

PT 605: Applied Anatomy and Biomechanics II

Course Description: This course will provide the anatomical and biomechanical knowledge to understand the human movement system and apply these concepts for the practice of physical therapy. Anatomy and Biomechanics of the back, neck, scapulothoracic, and upper extremity will be covered.

Faculty: Ricky Morgan, PT; Gary Schindler, PT, PhD

Credit Hours: Two (2) credit hours

Clock Hours: Lecture: Monday and Wednesday (7:30am-9:00 am); **Fridays (8:00am-9:00am if needed)**

Course Prerequisites:

Registered in the Professional Physical Therapy curriculum

Course Objectives:

- A. Identify, locate and illustrate during written examinations and in clinical application, the major structures along with their function and relationships to each other in all regions of the body. This includes, but is not limited to, innervation, vascular supply, musculoskeletal structure and function, and connective tissue components. (SRE 7A)(Cognitive: Comprehension and Application; Psychomotor: Set and Mechanism)
- B. Identify and/or discuss the structure and function of a typical joint and the specific functional anatomy of the shoulder, elbow and hand/finger joints. (SRE 7A) (Cognitive: Comprehension and Application; Psychomotor: Set and Mechanism)
- C. Identify the peripheral nerve plexuses of the body, apply the information to muscles innervated by any peripheral nerve, and the resulting muscle dysfunction due to a particular nerve injury. (SRE 7A) (Cognitive: Comprehension and Application)
- D. Illustrate the major structures and relationships of the contents of the thoracic cavity including but not limited to the visceral structures, the sympathetic and parasympathetic innervations and vascular supply to the viscera, as well as skeletal and muscular structures located in the region. (SRE 7C) (Cognitive: Comprehension and Application)
- E. Discuss the biomechanics and kinesiology of the shoulder joint along with muscles and forces acting on the shoulder joint in normal and pathologic conditions. (7A. Comprehension).
- F. Discuss the biomechanics and kinesiology of the elbow and wrist joints along with muscles and forces acting on the elbow and wrist joints in normal and pathologic conditions (7A. Comprehension).
- G. Discuss the biomechanics and kinesiology of the hand along with muscles and forces acting on the hand in normal and pathologic conditions (7A. Comprehension).
- H. Describe, examine and evaluate normal and pathological human movement (7A, 7D19d, 7D19i, 7D19m, Evaluation).

Teaching Methods and Curriculum Practice Model: Teaching methods in this course include lecture, small group activities, and discussion.

Methods for Evaluation: The format of written examinations may include, but are not limited to: true/false, multiple choice, matching, short answer, and/or essay questions. Weekly quizzes, mid-term exam, final exam, and assignments all must be completed with a minimum score of 76%. See grading criteria below.

Grading (Grade based on total points):

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|-----------------------------|------------------------|
| Midterm Written Examination | 90-100% = A |
| Final Written Examination | 80-89% = B |
| Mid-Block Examinations | 76-79% = C |
| Quizzes | < 76% = Unsatisfactory |

Required Textbook and Material:

Jeno/Keck: Anatomy for Allied Health 7th ed.

Moore: Clinically Oriented Anatomy, 9th Ed.

Color Atlas: Student's choice of numerous atlas' available (Netter's is available through the online system)

Kinesiology of the Musculoskeletal System: Foundations for Rehabilitation, 3rd ed. by Donald A. Neumann, PT, PhD., FAPTA. Publisher is Elsevier; ISBN #9780323287531.

Recommended Supplies: Colored pencils

Attendance: Class attendance is expected 100% of the time. Students should follow the Department Scholastics Standards document on how to report absences. Tardiness is not tolerated. Please remember that arriving late for anything is a distraction and it places your peers in a less than adequate position for learning. **If the number of times you arrive late for lecture exceed two you will have five course points deducted for every day thereafter you are late.**

EXPECTATIONS AND ACCOUNTABILITY:

Independent learning and professionalism is expected throughout this course. Students will be held responsible for material presented in lecture, pertinent information covered in the texts related to the topics discussed in lecture/discussion.

Cell phone use is prohibited unless researching information regarding Anatomy or Biomechanics. If you are expecting an important call please inform me. In addition, I have high expectation for all involved in this course. It may seem at times difficult, but I know we can get through it. I expect professionalism, accountability, dependability, integrity, honesty, patience, hard work ethic, and good attitudes to be maintained throughout this course and hopefully your life. This is only going to prepare you when you are a colleague of mine in less than 3-years!!!! One of my favorite quotes is as follows....

“Whether you think you can, or you think you can’t—you’re right”. - Henry Ford

Make Up Work/Examinations: If an absence is anticipated, make-up examinations should be completed *prior* to the absence. If an absence is unanticipated, arrangements for make-up examinations must be made *by the student within three (3) days* of the student's return to classes. **Students may be assigned additional coursework for all absences.** Students will not be allowed to make-up in-class quizzes due to an absence.

Academic Integrity:

In accordance with the rules concerning scholastic dishonesty in the Code of Student Life* at the University of North Dakota, I affirm that I understand these rules and I agree to comply with them.

