

Radiological Anatomy & Physiology

ENU 6937 Sec.# 7036: 3 Credit Hours

Spring 2006

Meeting Time: MWF, 5th Period

Instructor: Dr. David E. Hintenlang
Office: 204 NSC
Phone (352) 392-1401 x 311 ; FAX (352) 392-3380
Address: 202 Nuclear Sciences Center
University of Florida
Gainesville, FL 32611
E-MAIL Address: dhinten@ufl.edu

References: **Radiologic Anatomy**, Linda Lanier, Richard Rathe, Jon Seymour, University of Florida College of Medicine, Department of Radiology, or <http://imc.gsm.com>.

Fundamentals of Diagnostic Radiology, David B. Frazier ed. Interactive image based radiological anatomy. Medical Physics Publishing, 2004.

Anatomy in Diagnostic Imaging, P. Fleckenstein, J. Tanum-Jensen, W.B. Saunders Company, ISBN 0-7216-4000-1, 1995.

Fundamentals of Anatomy & Physiology, F.H. Martini, Prentice Hall, ISBN 0-13-923061-0, 1998.

Course Objectives: To provide a fundamental knowledge of human anatomy and physiology as illustrated through radiological imaging techniques of relevance to the medical physicist. Students will develop a thorough knowledge of human anatomy/physiological processes and terminology. At the conclusion of the course the student should be able to; *i*) identify normal and abnormal anatomy/physiology from current medical imaging modalities, and *ii*) effectively communicate with physicians regarding the details of image interpretation. Modalities utilized to explore human anatomy and physiology include radiography, computed tomography, positron emission tomography, magnetic resonance imaging, and ultrasound.

Grading:

Class Presentations	30%
Participation	20%
Topical Examinations	30%
Final Examination	20%

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Subjects Outline

1. Thoracic Anatomy & Physiology

Imaging techniques and positioning

Chest Wall Structures; Bones and soft tissues

Anatomy of the thoracic spine and radiographic appearance

Major muscles and groups

Anatomy of the breast

Lungs and Pleura

Anatomy of the lungs

Physiological function

Right vs left lobe differences

Primary branches of the bronchi

Pleura, appearance and function

Normal and abnormal appearance for various imaging modalities

Heart and Mediastinum

Major anatomical features

Visualization and physiological function of chambers of the heart

Esophagus, thoracic duct and other structures

Normal and abnormal appearance for various imaging modalities

Imaging for Physiological function

Imaging for evaluation of abnormalities and clinical case studies

Carcinoma, chronic obstructions, pneumonia, pneumothorax, pulmonary edema, angiography

2. Abdominal Anatomy and Physiology

Applicable imaging techniques and positioning

Abdominal Wall

Anterior and lateral musculature

Musculature of the pelvis

Spine and pelvic bones

Intraperitoneal Organs and function

GI System

Biliary system

Vascular system

Retroperitoneal System

Genitourinary and reproductive Systems

Functional imaging using various imaging modalities and contrast studies

Visualization of abnormalities and clinical case studies

Bowel Obstructions, Calcifications and Masses, Trauma, Vascular Studies

3. Head and Neck Anatomy & Physiology

Applicable imaging techniques

Brain and spinal cord structures

Anatomy of the skull and C-spine

Soft tissues, muscle and vasculature

NeuroRadiology

Normal and abnormal appearance for various imaging modalities and contrast studies

Visualization of abnormalities and clinical case studies

Glioma, Hemorrhage, Infarction, Meningioma, Metastasis, Trauma

4. Upper and Lower Extremities

Applicable imaging techniques

Bones and joints of the upper extremities

Muscles and muscle groups of the upper extremities

Bones and joints of the lower extremities

Muscles and muscle groups of the lower extremities

Visualization of abnormalities and clinical case studies

Spondylitis, Extremity Fractures, Osteoarthritis, Rheumatoid Arthritis, Tumors

Policies:

Academic Honesty

All students are required to abide by the University's honesty policy as published in UF Rule 6C1-4.017. Students should be familiar with the entire rule which can be reviewed at: <http://www.aa.ufl.edu/aa/Rules/4017.htm> and specifically addresses cheating;

Cheating -- the improper taking or tendering of any information or material which shall be used to determine academic credit. Taking of information includes, but is not limited to, copying graded homework assignments from another student; working together with another individual(s) on a take-home test or homework when not specifically permitted by the teacher; looking or attempting to look at another student's paper during an examination; looking or attempting to look at text or notes during an examination when not permitted. Tendering of information includes, but is not limited to, giving your work to another student to be used or copied; giving someone answers to exam questions either when the exam is being given or after having taken an exam; giving or selling a term paper or other written materials to another student; sharing information on a graded assignment.

Class Attendance

Students are expected to attend each class period. Periods which may be missed should be brought to the attention of the Instructor as far in advance of the class period as possible. In the event of an unexcused absence, it is the student's responsibility to obtain and review the material that was covered during that class period.

Make-up Assignments

Make-up assignments will only be considered for exceptional circumstances and will be implemented by the instructor on a case-by-case basis.

Class Demeanor

Class distractions such as cell phones and pagers are unacceptable. Students will ensure that any such devices that are brought into the classroom will be turned off, or operated in a silent mode, during the class period.

Students with Disabilities

Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.