

GEORGE MASON UNIVERSITY
School of Recreation, Health, and Tourism

ATEP 510 – C02 — Advanced Functional Anatomy (3)
Summer 2016

DAY/TIME:	Online and Off-campus	LOCATION:	TBD
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PRE/COREQUISITES

Prerequisites: Basic human anatomy and physiology and functional anatomy knowledge required.

Co-requisites: None

COURSE DESCRIPTION

Investigates the musculoskeletal anatomy including innervation, vascular anatomy, and function of the neck, trunk and limbs. Synthesizes anatomy, physiology, and human movement as it relates to injury; case studies are used to enhance the understanding of human anatomy and interpret movement impairments.

COURSE OBJECTIVES

At the completion of this course, the student will be able to:

1. Explain correct anatomical terminology to describe the structural features of the trunk, thorax, pelvis, and limbs, and positional terminology to relate them to the anatomical position and anatomical planes,
2. Model the distribution pattern of the vascular system for the neck, trunk and limbs,
3. Contrast the key components, organization, and function of the central, peripheral and autonomic nervous systems and name and locate major branches of the peripheral nervous system.
4. Estimate potential for movement at selected joints based on joint shape, joint inclusions, and connective tissue attachments,
5. Appraise how the architectural features of key muscles contribute to their role in movement
6. Select muscle location, attachments, innervations, blood supply, actions, and functions,
7. Summarize key features of gross anatomical structures to normal human activity and function,
8. Interpret the principles of clinical gait and posture analysis and apply theoretical knowledge to a clinical setting,
9. Evaluate gait and posture including static and dynamic function, and
10. Integrate the essential anatomical components of frequently used orthopedic physical exam techniques.

ACCREDITATION STANDARDS

The course meets Commission on Accreditation of Athletic Training Education (CAATE) competencies and proficiencies in one or more of the following content areas: evidence-based practice, prevention and health promotion, clinical examination and diagnosis, acute care of injury and illness, therapeutic interventions, psychosocial strategies and referral, healthcare administration, professional development and responsibility.

NATURE OF COURSE DELIVERY

Hybrid

COURSE OVERVIEW

This is an intensive summer course. The first part of the course will include discussion of the musculoskeletal anatomy, how humans move and its effects on injury and impairments including gait and posture. The course will also introduce students to cadaver anatomy so that they can explain relationships of the human musculoskeletal system.

DELIVERY METHOD:

This course will be delivered via a hybrid method. This method includes online delivery using an Asynchronous format via the Blackboard learning management system (LMS) housed in the MyMason portal. Students will log in to the Blackboard course site using your Mason email name (everything before “@masonlive.gmu.edu) and email password. The course site will be available on **June 27th 2016**. There will be a practical laboratory portion on-campus, and an off-campus portion of class that will meet at INOVA Fairfax Hospital. The instructor will provide specific details about the off-campus portion during the laboratory classes.

TECHNICAL REQUIREMENTS:

To participate in this course, students will need the following resources:

- High-speed Internet access with a standard up-to-date browser, either Internet Explorer or Mozilla Firefox. Opera and Safari are not compatible with Blackboard;
- Consistent and reliable access to their GMU email and Blackboard accounts, as these are the official methods of communication for this course.
- Students may be asked to create logins and passwords on supplemental websites and/or to download trial software to their computer or tablet as part of the course requirements.

IMPORTANT: When you create a profile for this or other course-related websites, please use a general user ID and password that is not very personal, as you may be asked to share this with the instructor and or group members.

