



# PREMED FUNCTIONAL ANATOMY

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**Outline**

This course is designed specifically for premedical students intending to apply for medical (or dental) school in the US system. The course features a structured approach to the human body, starting with essential terminology, and then progressing regionally throughout the body. The course is intended to prepare students for excellence in medical school, but due to great differences between medical curricula the impact of this course may be greater. The level of the course is suitable for students with no anatomy background, but by the end of the course they will have successfully covered anatomy to a degree greater than many US medical schools, matching that of most medical schools, and only being bettered by a very small number of schools. It is hoped that completion of this course will give each student considerable advantage in the first weeks, months and years of medical school.

This course is acutely focused on student performance. It features regular assessment with ample opportunity for feedback and development. All examination questions will be in USMLE format, providing the students with valuable experience with medical school-style testing.

**Quota**

This course is limited to 30 students.

**Prerequisites**

Students must have taken courses in Biology (preferably Human Biology) at 2 year level. A cumulative science GPA of at least 3.3 is required (science GPA >3.5 preferred).

**Aims**

This course aims to:

- Introduce and demonstrate the use of medical terminology
- Introduce the principles of radiology and identification of structures radiologically
- Develop an understanding of regional anatomy
- Demonstrate clinical application of anatomical knowledge
- Aid the development of critical reading, observation, presentation and mechanical (technical) skills as related to medicine.

## Objectives

By the end of this course students should be able to:

- Accurately describe structures using appropriate medical terminology
- Correctly identify structures (and functions/conditions associated with each) on radiographs
- Correctly identify structures (and functions/conditions associated with each) on professionally dissected specimens, or related images.
- Discuss applications of anatomical knowledge to clinical situations
- Demonstrate proficiency in critical reading, observation, presentation and mechanical (technical) skills as related to medicine in a variety of scenarios.

## Teaching Staff

This course is co-ordinated and taught by Dr QA Fogg. He has extensive experience as a teacher and course director in a US –accredited medical school, and therefore is well-placed to provide an exceptional course specially designed for students entering US medical schools. He can be contacted in his office or by email, as follows:

Dr QA Fogg

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He is grateful for the support of numerous academics, casual staff and senior students who make themselves available to demonstrate in the laboratory sessions.

## Textbooks and Other Resources

It is highly recommended that students use both a text and an atlas throughout this course. There are many fine examples of both available, and it should be stressed that what is excellent for one student may not have any value at all for another. There is no one text that matches the course content perfectly, so students are strongly recommended to rely on course notes and those taken in lectures/labs in preparation for examinations. A good text and atlas are excellent resources that aid understanding and visualising difficult concepts and should be used as needed throughout the course. The following are highly recommended, but do not buy them all!

Texts:

- Abrahams, Craven and Lumley (2006) *Illustrated Clinical Anatomy*. Hodder Arnold.
- Moore and Dalley (2006) *Clinically Oriented Anatomy*. Lippincott Williams and Wilkins.

Atlases:

- Pubst (2008) *Sobotta Atlas of Anatomy* (14<sup>th</sup> edition – single volume). Churchill Livingstone.
- Netter (2006) *Netter Atlas of Human Anatomy* (4<sup>th</sup> edition). Saunders.
- Abrahams, Boon and Spratt (2007) *McMinn's Clinical Atlas of Human Anatomy* (6<sup>th</sup> edition). Mosby.
- Rohan, Yokochi and Lutjen-Drecoll (2006) *Color Atlas of Anatomy. A Photographic Study of the Human Body* (6<sup>th</sup> edition). Lippincott Williams and Wilkins.

## Hunterian Anatomy Museum

Throughout the course students will be able to view and handle professionally dissected specimens. There will also be some opportunity to learn how to dissect. In addition, the University of Glasgow is proud to house the Hunterian Anatomy Museum, a world famous collection of anatomical specimens prepared by William Hunter and colleagues in the 18<sup>th</sup> Century. These are housed in the Anatomy Building as an adjunct to the main Hunterian Museum. The Hunterian Anatomy Museum also houses specimens from previous Regius Professors of Anatomy, and an excellent collection of plastinated specimens prepared by recent and current staff of the Laboratory of Human Anatomy. This exceptional resource is available for use during normal business hours (9am-5pm, Monday-Friday). It's use as an ideal study environment is strongly advised! It will also be the location for additional seminars, receptions and other events throughout the course.