I will not:

- a) receive any additional information or assistance for any exam other than what was provided during class or approved tutor sessions
- b) copy from another student's test
- c) collaborate with or seek aid from another student who may have previously taken the exam
- d) knowingly use, buy, sell, steal, or solicit in whole or in part the contents of any exam
- e) bribe another person to obtain information about any exam

Department of Physical Therapy Honor Code Pledge:

"Upon my honor as a professional student in the physical therapy program at the University of North Dakota, I pledge that I will not give nor receive unauthorized aid on written examinations, laboratory practical examinations, written assignments, take home assignments or clinical assignments." Examination disclaimer: "I affirm that I have adhered to the Honor Code in this assignment"

Forms of Academic Dishonesty. Academic dishonesty includes, but is not limited to:

1. Copying or distributing examination items
2. During testing, using crib notes or various forms of technology not authorized by faculty
3. Copying another student's written paper or examination, with or without their knowledge
4. Helping someone else cheat on a test
5. Communicating or collaborating during a test by electronic means such as instant messaging, telephone, texting, smart watches, or social media.
6. Discussing test items or answers (written or laboratory) with students who have not yet taken the examination
7. Cutting and pasting text from any source without giving proper citation to that source
8. Plagiarism of any materials
9. Fabricating or falsifying written materials
10. Falsely reporting information or actions in clinical or classroom laboratories
11. Submitting the same paper, or a substantially similar paper, for the requirements of more than one course without the approval of the instructor(s) concerned
12. Submitting term papers or assignments written by another person
13. Consenting to having one's work used by another student as his or her own
14. Collaborating on a project (in person or via electronic means) when the instructor asked for individual work
15. Using a false excuse to obtain an extension on a due date or delay an examination
16. Depriving other students of necessary course materials by stealing books, periodicals, or other materials from libraries, AV centers, etc.

If problems occur, students are required to work through channels of communication to resolve the problem before going to the chair or dean. The channel is student, instructor, chair, associate dean health sciences, and dean. rev 8/19

Notice of Nondiscrimination

It is the policy of the University of North Dakota that no person shall be discriminated against because of race, religion, age, color, gender, disability, national origin, creed, sexual orientation, gender identity, genetic information, marital status, veteran's status, or political belief or affiliation and the equal opportunity and access to facilities shall be available to all. Concerns regarding Title IX, Title VI, Title VII, ADA, and Section 504 may be addressed to Donna Smith, Assistant Vice President for Equal Opportunity and Title IX/ADA Coordinator, 102 Twamley Hall, 701.777.4171, UND.EO.TitleIX@UND.edu or the Office for Civil Rights, U.S. Dept. of Education, 230 S. Dearborn St., 37th Floor, 500 West Madison, Suite 1475, Chicago, IL 60611 or any other federal agency.

Accessibility Statement

The University of North Dakota is committed to providing equal access to students with documented disabilities. To ensure access to this class and your program, please contact [Accessibility for Students](#) to engage in a confidential discussion about accommodations for the classroom and clinical settings. Accommodations are not provided retroactively. Students are encouraged to register with Accessibility for Students at the start of their program.

More information can be obtained by email, UND.accessibilityforstudents@UND.edu, or by phone at 701.777.2664.

Religious Accommodations

UND offers religious accommodations, which are reasonable changes in the academic environment that enable a student to practice or observe a sincerely held religious belief without undue hardship on the University. Examples include time for prayer or the ability to attend religious events or observe a religious holiday. To request an accommodation, complete [student religious accommodation request form](#) . If you have any questions, you may contact the [Equal Opportunity & Title IX Office](#).

Pregnancy Accommodations

Students who need assistance with academic adjustments related to pregnancy or childbirth may contact the [Equal Opportunity & Title IX Office](#) or Academic Affairs to learn about your options. Additional information and services may be found at [Pregnancy Resources](#).

Reporting Discrimination, Harassment, or Sexual Misconduct

If you or a friend has experienced sexual misconduct, such as sexual harassment, domestic violence, dating violence, or stalking, please contact the [Equal Opportunity & Title IX Office](#) or UND's Title IX Coordinator, Donna Smith, for assistance at 701.777.4171 or donna.smith@UND.edu.

You may also contact the Equal Opportunity & Title IX office if you or a friend has experienced discrimination or harassment based on a protected class, such as race, color, national origin, religion, sex, age, disability, sexual orientation, gender identity, genetic information, pregnancy, marital or parental status, veteran's status, or political belief or affiliation.

Faculty Reporting Obligations Regarding Discrimination, Harassment, or Sexual Misconduct

It is important for students to understand that faculty are required to share with UND's Title IX Coordinator any incidents of sexual misconduct or of discrimination or harassment based on a protected class that they become aware of, even if those incidents occurred in the past or are disclosed as part of a class assignment. This does not mean an investigation will occur if the student does not want that, but it does allow UND to provide resources to help the student continue to be successful at UND. If you have been impacted by discrimination, harassment, or sexual misconduct, you can find information about confidential support services at the [Equal Opportunity and Title IX](#) webpage.