- If you are having trouble logging into Blackboard, contact ITU at 703-993-8870 or support@gmu.edu. For assistance within Blackboard, contact the Collaborative Learning Hub at or 703-993-3141 or club@gmu.edu
- Blackboard On Demand: For Students: <http://ondemand.blackboard.com/students.htm> This site features video tutorials on how to use many of Blackboard’s features, including posting to a discussion board, posting an assignment, and checking your grades.
- Class announcements and reminders will be made through the Blackboard “Announcements” function. Be sure to check Blackboard and your email regularly. You are responsible for being aware of the information communicated through these venues

ATTENDANCE

For the practical laboratory sessions, students are expected to be on time, attend all meetings and be prepared for in class assignments and projects. Excused absences include the following: illness (must bring a receipt or note from a doctor), family death, athletic/academic event (contact instructor in advance), and others at the discretion of the instructor. For known upcoming absences, students must contact the instructor at least one week in advance to the missed class to make up work. In the case of illness or some other unforeseen absence, the student must contact the instructor before the course meeting via e-mail. ***Students will have one week from the excused absence to complete any missed assignments.*** It is the student's obligation to pursue any make-up work.

MEDICAL PROFESSIONALISM

It is critical each student conduct themselves in an appropriate manner and decorum fitting of a health care provider. Making light of injuries, conditions, or illnesses that is not respectful to the class, instructor, or patient study will not be tolerated. Submission of documents or assignments should not include personal information and comply with Health Insurance Portability & Accountability Act (HIPAA) regulations.

E-MAIL CORRESPONDENCE

Only messages that originate from a George Mason University address will be accepted. The following is an appropriate professional format:

Dear Dr. Ambegaonkar; (*Beginning salutation*)

I am looking forward to your class. (*Text body*)

Regards, (*Ending Salutation*)

First Name Last Name (*Your name*)

TECHNOLOGY USE DURING CLASS

As per GMU policy, all sound emitting technology is required to be turned off during the class meeting time. Additionally, *no laptop computers, Smart Phones, or other technology* will be permitted for use during class time; the exceptions are for use during presentations/projects, and technology deemed as necessary by the Office of Disability Services. Students utilizing various technology devices during class will be asked to leave class and will not be permitted to complete course work or receive any points for assignments that day.

EXPECTATIONS:

- **Course Week:** Because asynchronous courses do not have a “fixed” meeting day, our week will **start** on Monday, and **finish** on Sunday
- **Log-in Frequency:** Students must actively check the course Blackboard site and their GMU email for communications from the instructor not knowing about assignment will not be an acceptable excuse. The discussion boards will require one detailed comment and two responses to other students’ comments.
- **Participation:** Students are expected to actively engage in all course activities throughout the semester, which may include viewing of all course materials, completing course activities and assignments, and participating in course discussions and group interactions.
- **Technical Competence:** Students are expected to demonstrate competence in the use of all course technology. Students are expected to seek assistance if they are struggling with technical components of the course.
- **Technical Issues:** Students should expect that they could experience some technical difficulties at some point in the semester and should, therefore, budget their time accordingly. Late work will not be accepted based on individual technical issues.
- **Workload:** Expect to log in to this course **at least 4 times a week** to read announcements, participate in the discussions, and work on course materials. Remember, this course is **not** self-paced. There are **specific deadlines** and **due dates** listed in the **CLASS SCHEDULE** section of this syllabus to which you are expected to adhere. It is the student’s responsibility to keep track of the weekly course schedule of topics, readings, activities and assignments due.
- **Advising:** If you would like to schedule a one-on-one meeting to discuss course requirements, content or other course-related issues, and you are unable to come to the Mason campus, we can meet via telephone or web conference. Send me an email to schedule your one-on-one session and include your preferred meeting method and suggested dates/times.
- **Netiquette:** Our goal is to be **collaborative**, not combative. Experience shows that even an innocent remark in the online environment can be misconstrued. I suggest that you always re-read your responses carefully before you post them to encourage others from taking them as personal attacks. **Be positive in your approach to others and respectful with your words.** I will try to do the same. Remember, you are not competing with each other but sharing information and learning from one another as well as from the instructor.

REQUIRED READINGS

1. Loudon, J.K., Manske, R.C. & Reiman, M.P. (2013). Clinical Mechanics and Kinesiology. Champaign, IL : Human Kinetics
2. Biel, A. (2014). Trail Guide to the Body, 5th Edition. Books of Discovery.