### University Library

The University Central Library is an international standard facility with a vast collection of books, journals and other resources. Your student card gives you access and borrowing rights. In addition you to have access to full text journal articles and e-books from an exhaustive list of world-wide publications. References given throughout the course will be of great assistance, especially for those wanting to push their knowledge beyond the bounds of the course!

## Assessment

Short quizzes (lecture and lab) will be held in class at the start of every second week (the start of new region, or "block"). The quizzes will account for 30% of the total grade (10 x 3%). All questions will be MCQs in USMLE format.

Completion of the Lab Book and a group "Patient Presentation" in week 10 (final week) of the course will contribute 20% to the final grade.

The final exam is cumulative (ie. will cover the entire course) and will consist of 50 MCQs set in the USMLE format. This will contribute 50% to the final grade.

In summary, the assessment is as follows:

Quizzes	
Back and Upper Limb (lecture and lab)	6%
Head and Neck (lecture and lab)	6%
Thorax (lecture and lab)	6%
Abdomen (lecture and lab)	6%
Pelvis and Lower Limb (lecture and lab)	6%
Lab Book	10%
Group Presentation	10%
Final Examination	50%

## Step-Up Programme

Although the course is designed to be challenging and engaging, some students may wish to take advantage of the exceptional resources available and push themselves further. The “Step-up” programme is designed to help these students push their knowledge beyond the bounds of the structured course. In each lecture pack additional material will be included in a self explanatory manner that will guide the interested student into and through more detailed concepts. The material may be accessed during or after the course, and, in some cases, may first be of value during clinical rotations in medical school. It is hoped that this programme will help foster the ideals of life-long learning, self development and most of all, a love for the human body!

## Timetable

The course is divided into five blocks. Each block runs for two weeks and is focused upon one region of the body. The class will meet three times each week, with each session including a lecture and a lab.

### Block 1 Back and Upper Limb

Session 1	Introduction and Terminology Basic Skills and Reading Radiographs
Session 2	Back muscles Back muscles and movements
Session 3	Vertebral column Bones of the vertebral column, with radiology
Session 4	General upper limb and brachial plexus Bones and plexus injuries
Session 5	Shoulder and elbow Muscles and movements of the arm
Session 6	Forearm, wrist and hand Muscles and movements of the wrist and hand

### Block 2 Head and Neck

Session 1	<b>Block 1 Quiz</b> and cranial nerve introduction <b>Lab Quiz</b> and testing of cranial nerves
Session 2	Eyes and CN II, III, IV and VI Eyes and visual field testing
Session 3	Ears and CN VII and VIII Ears and auditory field testing
Session 4	Nose, mouth and CN I, V, VII, IX, X and XII Nasal and oral cavities
Session 5	Throat, neck and CN IX - XII Neck triangles; Larynx and speaking
Session 6	Face and CN V, VII Mimetic muscles, expression and sensation

**Block 3 Thorax**

- Session 1 **Block 2 Quiz** and Introduction  
**Lab Quiz** and chest films
- Session 2 Thoracic cage and respiration  
Bones and muscles of respiration
- Session 3 Lungs and Diaphragm  
Lungs, breathing and lifting
- Session 4 Heart and mediastinum  
Dissection of the heart
- Session 5 Coronary vasculature and innervation  
Coronary structures and heart disease
- Session 6 Oesophagus and thoracic innervation  
From thorax to abdomen

**Block 4 Abdomen**

- Session 1 **Block 3 Quiz** and General gastrointestinal tract  
**Lab Quiz** and the passage of food
- Session 2 Peritoneum and abdominal walls  
Inspection of the peritoneal cavity
- Session 3 Small intestine  
Divisions of the small intestine and radiology
- Session 4 Large intestine  
Divisions of the large intestine and radiology
- Session 5 Hepatobiliary system  
Liver, pancreas and spleen, plus arteriograms
- Session 6 Kidneys and posterior abdominal wall  
Waste disposal

**Block 5 Pelvis and Lower Limb**

- Session 1 **Block 4 Quiz** and the bony pelvis  
**Lab Quiz** and bones/radiographs
- Session 2 Genitalia and urogenital tract  
Urogenital system
- Session 3 Pelvic floor  
Exercising the pelvic floor
- Session 4 Gluteal region and the thigh  
Balance and walking 1
- Session 5 Leg, ankle and foot  
Balance and walking 2
- Session 6 Hip and knee  
Sports injuries and “patient presentations”