



The Florida State University
College of Medicine

**Clinical Anatomy,
Embryology and Imaging**

BMS 6115C

SUMMER
2010

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Course Overview

Course Goals

Clinical Anatomy, Embryology and Imaging (BMS 6115C) is a 10 week long course and runs concurrently with the Doctoring 1 Course. The primary goal of the course is to provide the students with a basic understanding of the gross anatomy, embryology and radiologic imaging of the entire body. This knowledge serves as a foundation for the remainder of the student's medical education and future practice of medicine. Second, this course prepares students to apply their understanding of anatomy, embryology, and radiologic imaging as they gain insight into the pathophysiology of disease processes. Students are encouraged to utilize learning resources such as faculty, textbooks, journals and FSU-COM computer resources so that as long term learners the students are able take responsibility for their own continued educational development.

Competencies

| FSUCOM – Competencies - Clinical Anatomy [BMS 6115C] | | |
|---|------------------------------------|--|
| Competency Domains | Competencies Covered in the Course | Methods of Assessment |
| Patient Care | X* | |
| Medical Knowledge | X | Written and practical exams and quizzes; NBME Subject Exam |
| Practice-based Learning | X* | |
| Communication Skills | X | Faculty and TA observation; Peer and self-evaluation within the assigned teams and during course activities. |
| Professionalism | X | Faculty and TA observation; Peer and self-evaluation within the assigned teams and during course activities. |
| System-based Practice | | |
| NOTES: * Students observed physician-patient encounters during weekly "Grand Rounds." Faculty and other invited presenters model behavior expected during patient encounters. Students are encouraged to asked questions of the participating patients. | | |

Learning Objectives

The student will be able to:

Knowledge

1. Demonstrate a basic knowledge of normal anatomy, embryology, cross-sectional anatomy and radiologic imaging of the human body.
2. Apply anatomical knowledge to recognize and solve clinical problems.
3. Demonstrate knowledge of the anatomical differences in the human body from birth to senescence.
4. Recognize when one has reached the limits of their anatomical knowledge when trying to apply it to understanding clinical problems, and be able to utilize other resources to obtain needed information in a timely manner.
5. Recognize the anatomy and laboratory findings related to variations, pathology, previous surgery and human life cycle from gestation to the elderly patient.
6. Utilize a variety of resources (faculty, textbooks, computers, internet, etc.) to locate anatomic, embryologic, and/or radiologic information in order to understand how it relates to clinical problems.

Interpersonal skills and communication – be able to:

7. Work together as a professional team in the anatomy laboratory and in small-group study sessions.
8. Engage in self-evaluation and evaluate peer performance during the laboratory and small-group experiences of the course.

Professionalism

9. Demonstrate professional values, attitudes and behavior in all your interpersonal interactions with faculty, staff and peers.

Course Format

Team Approach

The team approach is essential in this course, which has a major laboratory component. Medicine is a “team sport.” Appropriate care of patients requires the constant interactions of numerous members of the health care team. Most of us learn best when we share our knowledge with others – good teachers learn from those they teach.

The assigned laboratory teams are expected to work together on the clinical cases presented in lecture and to work as a team to complete the assigned dissection in the laboratory. Students will utilize a variety of digital imaging programs that will supplement

learning that occurs in the laboratory setting, lectures, small-group sessions and personal study time. As a side benefit, this course will introduce the student to anatomical terminology commonly used in medicine today. The anatomic knowledge gained during the course will be used in later courses in the curriculum.

Anatomy Laboratory

The laboratory experience will consist of highly interactive, small group activities designed to integrate structure identification with anatomical relationships and clinical significance. A significant portion of the course will be devoted to a dissection lab (four, two hour sessions per week). Student lab teams will be divided into a red and blue team. The red and blue teams will alternate every other day in taking responsibility for the dissections. The “dissecting” team will study the human cadaver, and the “non-dissecting” team will study cross-sectional imaging and radiology of the entire body by anatomical regions.

One member of each team (red and blue) will be assign as the team captain for the week. At the end of the lab period (5:00 p.m.), the team captain for the dissecting team will meet with the entire non-dissecting team and review the dissection completed that day. All items identified in bold print in the dissection guide should be shown to the “non-dissecting” team. These daily meeting are essential so that the teams are ready to trade assignments each day.

The ability to recognize and understand anatomical relationships is essential in many aspects of the practice of medicine from performing a basic physical examination to the interpretation of radiographic images. The lectures, laboratory exercises, and independent study assignments will focus on the normal anatomy and common variations seen in the human body. Students are to work in their assigned teams as they study and review the material presented in the course. Exchange of information between the red and blue teams must occur so that all students are able to benefit from every laboratory assignment. The team members are responsible to see that the exchange of information occurs on a frequent basis.

Students not actively dissecting during lab hours and assigned to study osteology, radiology and/or cross-sectional anatomy can do so in the study room adjacent to the anatomy labs or in their respective community areas. The study room in the anatomy laboratory is equipped with models, skeletons, computers, anatomy software, a computer and LCD projector. The anatomy

laboratories and student study rooms are available to students 24 hours a day, seven days a week.

