

**SYLLABUS**  
**Human Functional and Clinical Gross Anatomy (ANAT 6181)**

**COURSE DESCRIPTION:**

ANAT 6181 is a graduate course at a certificate level designed to provide a broad appreciation for the structural organization of the human body and to relate the organization to regional and systems-related functions. There will be a strong emphasis on clinical implications and how disease and/or injury affect normal anatomical structure/function relationships. The syllabus is supplemented with additional educational material and assignments, which are appropriate for students enrolled in the graduate certificate in Anatomical and Translational Sciences. Students will be assigned online weekly discussions on journal articles matching the topic of the week's lecture (see *Readings*). Discussion of these topics will be monitored via an online discussion board in blackboard. In addition, students will prepare a clinical presentation on an anatomical topic relevant to a specific lecture and derived from an article featured in popular media (e.g., *Washington Post*, *Time*, etc). Students will also be provided with an online lab manual utilizing content from the department's NetAnatomy website. These sessions will constitute the foundation for three practical exams taken on blackboard for each third course. Finally, lecture material is supplemented with cadaveric demonstrations in the Gross Anatomy Laboratory of the Medical School.

**LEARNING OBJECTIVES:**

- 1) Discuss the structure and function of the musculoskeletal system in relation to its importance in the limbs, thorax, abdomen, and pelvis.
- 2) Describe the regional organization, structure, and function of the major organ systems in the thorax (Respiratory and Cardiovascular Systems), abdomen (Digestive System), and pelvis & perineum (Urinary and Reproductive Systems).
- 3) Describe the structural organization of the head and neck and the distribution and function of the various cranial nerves.
- 4) Identify major anatomical structures in the human body using radiographs, ultrasound, CT, MRI images.
- 5) Illustrate clinical correlates associated with the major systems of the human body.

**CREDIT HOURS: 3**

**PREREQUISITE:** Introductory Biology for Science or non-Science Majors. Enrollment in the Graduate Certificate in Anatomical and Translational Sciences or permission of the Director of the Graduate Certificate.

**CONTACT TIME/HOURS:** Tues. 2:20 – 3:35 pm.  
Thurs. 2:20 – 3:35 pm

Room: Ross 117

**LABORATORY SESSIONS:** Thurs. 3:40 – 5:00 pm (Ross 218)

**METHOD OF ASSESSMENT:** There will be four types of assessments, as follows:

1. **3 Written Exams** : consisting of multiple choice and short answer questions; each exam comprises 16.7% of the total grade for the course
2. **3 Practical Exams** consisting of short answer questions; each exam comprises 10% of the total grade; to be completed online (*individually, closed-book*) via Blackboard by 11:59pm the Saturday following the written denoted in lecture schedule
3. **Clinical Presentation**: consisting of a written PowerPoint, comprising 15% of total grade; to be submitted via blackboard to Dr. Brown after final exam
4. **Online weekly blackboard discussion groups**, comprising 5% of total grade; responses are due each Thursday by 11:59pm as denoted in lecture schedule (note: there is no discussion board due the week of the Spring Break)

**FACULTY:** *Kirsten Brown*, Ph.D. (Course Director, Lecturer, and Lab Instructor)  
Assistant Professor, Department of Anatomy & Regenerative Biology  
Ross Hall 462A; [kmbrown@gwu.edu](mailto:kmbrown@gwu.edu), 202-994-6705  
Topics: Pelvis & Perineum Lectures

Raymond J. Walsh, Ph.D. (Lecturer and Lab Instructor)  
Professor, Department of Anatomy & Regenerative Biology  
Ross Hall 216, [rjwalsh@gwu.edu](mailto:rjwalsh@gwu.edu), 202-994-3511  
Topics: Introductory and Thorax Lectures

Jeffrey Rosenstein, Ph.D. (Lecturer and Lab Instructor)  
Professor, Department of Anatomy & Regenerative Biology  
Ross Hall 426A, [jrosenst@gwu.edu](mailto:jrosenst@gwu.edu), 202-994-3169  
Topics: Upper Limb and Lower Limb Lectures

Ronald Bohn, Ph.D. (Lecturer and Lab Instructor)  
Associate Professor, Department of Anatomy & Regenerative Biology  
Ross Hall 403A, [rcbohn@gwu.edu](mailto:rcbohn@gwu.edu), 202-994-2884  
Topics: Head & Neck lectures

Anne Hirschfield, Ph.D. (Lecturer and Lab Instructor)  
Professor, Department of Anatomy & Regenerative Biology  
Ross Hall 402, [fjs@gwu.edu](mailto:fjs@gwu.edu), 202-994-9558  
Topics: Abdomen lectures