3. Biel, A. (2014). Trail Guide to the Body Student Workbook, 5th Edition. Books of Discovery.
4. Web-resource <http://www.booksofdiscovery.com/students/index.php> (Need to Register for online access with book for palpation videos and other resources)

EVALUATION

Examinations

The format of the examinations may include multiple choice, true/false, labeling, short answer, matching, and fill in the blank type questions. The examinations will be made available by **Thursday 11.59 am Eastern Standard Time (EST – Note: All times are EST)** and will close at **Sunday 11.59 pm**. The exams will cover all chapter materials and assigned readings.

Class Participation

If students do not attend class, they cannot complete activities. Just being present in class does not mean being active and engaged. Students should be active participants in all activities. *Students can only make up an in-class activity if they have pre-approved absence or proof of illness*

Palpation Examination

One assessment of palpation psychomotor skills will be administered. The skills practiced in class will be assessed in a live practical examination format. This is a real time examination that will require the student to locate various anatomical structures on a live model. Students will be randomly scheduled for testing.

Student Work Book

Students will complete the Student Work Book over the entire course and submit it as per syllabus timeline.

Quizzes

As indicated on the Course Calendar, quizzes will be given for required readings. This may include brief multiple choice and true-false assessments of your knowledge from the assigned readings.

Gait/Posture Analysis Project

Students will analyze an abnormal posture and a gait pattern or provided by the instructor. Students will write 1 page each about the items below. All assignments must follow the most current American Medical Association (AMA) style guidelines. The assignment must be no more than two-pages in length, 12-point Times New Roman font, double-spaced, with 1" margins.

For the provided posture defect, students will

1. Identify the muscles that are short and the muscles that are long (or may be weak) (10 points)
2. Describe the course of action(s) to correct the dysfunction. (10 points)

For the provided abnormal gait/running pattern, students will

1. Identify the contributing factors for the abnormal pattern (5 points)
2. Describe how the abnormality affects the various phases of the gait cycle (5 points)
3. Detail the movement errors due the abnormal pattern (5 points)
4. Explain the possible treatment strategies to correct the abnormal pattern (5 points)

Due date: The assignment has to be completed and turned in online on Blackboard by **August 19 2016 11.59 am EST**.

Assignments handed in after the deadline will automatically get a grade of zero.

Evidence Based Medicine (EBM) Assignment

Evidence-based medicine is the practice of medicine based on the best available evidence. Health professionals caring for children and adults need to be aware of the evidence about the benefits and harms of preventive methods, diagnostic strategies, treatments, and rehabilitation techniques in order to provide optimal care to their patients. For this assignment,

students will examine the evidence in the literature by critically reviewing an original research article where the researchers have examined how musculoskeletal anatomy or posture related issues could influence an individual's risk developing an injury or pathology. Some examples include

- Influence of quadriceps muscles strength and knee injury risk
- Effects of lumbar spine posture and low back pain
- Do different running patterns affects ankle injury risk
- Does a medial foot wedge affect heel pain

Finding Articles:

1. Go to <http://library.gmu.edu/>
 - a. George Mason University has subscriptions and access to a wide range of journals and databases. You have the best chance of accessing an article going this route. If you go directly to a database or journal, you may not have access to the desired article. If you find an article but cannot get access to it, please email Dr. Ambegaonkar.
2. Search articles and use filters to meet all the criteria below
3. Print the article or download PDF so that you can upload it with your paper

Selection Guidelines:

- From a peer-reviewed journal (e.g. Journal of Athletic Training, American Journal of Sports Medicine)
- Must be less than 10 years old
- Must be Original research. Hint: Look to see whether it has sections labeled “Methods” or “Procedures”, not meta-analysis, systematic review, or literature review
- Must have FULL-text, not just the abstract

Presentation and Format:

1. The assignment must be: no more than two-pages in length, 12-point Times New Roman font, double-spaced, with 1” margins. Make sure your review is thorough and concise.
2. No two students are allowed to review the same article. Choose an article on a topic that you are interested in. Even if two students are interested in the same topic, surely, there are many articles available so that two students can cover different facets of the same topic.
3. For full credit, please see the rubric below for the grading scale.

