

**University of New South Wales
School of Medical Sciences
Department of Anatomy**

**ANAT2511
FUNDAMENTALS OF ANATOMY
2009**

CLASS NOTES

Edited by P. de Permentier

ANAT2511 FUNDAMENTALS OF ANATOMY COURSE OUTLINE 2009

Course Organiser: Patrick de Permentier (Rm 314, Goodsell Bldg)
Email: p.depermentier@unsw.edu.au

Lecturers: Patrick de Permentier (Room 314, Goodsell Bldg)
Dr Nalini Pather (Room 308, Goodsell Bldg)
Dr Cathy Gorrie (Room G23, Wallace Wurth Bldg)

Course Description

The aim of this course is to provide students with a basic understanding of the structural organization of the human body at the gross (macroscopic) and histological (microscopic) level. The course will include an introduction to the microscopic structure of the body tissues and an overview of each of the major body systems with an emphasis on the relationship between structure and function. It is designed as a stand-alone subject for students who would benefit from a knowledge of basic anatomy, but who do not necessarily wish to pursue further studies in anatomy.

Students are expected to attend **6 hours per week of formal classes**. This is made up of 2 x one-hour lectures and 2 x two-hour practical classes. Practical classes in Histology will be held in the Wallace Wurth First Floor Teaching rooms 106/108. Gross anatomy practical classes will be held in Anatomy Dissecting Room 101, where students will be divided into groups and will work under the guidance of a tutor, who will direct the learning activities and group discussion. Gross anatomy practicals will involve the identification of anatomical features on dissected human specimens, bones and models, as well as discussion of functional and applied aspects of the topic. Histology practicals involve the identification of cells and tissues, as viewed by virtual microscopy images of real tissue, again with consideration of their functions.

Attendance

It is strongly recommended that students attend all lectures as they provide the basis for the practical 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 an unsatisfactory fail.

Lectures: Wednesdays, 12 - 1 p.m. Matthews Building Room 310
Fridays, 10 – 11 a.m. Matthews Building Room 107

Practicals: Thursdays, 3 – 5 pm. Rooms 106/108 (Wallace Wurth Bldg)
Fridays, 11 – 1 pm. Dissecting Room 101E (Wallace Wurth Bldg)

Assessment

Students will be assessed on the material covered in the **Specific Objectives and Learning Activities** in the Class Notes.

Midterm Practical test (Gross Anat & Histo)	20 %
Final Practical test	30 %
Final Theory exam	50 %

Recommended Text

Tortora, G.J., & Derrickson B. Introduction to the Human Body - The Essentials of Anatomy & Physiology. 8th ed., John Wiley and Sons Inc. 2010, ISBN 978-0-470-23016-9.

A supplementary text for the Histology component of this course

Please note, this text is **not compulsory** to purchase.

Young, B., Lowe, S., Stevens, A. and Heath, J.W., Wheater's Functional Histology: A Text and Colour Atlas, 5th ed., Churchill Livingstone, 2006. ISBN -13:9780443068508.

OFFICIAL COMMUNICATION BY EMAIL

All students in ANAT2511 Fundamentals of Anatomy 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 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. Further information and assistance is available from DIS-Connect (phone: 8365 1777). Free email courses are held by the UNSW Library.

What is Anatomy?

Anatomy is the study of body structure. The word "anatomy" is derived from the Greek word *anatome*, which means "to cut up" or "to dissect", because dissection was the only technique available to the early anatomists for investigating body structure.

In this course, the discipline of anatomy is subdivided into

Gross or macroscopic anatomy – the study of body structure as seen with the naked eye,

Histology or microscopic anatomy – the study of cellular components of the body as viewed through the microscope.

Anatomy can be studied in terms of body systems (e.g. skeletal, muscular, digestive) or regions (e.g., head and neck, upper limb, lower limb etc.).

In this course, you will learn the principles underlying the organisation of the body through studying body systems in terms of both their gross and histological features. Understanding the structure of cells and their organisation in tissues is essential for appreciating functional aspects of an organ.

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 and 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.