**REQUIRED TEXTS:** Text: Gray's Anatomy for Students, Drake, Vogl, & Mitchell, 3<sup>rd</sup> ed. (recommended; available as e-text through Himmelfarb via [http://catalog.himmelfarb.gwu.edu/iii/encore/record/C\\_\\_Rb1622791\\_SGray%27s%20Anatomy%20for%20Student%27s\\_\\_Orightresult\\_U\\_\\_X7?lang=eng&suite=gwmed](http://catalog.himmelfarb.gwu.edu/iii/encore/record/C__Rb1622791_SGray%27s%20Anatomy%20for%20Student%27s__Orightresult_U__X7?lang=eng&suite=gwmed))

Atlas: Atlas of Human Anatomy, Netter, 6<sup>th</sup> ed. (recommended; available as e-text through Himmelfarb via [http://catalog.himmelfarb.gwu.edu/iii/encore/record/C\\_\\_Rb1622792\\_SAtlas%20of%20Human%20Anatomy\\_\\_Orightresult\\_U\\_\\_X7?lang=eng&suite=gwmed](http://catalog.himmelfarb.gwu.edu/iii/encore/record/C__Rb1622792_SAtlas%20of%20Human%20Anatomy__Orightresult_U__X7?lang=eng&suite=gwmed))

Clinical text: Netter's Clinical Anatomy, JT Hansen, 3<sup>rd</sup> edition (*strongly recommended*; available as e-text through Himmelfarb via [http://catalog.himmelfarb.gwu.edu/iii/encore/record/C\\_\\_Rb1622790\\_SNetter%27s%20Clinical%20Anatomy\\_\\_Orightresult\\_U\\_\\_X7?lang=eng&suite=gwmed](http://catalog.himmelfarb.gwu.edu/iii/encore/record/C__Rb1622790_SNetter%27s%20Clinical%20Anatomy__Orightresult_U__X7?lang=eng&suite=gwmed))

**INTERNET RESOURCE:** [www.NetAnatomy.com](http://www.NetAnatomy.com)

#### **READING LIST:**

- R1. Skobe M, Detmar M. (2006). Structure, function, and molecular control of the skin lymphatic system. *J Investig Dermatol Symp Proc.* 5(1):14-9.
- R2. Arendt E, Dick R. (1995). Knee injury patterns among men and women in collegiate basketball and soccer: NCAA data and review of literature. *Am J Sports Med.* 23(6):694-701.
- R3. Fredericson M1, Cookingham CL, Chaudhari AM, Dowdell BC, Oestreicher N, Sahrmann SA. (2000). Hip abductor weakness in distance runners with iliotibial band syndrome. *Clin J Sport Med.* 10(3):169-75.
- R4. Bickley LS & Szilagyi PG. (2013). Chapter 16: The musculoskeletal system (lower limb). In *Bates' Guide to Physical Examination and History Taking* (11<sup>th</sup> ed., pp. 643-652). Philadelphia: Lippincott Williams & Wilkins. (Bates lower limb)