Grading Rubric:

1. *Selection Guidelines (10 points)*
 - a. Appropriate article chosen with the guidelines stated under “Article guidelines”
2. *Presentation and Format (10 points)*
 - a. Constructed with the guidelines stated under “*Presentation and Format*” (5 points)
 - b. Grammar, spelling, and writing technique (5 points)
 - i. Writing should be college-level writing, concise, and critical.
3. *Content Summary (20 points)*
 - a. Introduction (5 points)
 - i. What is the background of the study?
 - ii. What is the purpose of the study?
 - b. Methods (5 points)
 - i. What were the methods used in this study?
 - ii. Include VERY brief information here and minimal information on sample demographics
 - iii. What is a quick summary of the protocol used for this study?
 - c. Results (5 points)
 - i. Summarize the findings and interpretations
 - ii. Do not explain the statistics

- d. Conclusions (5 points)
 - i. What were the main conclusion(s) of the study? Did it support or refute the original hypothesis?
 - ii. What are the implications for further research?
- 4. *Critical Review (10 points)* –
 - a. Clinical application (5 points)
 - i. How can this information be used in in clinical practice?
 - ii. How does this information contribute to the body of knowledge AND how can you implement it?
 - b. Criticism (5 points)
 - i. Not all studies are done perfectly. What are your criticisms about this study? (NOTE: a critical reviewer must have expert knowledge in the field, methods, and research process. Since you are still developing these skills, please try to think of some ideas that the researchers could use to improve their study or other researchers looking to replicate the study.)

Submission Guidelines:

- **Due date:** The assignment has to be completed and turned in online on Blackboard by **August 23 2016 11.59 am EST**. Assignments handed in after the deadline will automatically get a grade of zero.

The overall course will be graded on a point system, with a total of 550 possible points.

ASSESSMENT METHOD	NUMBER	POINTS EACH	POINTS TOTAL
Examinations	5	50	250
Class Participation	6	5	30
Quizzes	3	10	30
Palpation Examination	1	100	100
Student Work Book	NA	Complete/Incomplete	50
Gait/Posture Analyses Project	1	40	40
Evidence Based Medicine (EBM) Assignment	1	50	50
TOTAL	—	—	550

Grading Scale

The student's final letter grade will be earned based on the following scale:

- | | |
|------------------------------|------------------------------|
| A: 550 – 511.5 pts. (93%) | B-: 456 – 440 pts. (80%) |
| A-: 511 – 495 pts. (90%) | C+: 439.5 – 423.5 pts. (77%) |
| B+: 494.5 – 478.5 pts. (87%) | C: 423 – 401.5 pts. (73%) |
| B: 478 – 456.5 pts. (83%) | F: 401 < (70%) |

GRADING

Every attempt will be made to grade and return assignments in a timely manner to provide students with constructive feedback. To provide students the opportunity to fully assess the feedback provided on graded assignments, the professor will be happy to answer any questions at the next class period following the return of the assignments or during the professor's office hours. The professor acknowledges the passion with regards to grades, but unprofessional and uncivil behavior either in person or through other modes of communication will not be tolerated.

NAME

Your name **MUST** be on your assignments when you submit them. Failure to put your name will result in a 0 for the assignment.

MAKE UP WORK

Students who miss an examination, quiz or other class activity because of an excused absence must complete the assignment ***within a week of the excused absence***. It is the student's obligation to pursue any make-up work.