For **histological study**, an organ needs not only to be preserved, as discussed above, but also to be prepared for studying under a microscope. This includes cutting a very thin slice, or section, of the tissue and staining it with dyes so that the contrast between components is enhanced. These slides are then examined under a microscope or digitized for display on a computer screen and examined as a virtual microscope slide.

Regulations regarding the use of anatomical material:

- (i) Anatomical material must be treated with the utmost care and respect at all times.
- (ii) White coats must be worn at all times in the dissecting room - not only will a white coat keep you clean and warm (the dissecting room is air conditioned to 17° C), it is a legal requirement (specified in the Anatomy Act!). White coats are not essential in the Histology rooms.
- (iii) Covered shoes must be worn in the dissecting room and Histology rooms – thongs, sandals or bare feet are not permitted. **NO food, drinks, or smoking is allowed in these areas.**
- (iv) Vinyl or latex gloves should be worn when handling material in the dissecting room.
- (v) Gross anatomy specimens should be handled using a probe or blunt forceps. Sharp forceps should never be used as they can damage the specimens.
- (vi) Wet specimens should be covered with wet towels after use (i.e. at the end of class).
- (vii) Students are not permitted to enter the dissecting room outside class times except when accompanied by a tutor or staff member, or when going to the service room to borrow material for revision (this is permitted during specified times (see below). The histology laboratories can be accessed outside class times using your undergraduate student swipe card .
- (viii) It is illegal to remove anatomical material at any time, under any circumstances, from the anatomy laboratories.

Revision Facilities:

- (i) Anatomy Museum – located on the 1st floor of the Wallace Wurth building. 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 anatomy students only, between 8.30 a.m. and 5.30 p.m. Monday to Friday. NO photography is allowed in the Anatomy Museum.
- (ii) Rooms 106 – 108 in The Wallace Wurth Building contains computers with a variety of anatomical software, including the Virtual Microscope. Access to this laboratory is restricted to students enrolled in Anatomy subjects (including ANAT2511) and is by student swipe card only.
 - (iii) Histology Laboratories (G2/G4) are generally open from about 8.30 a.m. to 5.30 p.m. Monday to Friday. They may be used by students during these hours, provided **the rooms are not required for other classes**. Students should not use the laboratories during other classes (i.e. classes other than Fundamentals of Anatomy) without obtaining permission from the class supervisor. Again these are accessible by swipe card only.
 - (iv) Useful Computer Resources on histology and electron microscopy are:
 - 1) A website showing basic and systems virtual histology slides http://www.neocortex.ch/WebMic_GenOrg/allgspez/WebMicGenOrg.html
 - 2) The interactive histology program “**The Fabric of Life**”
 - 3) **A Digital Atlas of Electron Microscopy** by Bruechner, University of Kentucky accessed by using the icon on the student computers.

Plagiarism

The School of Medical Sciences will not tolerate plagiarism in submitted written work. The University regards this as academic misconduct

http://www.student.unsw.edu.au/academiclife/assessment/academic_misconduct.shtml

and imposes severe penalties. Evidence of plagiarism in submitted assignments, etc. will be thoroughly investigated and may be penalized by the award of a score of zero for the assessable work. Flagrant plagiarism will be directly referred to the Division of the Registrar for disciplinary action under UNSW rules.

The attention of students is drawn to the following extract from the above website:

“The basic principles are that you should not attempt to pass off the work of another person as your own, and it should be possible for a reader to check the information and ideas that you have used by going to the original source material. Acknowledgment should be sufficiently accurate to enable the source to be located speedily.”

The following are some examples of breaches of these principles:

- a) Quotation without the use of quotation marks. It is a serious breach of these rules to quote another’s work without using quotation marks, even if one then refers to the quoted source. The fact that it is quoted must be acknowledged in your work.
- b) Significant paraphrasing, e.g., several sentences, or one very important sentence, which in wording are very similar to the source. This applies even if the source is mentioned, unless there is also due acknowledgment of the fact that the source has been paraphrased.
- c) Unacknowledged use of information or ideas, unless such information or ideas are commonplace.
- d) Citing sources (e.g., texts) which you have not read, without acknowledging the ‘secondary’ source from which knowledge of them has been obtained.”

