cohort of students.

Ethical behaviour and human remains

A central form of learning in this course is to study prosected (i.e. professionally dissected) human anatomical specimens. These are prepared from the remains of people who have donated their bodies to UNSW so that you and your peers can study the human body. This is an extraordinary generous act of these donors and their families, and is a special and wonderful privilege. Treating these remains with the utmost care and great respect is mandatory and is our responsibility to these donors and their families – it is also a good ethical practice and is mandated by law.

A note of the preparation of anatomical material

In the **gross anatomy** practicals, you will have the privilege of working with dissected human specimens, as well as dried bones, models and radiological images. These dissections are obtained from cadavers, which have been generously bequeathed (donated) to the University, prior to death.

As soon as possible after death, the body is brought to the University where it undergoes a process known as embalming, which involves flushing the blood out of the arterial system and then infusing it with a colourless preserving solution known as formalin.

The specimens are then dissected to show specific anatomical features. Dissected specimens are stored in a preservative solution that does not contain formalin and when needed, is placed on tables for class use. In some cases, dissected specimens are impregnated with a curable polymer in a process known as plastination, which produces dry non-toxic specimens, which have the texture of firm plastic.

NOTE REGARDING IMAGES IN THIS BOOK

Please note (unless otherwise stated) all images used in this book are taken from the prescribed textbook *Moore K.L., Dalley A.F. & Agur A. M. R., (2010) Clinically Oriented Anatomy. Lippincott Williams & Wilkins*

Health and Safety Rules for Students in the Dissecting Room

There are some rules that are enforced for the safety of the staff and students, while others are concerned with the need for care and respect of the prosection material.

General courtesy

- Students are required to attend **each lecture and the assigned tutorial/laboratory class** unless given special permission. Provision of an appropriate medical certificate to the course authority will be required for any Special Consideration.
- You may **enter** and **view** specimens in the Dissecting Room 101 **only** in the presence of your tutor and/or during your designated tutorial/laboratory class hours. You are **not permitted** to take visitors into the Dissection Room.

Health and Safety Rules

A detailed risk assessment for student activities in the Dissecting Room is located on the notice board at the front entrance (near 1st floor lifts).

When in the Dissecting Room, you are required to:

- **always put on your laboratory coat** when you enter the lab. If you have forgotten to bring your lab coat, purchase a disposable coat from the ground floor in Wallace Wurth building or the Union shops on campus. Lab coats must not be worn in the hall or anywhere outside the laboratories.
- **wear covered shoes with enclosed heels**, never thongs or sandals.
- **wear latex or vinyl gloves** when touching wet specimens (gloves are available from the Union Shop near CLB theatres).
- **never eat or drink.**
- **never put anything in your mouth.** For example, pens or pencils that you may have picked up from the table.
- **avoid inhaling** preservative solutions for prolonged periods. If you feel in need of fresh air, ask permission to leave the laboratory for a few minutes.
- **report all accidents** or incidents immediately to a staff member for assessment without exception. Injuries involving sharps or needle-stick will require a blood test as soon as possible.

At the end of your laboratory class:

- **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.

Preservative solution

There are 3 main chemicals used as preservation fluids in the Dissecting Room: **phenoxyethanol** (2% in solution); **methylated spirits** (10%) and **formalin** (5%)

The safety data sheets (SDSs) for these chemicals are located by the lab First Aid Kit and also on the notice board outside the lab. Women of reproductive years, and especially those who know they are pregnant, should note that all of these are suspected human reproductive and developmental toxins and therefore may pose a hazard to the unborn child. In addition, formalin (**formaldehyde** solution) is a human carcinogen. Avoid these chemicals coming into contact with your eyes and skin and they should not be ingested.

Most anatomy specimens are stored in 2% phenoxylethanol, which is classified as relatively non-toxic. You should always wear gloves when handling specimens and must avoid ingestion of this chemical and contact with your skin or eyes. Formaldehyde is reported to cause allergic skin and respiratory effects. The potential for adverse health effects, however, is markedly reduced at the concentrations used for embalming and storage of specimens in the Dissecting Room, i.e., the “formalin” solution is less than 5% of a 37% solution of formaldehyde. The specimens provided for classes are without any formalin and a combination of air extraction and conditioning continuously changes the air in the Dissecting Room.

First Aid

If assistance is needed during office hours you may approach **Room 101** staff for **First Aid**. **All incidents must be reported**. The First Aid Kit is located on the left wall near the Dissecting Room entrance door. A second First Aid Kit is located in the east wing on the ledge opposite cubicle E4.

Emergency evacuation

In the case of a fire or other emergency the evacuation alarm will sound. When it sounds for the first time this indicates that everyone should get prepared in case it is necessary to evacuate. When it sounds for the second time, an announcement will be made over the speaker system - **follow these instructions**. Staff will be on hand to supervise any evacuation, and the emergency exit is at the south end of the lab. Do **not use the lifts**. The evacuation assembly area is the landscaped space immediately to the east of the Chancellery and adjacent to the Clancy Auditorium. **Do not assemble anywhere else** and do not leave this area until instructed.