- R5. Yamaguchi K, Tetro AM, Blam O, Evanoff BA, Teefey SA, Middleton WD. (2001). Natural history of asymptomatic rotator cuff tears: a longitudinal analysis of asymptomatic tears detected sonographically. *J Shoulder Elbow Surg.* 10(3):199-203.
- R6. Bickley LS & Szilagyi PG. (2013). Chapter 16: The musculoskeletal system (shoulder). In *Bates' Guide to Physical Examination and History Taking* (11<sup>th</sup> ed., pp. 615-625). Philadelphia: Lippincott Williams & Wilkins.
- R7. Siqueira MG1, Martins RS. (2011). Surgical treatment of adult traumatic brachial plexus injuries: an overview. *Arq Neuropsiquiatr.* 69(3):528-35.
- R8. Bickley LS & Szilagyi PG. (2013). Chapter 17: The musculoskeletal system (elbow and hand). In *Bates' Guide to Physical Examination and History Taking* (11<sup>th</sup> ed., pp. 626-634). Philadelphia: Lippincott Williams & Wilkins.
- R9. Papini E1, Guglielmi R, Bianchini A, Crescenzi A, Taccogna S, Nardi F, Panunzi C, Rinaldi R, Toscano V, Pacella CM. (2002). Risk of malignancy in nonpalpable thyroid nodules: predictive value of ultrasound and color-Doppler features. *J Clin Endocrinol Metab* 87(5):1941-6.
- R10. Egbert JE, May K, Kersten RC, Kulwin DR. (2000). Pediatric orbital floor fracture: direct extraocular muscle involvement. *Ophthalmology.* 107(10):1875-9.
- R11. Sinagra DL, Montesinos MR, Tacchi VA, Moreno JC, Falco JE, Mezzadri NA, Debonis DL, Curutchet HP, Dhaliwal A, West AL, Trobe JD, Musch DC. (2004). Voice changes after thyroidectomy without recurrent laryngeal nerve injury. *J Am Coll Surg.* 199(4):556-60.
- R12. Blaivas M1, Lyon M, Duggal S. (2005). A prospective comparison of supine chest radiography and bedside ultrasound for the diagnosis of traumatic pneumothorax. *Acad Emerg Med.* 12(9):844-9.
- R13. Bickley LS & Szilagyi PG. (2013). Chapter 7: Thorax and Lungs. In *Bates' Guide to Physical Examination and History Taking* (11<sup>th</sup> ed., pp. 293-300). Philadelphia: Lippincott Williams & Wilkins.
- R14. Bickley LS & Szilagyi PG. (2013). Chapter 7: Cardiovascular System. In *Bates' Guide to Physical Examination and History Taking* (11<sup>th</sup> ed., pp. 333-344). Philadelphia: Lippincott Williams & Wilkins.
- R15. Schier F1. (2006). Laparoscopic inguinal hernia repair-a prospective personal series of 542 children. *J Pediatr Surg.* 41(6):1081-4.
- R16. Costantino TG1, Bruno EC, Handly N, Dean AJ. (2005). Accuracy of emergency medicine ultrasound in the evaluation of abdominal aortic aneurysm. *J Emerg Med.* 29(4):455-60.

- R17. Bickley LS & Szilagyi PG. (2013). Chapter 7: Abdomen. In *Bates' Guide to Physical Examination and History Taking* (11<sup>th</sup> ed., pp. 433-437). Philadelphia: Lippincott Williams & Wilkins.
- R18. Ahn SH1, Mayo-Smith WW, Murphy BL, Reinert SE, Cronan JJ. (2002). Acute nontraumatic abdominal pain in adult patients: abdominal radiography compared with CT evaluation. *Radiology*. 225(1):159-64.
- R19. Nygaard II, Barber MD, Burgio KL, Kenton K, Meikle S, Schaffer J, Spino C, Whitehead WE, Wu J, Brody DJ; Pelvic Floor Disorders Network. (2008). Prevalence of symptomatic pelvic floor disorders in US women. *JAMA*.300(11):1311-6. doi: 10.1001/jama.300.11.1311.
- R20. Bickley LS & Szilagyi PG. (2013). Chapter 14: Female Genitalia. In *Bates' Guide to Physical Examination and History Taking* (11<sup>th</sup> ed., pp. 539-542; 557-564). Philadelphia: Lippincott Williams & Wilkins.
- R21. Bickley LS & Szilagyi PG. (2013). Chapter 15: Anus, Rectum, and Prostate. In *Bates' Guide to Physical Examination and History Taking* (11<sup>th</sup> ed., pp. 577-578; 585-589). Philadelphia: Lippincott Williams & Wilkins.

## **CLASS POLICIES**

Attendance policy: mandatory

Late work: accepted with permission, penalty may be incurred if unduly late as determined by instructor  
Religious Holidays: will be accommodated if requested

[NOTE: for university policies on teaching, see

<http://www.gwu.edu/~academic/Teaching/main.htm> ]

## **ACADEMIC INTEGRITY**

I personally support the GW Code of Academic Integrity. It states: "Academic dishonesty is defined as cheating of any kind, including misrepresenting one's own work, taking credit for the work of others without crediting them and without appropriate authorization, and the fabrication of information." For the remainder of the code, see: <http://www.gwu.edu/~ntegrity/code.html>

## **SUPPORT FOR STUDENTS OUTSIDE THE CLASSROOM**

### *DISABILITY SUPPORT SERVICES (DSS)*

Any student who may need an accommodation based on the potential impact of a disability should contact the Disability Support Services office at 202-994-8250 in the Marvin Center, Suite 242, to establish eligibility and to coordinate reasonable accommodations. For additional information please refer to: <http://gwired.gwu.edu/dss/>

### *UNIVERSITY COUNSELING CENTER (UCC) 202-994-5300*

The University Counseling Center (UCC) offers 24/7 assistance and referral to address students' personal, social, career, and study skills problems. Services for students include:

- crisis and emergency mental health consultations
- confidential assessment, counseling services (individual and small group), and referrals  
<http://gwired.gwu.edu/counsel/CounselingServices/AcademicSupportServices>

### **SECURITY**

In the case of an emergency, if at all possible, the class should shelter in place. If the building that the class is in is affected, follow the evacuation procedures for the building. After evacuation, seek shelter at a predetermined rendezvous location.