Appropriate citation of sources therefore includes surrounding any directly quoted text with quotation marks, with block indentation for larger segments of directly quoted

text. The preferred format for citation of references is an author-date format with an alphabetically arranged bibliography at the end of the assignment. Note that merely citing textbooks or website URLs is unlikely to yield a bibliography of satisfactory standard. The Internet should be avoided as a primary source of information. Inclusion of appropriate journal articles, both primary research publications and reviews, is usually expected.

OH & S – Safety Guidelines

Generic Safety rules for the School of Medical Sciences can be found at the URL below. These procedures will be reviewed in the first practical class <http://medicallsciences.med.unsw.edu.au/SOMSWeb.nsf/page/Policies%20and%20Procedures>

Applications for Consideration

Students who miss an assessment through illness or misadventure must submit an application for consideration within **three working days** to New South Q. Full details for the application (e.g., Medical Certificate, etc.) are available at <http://www.student.unsw.edu.au/atoz/atoz-Special.shtml>

PROBLEMS WITH THE COURSE

If you have any problems or grievances with the course you should, in the first instance, consult the Course Organiser. If you are unable to resolve the difficulty, you can consult the Department of Anatomy's nominated Grievance Resolution Officer, who is currently Dr Priti Pandey, Room 211, Goodsell Building.

LECTURE AND TUTORIAL SCHEDULE, 2009

Overview:

This Level 2, six units of credit course will provide an introduction to human macroscopic and microscopic structure, i.e., the **position, form, and structure** of organs and so-called 'systems' of the body. The course includes an introduction to the histology of basic tissues.

Lectures:	Wednesday	12 - 1 p.m.	Matthews Bldg Room 310 (Histology)
		and	
	Friday	10 – 11 a.m.	Matthews Bldg Room 107 (Gross Anatomy)
Practicals:	Thursday	3 – 5 p.m.	Wallace Wurth Bldg, Rooms 106/108 (Histology)
		and	
	Friday	11 – 1 p.m.	Wallace Wurth Bldg, Room 101E (Gross Anatomy)

Lectures: 2 x 1 hour each per week

Practicals: 2 x 2 hours each per week

	Date	LECTURE: Histology	Histology Rooms 106/108	LECTURE: Gross Anatomy	Gross Anatomy Laboratory Rm101
1	July 27 to July 31	General Introduction and Intro to Histology	Introduction to Histology	Introduction to Gross Anatomy	Introduction to Gross Anatomy
2	August 3 to August 7	Basic Tissues	Basic Tissues	Skeleton & Joints	Skeleton & Joints
3	August 10 to August 14	Bone & Joints	Bone & Joints	Muscles	Muscles
4	August 17 to August 21	Muscle	Muscle	Nervous tissue	Spinal Cord & Nerves
5	August 24 to August 28	Nervous tissue	Nervous tissue	Brain	Brain and Gross Anatomy Revision
6	August 31 to Sept 4	Eye & Orbit	Eye & Orbit and Histology Revision	No Lecture	Mid-Session Practical Test (Gross Anat & Histo) Friday September 4
	Sept 5 to Sept 13	MID_SESSION RECESS			
7	Sept 14 to Sept 18	Integumentary System	Integumentary System	Ear & Balance	Ear & Balance
8	Sept 21 to Sept 25	Circulatory System	Circulatory System	Heart; Great Vessels/Lungs	Heart; Great Vessels/Lungs
9	Sept 28 to Oct 2	Respiratory System	Respiratory System	Upper Respiratory Tract/Upper GIT	Upper Respiratory Tract/Upper GIT
10	Oct 6 to Oct 9 Oct 5 = Holiday	Endocrine and Exocrine Glands	Endocrine and Exocrine Glands	Lower GIT; Liver & Pancreas	GIT Anatomy of the Abdominal Organs
11	Oct 12 to Oct 16	Lower GIT/Liver & Gallbladder	Lower GIT/Liver & Gallbladder	Urinary System /Male & Female Organs	Urinary System/Male and Female Organs
12	Oct 19 to Oct 23	Urinary System	Urinary System	Overview	REVISION SESSION