Additional Safety Information

If additional safety information is required you can ask the course convenor or the Anatomy Dissection Laboratory Manager (Mr Vincent Strack). The latest safety information is always available from the HS Webpage www.ohs.unsw.edu.au

Care and respect of prosected material

You are learning from human material prepared from people who have generously donated their bodies for the benefit of science. Skilled staff members have dissected the specimens to allow you, the student, to see anatomical structures in fine detail. Apart from caring for the specimens, it is important for all students learning Anatomy to have and show **utmost respect** for the specimens at all times, in the Dissecting Room, Room 101, and in the Anatomy Museum Room 105. **Great care** should always be exercised when handling specimens, in order to preserve their delicate structure.

Some specific points:

- **Always use only blunt forceps** to handle specimens and **probes** to point to structures, i.e. **never pull** at any parts of the specimen.
- It is **illegal** for any anatomical material to be removed from the premises of the Department of Anatomy for any purpose whatsoever (except of course, for the funeral). All anatomy specimens are micro-chipped for identification and record keeping.
- Photography and video recording are **not permitted** in the Dissecting Room 101, or the Anatomy Museum 105.

Student Risk Assessments

Medicine Teaching Laboratory

Student Risk Assessment



UNSW
THE UNIVERSITY OF NEW SOUTH WALES

Gross Anatomy Practical Classes for Medical and Science Students
DOC:PHSL-SRA-S&H-01rev1.1

Hazards	Risks	Control
Physical Cold temperature (16°C) Sharp bone/plastic	Cold Penetrating wound of foot	<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 Do not eat, drink or smoke in the Dissecting Room 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
Biological Fungi, bacteria (tetanus), hepatitis B and C	Infection	
Chemical Formaldehyde Methanol 2-phenoxyethanol	Corrosive/Flammable Irritant/toxic Irritant	

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 (HREC09372).

Declaration

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

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

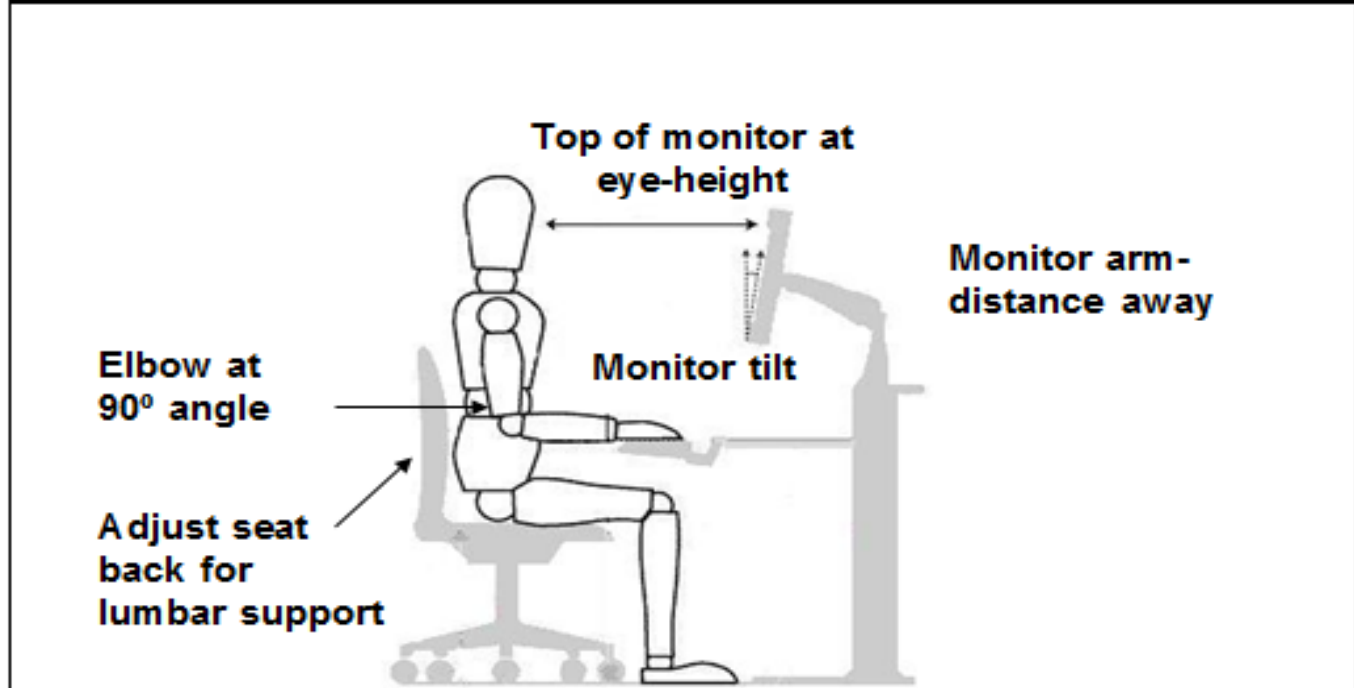
Student Number:.....