Health and Safety

UND is committed to maintaining a safe learning environment while providing quality learning experiences for our students. As such, UND asks students and instructors to be flexible when necessary to promote a safe environment for learning. Please do not attend an in-person class or lab if you are feeling ill or if you have been directed by health professionals to quarantine or isolate. UND follows isolation and quarantine guidelines recommended by the [CDC and the North Dakota Department of Health](#). If you are not able to attend class or lab, please notify your instructor as soon as possible and discuss options for making up any missed work in order to ensure your ability to succeed in the course. If you will have an extended absence due to serious illness or other uncontrollable circumstances, you may request an absence notification through the [Office of Community Standards](#). Similarly, if your instructor is ill they may need to cancel class or temporarily move your course to online delivery to ensure that you are able to complete the course successfully. Please consult the [COVID-19 at UND](#) webpage for information regarding on-campus COVID-19 testing, isolation and quarantine guidelines, and vaccines.

SCHEDULE

M/W: 7:30am-9:00am (F: 8:00am-9:00am as needed)

Room E221

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| 1/8 (M) | No Class | ANATOMY | BIOMECHANICS |
| 1/9 (Tu) E312 | Anatomy: Osteology; Extrinsics/Intrinsics of Back; U/E circulation & Brachial Plexus; Anterior Neck, Shoulder | 8:00am-12:00pm 1:00pm-5:00pm | |
| 1/10 (W) W202 | Anatomy: Extrinsics/Intrinsics of Back; U/E circulation & Brachial Plexus; Anterior Neck, Shoulder | 8:00am-12:00pm LAB: 1:00-3:00 | |
| 1/11 (Th) E312 | Anatomy: Extrinsics/Intrinsics of Back; U/E circulation & Brachial Plexus; Anterior Neck, Shoulder Biomechanics: Cervical/Thoracic Spine Biomechanics: Cervical/Thoracic Spine/ Shoulder | 8:00am-11:00am LAB: 3:00-5:00 | 11:00am-12:00pm 1:00pm-3:00pm |
| 1/12(F) E312 | Biomechanics: Shoulder | LAB: 10:00-12:00 | 8:00am-10:00am |
| 1/15 | Martin Luther King Jr. Day Holiday – No Class | | |

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| 1/17 | Anatomy: Cubital Fossa; Posterior forearm muscles | |
| 1/19 (F) | Weekly Review | 8:00am-9:00am |
| 1/22 | Anatomy: Posterior/lateral forearm muscles/dorsum of hand | |
| 1/24 | Anatomy: Posterior/lateral forearm muscles/dorsum of hand | |
| 1/26 (F) | Weekly Review | 8:00am-9:00am |
| 1/29 | Biomechanics: Elbow | |
| 1/31 | Biomechanics: Elbow | |
| 2/2 (F) | *Quiz 1 W206* | 1:00pm-3:00pm |
| 2/5 | Anatomy: Anterior forearm musculature (TBD) | Sports residency interviews |
| 2/7 | Anatomy: Anterior forearm musculature | |
| 2/9 (F) | Biomechanics: Wrist | 8:00am-9:00am |
| 2/12 | Anatomy: Intrinsic Hand Muscles (TBD) | Sports residency interviews |
| 2/14 | No Class (CSM) | |
| 2/16 (F) | No Class (CSM) | |
| 2/19 | President's Day Holiday – No Class | |
| 2/21 | Anatomy: Intrinsic Hand Muscles | |
| 2/23 (F) | Biomechanics: Hand | 8:00am-9:00am |
| 2/26 | Biomechanics: Hand | |
| 2/28 | Review | |
| 3/1 (F) | *Mid-Block Exam 1 W206* | 1:00pm-3:00pm |
| 3/4-3/8 | Spring Break | |
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| 3/11 | Anatomy: Intercostals, posterior thoracic wall; Heart, lungs, and face | |
| 3/13 | Anatomy: Intercostals, posterior thoracic wall; Heart, lungs, and face | |
| 3/15 (F) | Weekly Review | 8:00am-9:00am |
| 3/18-3/22 | Midterm Week | |
| 3/20(W) | *Mid-term Exam W206* | 8:00am-1:00pm |
| 3/25 | Review | |
| 3/27 | Anatomy: Intercostals, posterior thoracic wall; Heart, lungs, and face | |
| 3/29 (F) | Good Friday – No Class | |
| 4/1 | Easter Break – No Class | |
| 4/3 | Anatomy: Face and TMJ | |
| 4/5 (F) | *Quiz 2 W206* | 1:00pm-3:00pm |
| 4/8 | Anatomy: Face and TMJ | |
| 4/10 | LE Application | |
| 4/12 (F) | Weekly Review | 8:00am-9:00am |
| 4/15 | LE Application | |
| 4/17 | Lab Exam II – No Lecture | |
| 4/19 (F) | *Mid-Block Exam 2 W206* | 1:00pm-3:00pm |
| 4/22 | UE Application | |
| 4/24 | UE Application | |
| 4/26 (F) | Weekly Review | 8:00am-9:00am |
| 4/29 | UE Application | |
| 5/1 | Review for Final Exam | |
| 5/3 (F) | *Final Exam W206* | 8:00am-1:00pm |

5/6-5/10

Finals Week
