

Summer 2022

## **Radiologic Anatomy**

BME 6533; Section ; 3 Credits

### **CLASS MEETING INFO**

Tuesdays: 12:45 PM – 3:00 PM; Thursdays: 8:30 AM – 9:45 AM

Location: Communicore Room C2-33

### **INSTRUCTOR**

BC Schwarz, Ph.D.; schwbc@radiology.ufl.edu

*Office Hours: Arrange via email*

### **TEACHING ASSISTANTS**

Megan Glassell, M.S.; mgla0001@radiology.ufl.edu

*Office Hours: Arrange via email*

### **DESCRIPTION**

Imaging techniques as they relate to human anatomy and physiology

### **PRE-REQUISITES/CO-REQUISITES**

None

### **OBJECTIVES**

1. Students will develop a thorough knowledge of human anatomy, human physiology, and medical terminology.
2. Students will learn fundamental knowledge of human anatomy and physiology illustrated through radiological imaging techniques of relevance to the medical physicist.
3. Students will develop the ability to identify normal and abnormal anatomy/physiology from current medical imaging modalities (radiography, fluoroscopy, CT, MRI, PET, SPECT, and ultrasound) and effectively communicate with physicians regarding the details of image interpretation
4. Students will learn the basis of cancer staging in different tissues and the effective treatment paradigms for each of these tissues

### **MATERIALS AND SUPPLY FEES**

None

### **REQUIRED TEXTBOOKS & SOFTWARE**

Microsoft PowerPoint (or another presentation software which can be screen-shared during presentations)

### **RECOMMENDED MATERIALS**

<https://openstax.org/details/books/anatomy-and-physiology?Book%20details>

Anatomy for Diagnostic Imaging, 3<sup>rd</sup> Edition

Useful anatomy and physiology websites which can be utilized by students during the course:

- [https://web.archive.org/web/20180728152807/http://www2.med.wayne.edu/diagRadiology/Anatomy\\_Modules/Page1.html](https://web.archive.org/web/20180728152807/http://www2.med.wayne.edu/diagRadiology/Anatomy_Modules/Page1.html)

## COURSE SCHEDULE

Date	Lecture	Topic	Instructor
5/10/2022	1	Course Intro and Review	B Schwarz
5/10/2022	2	Basics of Image Interpretation	B Schwarz
5/10/2022	3	Thorax Overview	B Schwarz
5/10/2022	4	Chest Wall Structures	B Schwarz
5/10/2022	5	Thoracic Spine	M Glassell
5/12/2022	6	Chest Muscles	M Glassell
5/12/2022	7	Breast Anatomy	B Schwarz
5/17/2022	8	Lung Anatomy	TBD
5/17/2022	9	Lung Physiology and Function	TBD
5/17/2022	10	Bronchial Tree	TBD
5/17/2022	11	Pleura Appearance and Function	TBD
5/17/2022	12	Anatomy and Structure of the Mediastinum	TBD
5/19/2022	13	Heart: Anatomy, Physiology, and Function	TBD
5/19/2022	14	Imaging of the Heart and Coronary Vessels	TBD
5/24/2022	15	Pulmonary Vessels: Structure, Anatomy, Evaluation	TBD
5/24/2022	16	Systemic Vessels: Function, Anatomy, Evaluation	TBD
5/24/2022	17	Esophagus and Thoracic Duct	TBD
5/24/2022	18	Review for Exam 1/Clinical Case Studies (Lecture 1-18)	B Schwarz
5/26/2022		<b>Exam 1 (material through Lecture 1-18)</b>	
5/31/2022	19	Overview of Abdominal Structure, Organs, and Imaging	TBD
5/31/2022	20	Abdominal Wall, Diaphragm, and Peritoneal Cavity	TBD
5/31/2022	21	Abdominal Vasculature	TBD
5/31/2022	22	Lymphatic Vessels and Major Nerves	TBD
5/31/2022	23	Lumbar Spine and Abdominal Skeleton	TBD
6/2/2022	24	Esophagus and Gastroduodenal	TBD
6/2/2022	25	Small Intestine and Colon	TBD
6/7/2022	26	Spleen and Pancreas	TBD
6/7/2022	27	Liver and Biliary System	TBD
6/7/2022	28	Kidneys and Adrenal Glands	TBD
6/7/2022	29	Renal Physiology	TBD
6/7/2022	30	Urinary and Reproductive Systems	TBD
6/9/2022	31	Functional Imaging of the Abdomen	TBD
6/9/2022	32	Review for Exam 2/Clinical Case Studies (Lectures 19-31)	B Schwarz
6/14/2022		<b>Exam 2 (material from Lecture 19-32)</b>	
6/14/2022	33	MRI Fundamentals and Review	B Schwarz
6/16/2022	34	Brain Structures, Regions, and Function	TBD
6/16/2022	35	Spinal Cord Structure, Regions, and Function	TBD
6/21/2022	36	CSF Production, Flow, and Function	TBD
6/21/2022	37	Bony Anatomy of the Skull and C-Spine	TBD
6/21/2022	38	Eyes and Associated Structures	TBD
6/21/2022	39	Ear and Associated Structures	TBD
6/21/2022	40	Nose and Associated Structures	TBD
6/23/2022	41	Soft Tissue and Facial Muscles	TBD
6/23/2022	42	Head and Neck Vasculature	TBD
6/28/2022	43	Examples of Neuroradiology Techniques and Functional Imaging	TBD
6/28/2022	44	Hormone Structure, Transport, and Function	TBD
6/28/2022	45	Glands and Organs of the Endocrine System	TBD
6/28/2022	46	Hormonal and Systemic Interactions	TBD
6/28/2022	47	Organization of the Lymphatic System	TBD
6/30/2022	48	Immune Response and Specific/Non-Specific Defenses	TBD
6/30/2022	49	Review for Exam 3/Clinical Case Studies	B Schwarz