Lectures

Lecturers will focus the content on major anatomical concepts and introduce clinical presentations aimed at stimulating active student participation. **The lectures are intended to be very interactive between students and faculty. In order for this type of dialogue to occur, the student must read the assigned material before attending a lecture in order to intelligently discuss issues or ask for clarification about a concept.** The lecture is not intended to present all information; students are expected to study information in the assigned text to supplement material presented in the lectures. The textbooks will be the benchmark for the level of detail examined upon for each anatomical region. The radiology component of the course will focus on the recognition of anatomic structures using various radiologic techniques.

Weekly “Grand Rounds” — Clinical Presentation

Each week will end with a clinical presentation which is planned to emphasize anatomical concepts covered during the week. The material presented may be included on the examinations. These sessions will emphasize the importance of anatomy in developing a differential diagnosis in the treatment of patients.

| DATE | TOPIC | PRESENTER |
|------------------------|---------------------------|------------------------|
| June 11 th | Spine and Upper Extremity | R. Watson, M.D. |
| June 18 th | Upper Extremity | Jerry Latimer, P.T. |
| June 25 th | Extremities | R. Watson, M.D. |
| June 25 th | Extremities | A. Wong, M.D. |
| July 9 th | Thorax, Heart and Lungs | K. Brummel-Smith, M.D. |
| July 13 th | Thorax | R. Watson, M.D. |
| July 16 th | Neck and Superficial Face | Barrett Tolley, D.D.S. |
| July 21 st | Head and Neck | R. Watson, M.D. |
| July 30 th | Abdomen | J. Fogarty, M.D. |
| August 6 th | Pelvis and Perineum | M. Manting, M.D. |

Radiology & Cross-sectional Imaging

The objective of the radiology cross-section component of the course is not to train radiologists. The objective is to enable students to apply their understanding of the anatomic relationship to interpret and recognize structures visualized by a variety of radiologic techniques.

The lab is equipped with an ultrasound unit. We will provide opportunities for all students to use an ultrasound unit to visualize anatomy on themselves and each other. This will be related to their anatomical study on the cadaver. Our goal is to provide a basic understanding of how ultrasound images are produced and how they compare to findings from dissections. Students will be able to download the imaging to share with students and faculty.

Self-Study

Blocks of time are planned each day for independent, self-directed use of faculty resources, educational materials such as videotaped demonstrations, interactive software, the Internet, and even textbooks.

Policies

Americans with Disabilities Act

Candidates for the M.D. degree must be able to fully and promptly perform the essential functions in each of the following categories: Observation, Communication, Motor, Intellectual, and Behavioral/Social. However, it is recognized that degrees of ability vary widely between individuals. Individuals are encouraged to discuss their disabilities with the College of Medicine's [Director of Student Counseling Services](#) and the FSU Student Disability Resource Center to determine whether they might be eligible to receive accommodations needed in order to train and function effectively as a physician. The Florida State University College of Medicine is committed to enabling its students by any reasonable means or accommodations to complete the course of study leading to the medical degree.

[The Office of Student Counseling Services](#)

Medical Science Research Building

G146

Phone: (850) 645-8256 Fax: (850) 645-9452

This syllabus and other class materials are available in alternative format upon request. For more information about services available to FSU students with disabilities, contact the:

Student Disability Resource Center

97 Woodward Avenue, South

Florida State University

Tallahassee, FL 32306-4167

Voice: (850) 644-9566

TDD: (850) 644-8504

sdrc@admin.fsu.edu

<http://www.fsu.edu/~staffair/dean/StudentDisability>

Academic Honor Code

The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. (Florida State University Academic Honor Policy, found at <http://www.fsu.edu/~dof/honorpolicy.htm>.)

Attendance Policy

The College of Medicine has detailed attendance policies as they relate to each cohort and events that conflict with course schedules. See pages 27-29 of [FSUCOM Student Handbook](#) for details of attendance policy, notice of absences and remediation.