ANAT-SRA-Med&SciStudent relates to RA-MED-06. Date for review: 1/2/2016



Hazards	Risks	Controls=6
Ergonomics	Musculoskeletal pain.	Correct workstation set-up.
Electrical	Electrical shock/fire	Check electrical equipment in good condition before use. All portable electrical equipment tested and tagged.

Workstation set-up



Personal Protective Equipment
Not necessary in these practicals.

Emergency Procedures
In the event of an alarm, follow the instructions of the demonstrator. The initial sound is advising you to prepare for evacuation and during this time start packing up your things. The second sound gives instruction to leave. The Wallace Wurth assembly point is the lawn in front of the Chancellery. In the event of an injury, inform the demonstrator. First aiders and contact details are on display by the lifts. There is a first aid kit in the laboratory and the Wallace Wurth security office.

Clean up and waste disposal
No apparatus or chemicals used in these practicals.

Declaration
I have read and understand the safety requirements for these practical classes and I will observe these requirements.
Signature:..... Date:.....
Student Number:.....

CLASS SCHEDULE

ANAT 2451 TIMETABLE 2016

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WEEK	LECTURES		LECTURE/TUTORIAL	PRACTICAL		Virtual Learning Tasks
	MONDAYS		TUESDAYS	THURSDAYS		
	9-10am	11am-12pm	1-2pm	9-11am or 11am-1pm		
	WEBSTER THEATRE B	COLOMBO THEATRE C	MATTHEWS 102 or WWG6-7	WW101E		
1	29/02-06/03	Pectoral Girdle: Bones, Joints & Muscles	Shoulder Region: Bones, Joints & Muscles	Tutorial: Introduction to BL/TBL	Lab 1: Pectoral & Shoulder Regions	Virtual Anatomy Tutorial: Shoulder and arm
2	07/03-13/03	Axilla & Arm Regions: Muscles, Spaces & B. Plexus	Elbow Region: Cubital Fossa & Joints	Lecture/Workshop: Brachial Plexus & Clinical Cases I	Lab 2: Arm & Elbow Regions	Online Activity: Brachial plexus
3	14/03-20/03	Forearm: Muscles	Wrist Region: Bones, Joints & Spaces	Lecture/Workshop: The Hand I	Lab 3: Forearm and Wrist Regions	Virtual Anatomy Tutorial: Forearm
4	21/03-27/03	Upper Limb Vasculature	Trunk and Back Muscles (ANAT2451 ONLY)	Tutorial: Axial Skeleton	Lab 4: Axial Skeleton & Back	Virtual Anatomy Tutorial: Back: Bones, Joints & Muscle
MED SESSION BREAK 28 March – 4 April 2016 (Good Friday 25 March 2016; Easter Monday 28 March 2016; ANZAC DAY 25 April 2016)						
5	04/04-10/04	The Hand Region	UL nerve lesions	Lecture/Workshop: The Hand II	Lab 5: Hand Region & Hand Region	Virtual Anatomy Tutorial: Hand
6	11/04-17/04	Pelvic Girdle & Glute Region: Bones, Joints & Muscles	Hip & Post. Thigh Regions: Bones, Joints & Muscles	Tutorial: UL Lesions	Lab 6: Upper Limb nerves & vessels	Virtual Anatomy Tutorial: UL Nerves
7	18/04-24/04	Revision Session (WW101E)			SPOT 1	
8	25/04-01/05	ANZAC DAY		TBL: ASSIGNMENT	Lab 7: Gluteal region & hip joint	Virtual Anatomy Tutorial: Gluteal region and hip
9	02/05-08/05	Thigh Region (Ant. & Med.): Muscles & femoral triangle	TBL: ASSIGNMENT	Tutorial: Gluteal & Thigh Region	Lab 8: Thigh	TEAM PROJECT: FINAL SUBMISSION
10	09/05-15/05	Knee Region: Joints & Popliteal Fossa	Leg Region: Compartments & Muscles	Lecture/Workshop: Lumbosacral Plexus	Lab 9: Leg	Virtual Anatomy Tutorial: Thigh and Knee
11	16/05-22/05	Ankle Region: Joints, Spaces	The Foot Region	TBL: PEER REVIEW	Lab 10: Ankle & foot	Virtual Anatomy Tutorial: Leg and Foot
12	23/05-29/05	LL Vasculature	LL nerves lesions	Tutorial: Clinical Cases II	Lab 11: LL nerves & vessels	Virtual Anatomy Tutorial: Nerves of Lower Limb
13	30/05-05/06	Revision Session (WW101E)			SPOT 2	