7/5/2022		<b>Exam 3 (material from Lecture 33-49)</b>	
7/7/2022	50	Imaging Techniques for Upper and Lower Extremities	TBD
7/7/2022	51	Bones and Joints of Upper Extremities	TBD
7/12/2022		<b>NO CLASS (AAPM Annual, Washington D.C.)</b>	
7/14/2022		<b>NO CLASS (AAPM Annual, Washington D.C.)</b>	
7/19/2022	52	Muscles of Upper Extremities	TBD
7/19/2022	53	Vasculature of Upper Extremities	TBD
7/19/2022	54	Bones and Joints of Lower Extremities	TBD
7/19/2022	55	Muscles of Lower Extremities	TBD
7/19/2022	56	Vasculature of Lower Extremities	TBD
7/21/2022	57	Abnormalities and Case Studies of Extremities	TBD
7/21/2022	58	BI-RADS and Breast Cancer Staging	TBD
7/26/2022	59	Breast Cancer Treatments	TBD
7/26/2022	60	PI-RADS and Prostate Cancer Staging	TBD
7/26/2022	61	Prostate Cancer Treatments	TBD
7/26/2022	62	Lung-RADS and Lung Cancer Staging	TBD
7/26/2022	63	Lung Cancer Treatments	TBD
7/28/2022	64	Head and Neck Cancers and Staging	TBD
7/28/2022	65	Head and Neck Cancer Treatments	TBD
8/2/2022	66	Contrast Agents: Types, Protocols, and Concerns	TBD
8/2/2022	67	TIPS Procedures	TBD
8/2/2022	68	Review for Exam 4 and Clinical Case Studies	B Schwarz
8/4/2022		<b>Exam 4 (material from Lecture 49-68)</b>	

#### ATTENDANCE POLICY; CLASS EXPECTATIONS; MAKE-UP POLICY

Attendance is required during this course. The “participation” portion of the course is dependent upon regular attendance. Any class periods that may be missed should be brought to the attention of the instructors as far in advance as possible.

Excused absences must be consistent with university policies in the Graduate Catalog and require appropriate documentation: <https://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#attendance>

#### EVALUATION OF GRADES

A list of graded categories is shown below in the table. There is no homework for this course.

Assignment	Percentage of Final Grade
Class Presentations	30%
Participation	10%
Topical Examinations	60%
	<b>Total: 100%</b>

In the course schedule above, the instructor for the majority of the lectures is listed as “TBD.” Many of the lectures in this course will be researched and then presented on by the students with the class instructor filling in informational holes at the end of each students lecture. This student schedule will be determined prior to the first class and distributed to the students. All students will have an even number of presentations throughout the semester on which they will be graded. This grade constitutes the “class presentation” portion of the final grade.

*General presentation guidelines are as follows:*

- Each presentation should be prepared using a presentation software (ideally Microsoft PowerPoint) and be approximately 15-20 minutes in duration with 5 minutes for Q/A as well as extra information to be provided by the instructor
- Total presentation time > 25 minutes will incur a 15% grading penalty
- Presentation format and content should roughly follow the following format, as appropriate:
  - Introduction
    - Overview of the anatomical structures to be discussed

- b. Overview of the physiological function
  - c. Imaging modalities commonly used and the associated rationale
- II. Details
- a. Identification of detailed anatomic structures
  - b. Definitions of appropriate terminology
  - c. Physical visualization
  - d. Radiological visualization
  - e. Details of physiological function
  - f. Relationship to other structures and organs
- III. Imaging Examples
- a. Examples of normal anatomy and physiology
  - b. Examples of abnormal appearances, disease, etc.

## GRADING POLICY

Percent	Grade
93-100	A
90-92	A-
87-89	B+
83-86	B
80-82	B-
77-79	C+
73-76	C
70-72	C-
67-69	D+
63-66	D
60-62	D-
59 & below	E

More information on UF grading policy may be found at: <http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#grades>

## STUDENTS REQUIRING ACCOMMODATIONS

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565; <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

## EVALUATIONS

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu/evals>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

## UNIVERSITY HONESTY POLICY

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

## SOFTWARE USE

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such

violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

## **STUDENT PRIVACY**

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>

## **CAMPUS RESOURCES**

### **Health and Wellness**

#### **U Matter, We Care**

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

#### **Counseling and Wellness Center**

352-392-1575; <http://www.counseling.ufl.edu/cwc>

#### **Sexual Assault Recovery Services (SARS)**

352-392-1161; Student Health Care Center

#### **University Police Department**

352-392-1111 (or 911 for emergencies); <http://www.police.ufl.edu/>

### **Academic Resources**

#### **E-learning Technical Support**

352-392-4357 (select option 2); [learning-support@ufl.edu](mailto:learning-support@ufl.edu); <https://lss.at.ufl.edu/help.shtml>

#### **Career Resource Center**

Career assistance and counseling.

352-392-1601; Reitz Union; <https://www.crc.ufl.edu/>

#### **Library Support**

Various ways to receive assistance with respect to using the libraries or finding resources.

<http://cms.uflib.ufl.edu/ask>

#### **Teaching Center**

General study skills and tutoring.

352-392-2010 or 352-392-6420; Broward Hall; <https://teachingcenter.ufl.edu/>

#### **Writing Studio**

Help brainstorming, formatting, and writing papers.

352-846-1138; 302 Tigert Hall; <https://writing.ufl.edu/writing-studio/>

#### **Student Complaints Campus**

[https://www.dso.ufl.edu/documents/UF\\_Complaints\\_policy.pdf](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf)

#### **On-Line Students Complaints**

<http://www.distance.ufl.edu/student-complaint-process>