Required/Recommended Materials

| Title, Publisher, ISBN | Authors | Edition | Required/Optional |
|---|--|-----------------------------------|--|
| Clinically Oriented Anatomy, Sixth Edition, Lippincott Williams and Wilkins, ISBN-13: 978-0-7817-7525-0 | Moore, Keith, L., Dalley, Arthur F. and Agur, Anne, M. R. | 6th 2009 | Required NEW – prior text out of print |
| Grants Dissector, Lippincott, Williams & Wilkins, ISBN: 9780781774314 | Tank, Patrick W. | 14 th 2008 | Required |
| Langman's Medical Embryology, Lippincott Williams and Wilkins, ISBN: 978-0-7817-9069-7 | Sadler, T. W. | 11 th 2009 | Required NEW – prior text too elementary for medical students |
| Imaging Atlas of Human Anatomy, Mosby, ISBN: 9780723432111 You can also get the following if you like working with the radiology imaging on your computers- Imaging Atlas of Human Anatomy – CD ROM ISBN-13: 9780323034111 | Weir, J., and Abrahams, P.H. Weir, J., and Abrahams, P.H. | 3 rd August 2005 | Required |
| <i>Choose one of the following atlases:</i> | | | |
| (a) Grant's Atlas of Anatomy, Lippincott, Williams & Wilkins, ISBN: 9780781770552 | Agur, A.M.R. and Lee, M.J. | 12 th 2008 | More "accurate" illustrations |
| (b) Atlas of Human Anatomy, Icon Learning Systems/Elsevier, ISBN: 9781416033851 | Netter, F.H. | 4 th 2008 | Most popular among students |
| (c) Color Atlas of Anatomy: A Photographic Study of the Human Body, Lippincott, Williams & Wilkins, ISBN: 9780781790130 | Johannes W. Rohen, Chihiro Yokochi and Elke Lutjen-Drecoll | 6 th 2006 | Color photographic atlas |
| <i>Other reference texts recommended, but not required</i> | | | |
| McMinn's Clinical Atlas of Human Anatomy with DVD, 6th Edition, Elsevier Science Limited, ISBN: 978032303654 | Abrahams, P.H., Johannes Boon, and Jonathan Pratt | 6 th 2008 | Color photographic atlas |

Other required items for the course

- dissecting kit (optional – we supply basic tools)
- lab coat or scrubs
- eye protection – this can be glasses or safety glasses

Optional items

- plastic baster for each table to remove fluid from cadaver cavities
- plastic apron

Provided

Latex gloves

Grading

The table below indicates the relative weightings for the components. A maximum of 560 points is possible.

Assessments

| Component | Total Points Possible |
|--|-----------------------|
| Written Unit Exams (60 questions each) | |
| Unit 1 – Extremities and Back | 60 |
| Unit 2 – Thorax and Head/Neck | 60 |
| Unit 3 – Abdomen and Pelvis | 60 |
| Laboratory Exams (60 questions each) | |
| Unit 1 – Extremities and Back | 60 |
| Unit 2 – Thorax and Head/Neck | 60 |
| Unit 3 – Abdomen and Pelvis | 60 |
| Mid-Unit Quizzes (20 questions each written and practical) | |
| Unit 1 – Extremities and Back | 40 |
| Unit 2 – Thorax and Head/Neck | 40 |
| Unit 3 – Abdomen and Pelvis | 40 |
| NBME Subject examination | 80 |
| TOTAL | 560 |

Each student's correct scores on all examinations and quizzes will be totaled to give a total correct score. This score will be divided by the possible points throughout the course to produce an overall percent correct in the course. The course director and faculty may drop questions, if they are determined to be flawed or inappropriate.

Grading scale

| Grade | Percentage |
|--------------|-------------------|
| A | > 90% |
| B+ | 87 – 89.9% |
| B | 80 – 86.9% |
| C | 70 – 76.9% |
| C+ | 77 – 79.9% |
| D | 65 – 69.9% |
| F | <64.9% |

Important grading issues

To pass the CA course, students must make at least 70% overall in the course.

Individual grades are reported for the permanent record as either A, B+, B, C+, C, D, and F. Exact scores are only used to determine the grade category.

Written Exams

Unit Exams

The unit examinations are 24% of the value of the final grade. The unit examinations include both a written and laboratory practical component. The two components are of equal value. Two components (written and practical) are given on the same day; both components have 60 test items. The written examination questions will be simple multiple-choice questions (select the best answer). Many written questions will emphasize the clinical application of anatomy and will often be based on clinical scenarios. Information from all course activities is considered testable material for the written exams. The unit examination will not have questions from previous units.

Students will NOT be allowed to keep their unit examinations. The final examination is not comprehensive. The approximate percentages for the sources of the written exam questions are as follows:

Lecture-guided topics and clinical presentations, 75-85%

Assigned reading not lectured upon, 5-10%

Integration of X-sectional and radiographic anatomy, 5-10%

Unit Exams

There will be three quizzes, which will occur at approximately the mid-point of each unit. The quizzes will include a written and practical component. For the practical, students will work in teams to identify the structures on the cadavers and radiographic images.

NBME Subject Examination

This is a comprehensive examination testing knowledge in anatomy and embryology. The score on the Subject Examination will be adjusted so 50th percentile is equal to the class mean on the other examinations in the course. This examination will count for 16% of the final grade

Laboratory Assessment

Laboratory Unit Exams

The primary evaluation of the student's anatomical knowledge over the laboratory activities will be through three unit practical examinations during the course. The practical examinations consist of 60 questions consisting of basic identification and association type questions. Approximately 40 structures are tagged on the cadavers, models and skeletons, and the content level is comparable to most of the BOLDED TEXT structures in the dissector. About 10 questions will test knowledge about normal radiology and cross-sectional anatomy. The practical examinations are not comprehensive.

Evaluation of teamwork of red and blue lab activities

You will complete a peer-evaluation of your group members' participation in both the red and blue teams' activities. You will also do a self-evaluation of your own performance.