TENTATIVE COURSE SCHEDULE

Dates	TENTATIVE TOPIC	READING ASSIGNMENT	Assignments Due
6/27-7/3 Online	Introduction / Review Basic Functional Anatomy	L: 1-78 TG: pg. 20-37, 42	Exam (Chapters 1-5)
7/4-7/10 Online	Neck and Trunk Anatomy	L: 79-144 TG: pg. 168, 170-173, 188-195, 196-223, 244-249	Exam (Chapters 6-9) SWB: pg. 1-2, 85,87, 90-94, 119, 143
7/11-7/17 Online	Upper Extremity Musculoskeletal Anatomy	L: 173-256 TG: pg. 46-50, 61-62, 65-66, 100-104, 108, 110-112, 116-120, 127-131, 149	Exam (Chapters 10-12) SWB: pg. 25,26, 28-31,38, 47-50, 52-55, 58-60, 69-70
7/18-7/24 Online	Lower Extremity Musculoskeletal Anatomy	L: 257-336 TG: pg. 276-283, 296-99, 305, 344-347, 347-348, 392-392, pg. 246, 240-243	Exam (Chapters 13-15) SWB: pg. 143-148, 150-154, 163-165, 179, 181-183, 187-188
7/25-7/31 Online	Posture and Gait	L: 337-388	Exam (Chapters 16-19)
8/15 – Lab	Palpation Introduction, Neck and Trunk Palpations	TG: pg. 1-18 169, 175-187, 196-223, 244-249	Quiz 1 – Neck and Trunk
8/16 – Lab	Upper Extremity Palpations	TG: pg. 51-60, 67-99, 102-106, 274, 108-109, 113-130, 132-166	Quiz 2 – Upper Extremity
6 8/17 – Lab	Lower Extremity Palpations	TG: pg. 284-295, 306-342, 350-365, 371-391, 394-405	Quiz 3 – Lower Extremity
8/18 – INOVA	INOVA Fairfax Cadaver Laboratory		
8/19 – INOVA	INOVA Fairfax Cadaver Laboratory		Gait/Posture Analyses Project due
8/22 - Lab	Palpations Review and Mock Exam		SWB
8/23 - Lab	Palpations Exams		Evidence Based Medicine Assignment
L: Loudon, TG: Trail Guide, SWB: Student Work Book, Lab = Hands on Laboratory in Colgan Hall 318 – 9.30-11.30 am , INOVA = Cadaver Hands on Laboratory at Advanced Surgical Technology and Education Center (ASTEC) Department of Surgery, 3300 Gallows Road Falls Church, VA 22042 – 10am-3pm			

NOTE: Faculty reserves the right to change the syllabus.

Student Expectations

- Students must adhere to the guidelines of the George Mason University Honor Code [See <http://oai.gmu.edu/the-mason-honor-code/>].
- Students with disabilities who seek accommodations in a course must be registered with George Mason University Disability Services and inform their instructor, in writing, as soon as possible. Approved accommodations will begin at the time the written letter from Disability Services is received by the instructor [See <http://ods.gmu.edu/>].
- Students must follow the university policy for Responsible Use of Computing [See <http://universitypolicy.gmu.edu/policies/responsible-use-of-computing/>].
- Students are responsible for the content of university communications sent to their George Mason University email account and are required to activate their account and check it regularly. All communication from the university, college, school, and program will be sent to students solely through their Mason email account.
- Students must follow the university policy stating that all sound emitting devices shall be turned off during class unless otherwise authorized by the instructor.

Campus Resources

- The George Mason University Counseling and Psychological Services (CAPS) staff consists of professional counseling and clinical psychologists, social workers, and counselors who offer a wide range of services (e.g., individual and group counseling, workshops and outreach programs) to enhance students' personal experience and academic performance [See <http://caps.gmu.edu/>].
- The George Mason University Writing Center staff provides a variety of resources and services (e.g., tutoring, workshops, writing guides, handbooks) intended to support students as they work to construct and share knowledge through writing [See <http://writingcenter.gmu.edu/>].
- For additional information on the College of Education and Human Development, School of Recreation, Health, and Tourism, please visit our website [See <http://rht.gmu.edu/>].
- The Office of Student Support staff helps students negotiate life situations by connecting them with appropriate campus and off-campus resources. Students in need of these services may contact the office by phone (703-993-5376). Concerned students, faculty and staff may also make a referral to express concern for the safety or well-being of a Mason student or the community (<http://studentsupport.gmu.edu/>) and the staff will follow up with the student.

PROFESSIONAL BEHAVIOR: Students are expected to exhibit professional behaviors and dispositions at all times.

CORE VALUES COMMITMENT: The College of Education and Human Development is committed to collaboration, ethical leadership, innovation, research-based practice, and social justice. Students are expected to adhere to these principles.