Date	Lecture
January 12 Tuesday	Introduction to the Course Introduction to Radiology, the Lymphatic System, and Anatomical Terms Introduction to the Musculoskeletal System (Walsh)
January 14 Thursday	Introduction to the Musculoskeletal System, Spine, Spinal Cord and Spinal Nerves (Rosenstein) Introduction to the Gross Anatomy Lab (Walsh)  <u>Lab #1 - Introduction to the Gross Anatomy Lab &amp; the Limbs</u> <b>Blackboard discussion board #1</b>
January 19 Tuesday	Upper Limb I – Shoulder (Dr. Rosenstein)
January 21 Thursday	Upper Limb II - Axilla and Arm (Dr. Rosenstein)  <u>Lab #2 – Upper Limb</u> <b>Blackboard discussion board #2</b>
January 26 Tuesday	Upper Limb III - Forearm (Dr. Rosenstein)
January 28 Thursday	Upper Limb IV - Hand (Dr. Rosenstein)  <u>Lab #3 – Upper Limb</u> <b>Blackboard discussion board #3</b>
February 2 Tuesday	Lower Limb I – Gluteal Region (Dr. Rosenstein)
February 4 Thursday	Lower Limb II – Thigh (Dr. Rosenstein)  <u>Lab #4 – Lower Limb</u> <b>Blackboard discussion board #4</b>
February 9 Tuesday	Lower Limb III – Leg & Foot (Dr. Rosenstein)
February 11 Thursday	Lower Limb IV – Hip, Knee, & Ankle Joints (Dr. Rosenstein)  <u>Lab #5 – Lower Limb</u> <b>Blackboard discussion board #5</b>

February 16 Tuesday	<b>Written Exam I</b>
February 18 Thursday	Head & Neck I (Bohn) <u>Lab #6 - Head &amp; Neck</u> <b>Blackboard discussion board #6</b> <b>Lab Practical I due by 11:59 pm on Saturday 2/20</b>
February 23 Tuesday	Head & Neck II (Bohn)
February 25 Thursday	Head & Neck III (Bohn) <u>Lab #7 - Head &amp; Neck</u> <b>Blackboard discussion board #7</b>
March 1 Tuesday	Head & Neck IV (Bohn)
March 3 Thursday	Head & Neck V (Bohn) <u>Lab #8 – Head &amp; Neck</u> <b>Blackboard discussion board #8</b>
March 8 Tuesday	Thorax I – Thoracic Wall & Diaphragm (Walsh)
March 10 Thursday	Thorax II – Lungs & Pleurae (Walsh) <u>Lab #9 - Thorax</u> <b>Blackboard discussion board #9</b>
March 14-19	<b>Spring Break</b> <b>No classes</b>
March 22 Tuesday	Thorax III – Heart & Cardiac Cycle (Walsh)
March 24 Thursday	Thorax IV – Mediastinum (Walsh) <u>Lab #10 – Thorax</u> <b>Blackboard discussion board #10</b>
March 29 Tuesday	<b>Written Exam II</b>

March 31 Thursday	Abdomen I - Abdominal Walls (Hirshfield)  <u>Lab #10 – Abdominal Wall</u> <b>Blackboard discussion board #11</b> <b>Lab Practical II due by 11:59 pm on Saturday 4/2</b>
April 5 Tuesday	Abdomen II - Peritoneum & Blood Supply to the Abdomen (Hirshfield)
April 7 Thursday	Abdomen III - Abdominal Organs I (Hirshfield)  <u>Lab #11 – Abdomen</u> <b>Blackboard discussion board #12</b>
April 12 Tuesday	Abdomen IV - Abdominal Organs II (Hirshfield)
April 14 Thursday	Pelvis and Perineum I – Pelvis and Pelvic Walls (Brown)  <u>Lab #13 - Abdomen and Pelvis</u> <b>Blackboard discussion board #13</b>
April 19 Tuesday	Pelvis and Perineum II – Pelvic Organs (Brown)
April 21 Thursday	Pelvis and Perineum III – Neurovasculature (Brown)  <u>Lab #13 - Pelvis</u> <b>Blackboard discussion board #14</b>
May 2-10 TBD	<b>Written Exam III</b> <b>Practical Exam III (due by 11:59 pm)</b> <b>Clinical Powerpoint due after</b>