
COURSE DESCRIPTION:

This course will provide the anatomical and biomechanical knowledge to understand the human movement system and apply these concepts to the practice of physical therapy which includes the dissection of human cadavers. Anatomy and Biomechanics of the spine, pelvis, and lower extremity will be covered along with the basic structural and functional relationships of the musculoskeletal, integumentary, neuromuscular, and cardiovascular/pulmonary systems.

CAPTE Standards & Elements:

7A, 7B, 7B1, 7C, 7C2, 7D, 7D13

DEPARTMENT OFFERING THE COURSE:

UND School of Medicine and Health Sciences - Department of Physical Therapy

CREDIT HOURS: Four (4) credit hours

ABOUT THE PROFESSOR & CONTACT INFORMATION:

Name: Gary Schindler, DPT, Ph.D., OCS, SCS, LATC, CSCS

Phone: (701) 777-6081 office; 701-335-3134 cell- Please identify yourself in your message. Text is the best way to contact me.

Email: gary.schindler@und.edu: E-mails will try to be answered within a 24-hour period unless otherwise stated; however, may not be read after work hours.

Office Location: UND-SMHS Suite E321, Room E344

Student Hours: Mondays and Wednesdays 1:00 – 3:00 pm or by appointment

ADDITIONAL FACULTY:

Ricky Morgan, PT, DPT, PhD, Cert. MDT, OCS

Nicholas Holkup, PT, DPT

COURSE CONTACT HOURS:

Schedule (Clock hours): Monday and Wednesday 7:30-11:00 am

Lecture Hours: 48 hours per semester (M/W 7:30-9:00)

Laboratory Hours: 64 hours per semester (M/W 9:00-11:00)

COURSE PREREQUISITES:

Registered in the professional Physical Therapy program.

COURSE OBJECTIVES:

After successfully completing this course, you should be able to:

- Identify, locate and illustrate during written/lab 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: **BLOOMS:** Cognitive: Remember and Apply; Psychomotor: Mechanism: **PG:** 1, 5: **THREADS:** Professionalism.
- Identify, illustrate, and/or discuss the structure and function of a typical joint and the specific functional anatomy of the hip, knee, ankle joints and joints of the spine. **SRE:** 7A: **BLOOMS:** Cognitive: Comprehension and Application; Psychomotor: Mechanism: **PG:** 1, 5: **THREADS:** Critical Inquiry/Clinical Decision Making, EBP, and Professionalism.

- Identify and illustrate 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: **BLOOMS:** Cognitive: Remember and Apply; Psychomotor: Mechanism: **PG:** 1, 4, 5: **THREADS:** Professionalism.
- Illustrate and identify the major structures and relationships of the contents of the abdominal and pelvic cavities 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:** 7A: **BLOOMS:** Cognitive: Remember and Apply; Psychomotor: Mechanism: **PG:** 1, 5: **THREADS:** Professionalism.
- Apply the anatomical knowledge presented in class along with appropriate evidence to the preparation of a patient case scenario and demonstrate professional communication skills in the presentation of the scenario to teach peers. **SRE:** 7B, 7B1, 7C2, 7D, 7D13 : **BLOOMS:** Cognitive: Remember and Apply; Affective: Organizing; Psychomotor: Mechanism: **PG:** 1, 4, 5: **THREADS:** Critical Inquiry/Clinical Decision Making, EBP, and Professionalism.
- Consistently demonstrate professional behavior and respect for faculty, peers and cadaveric materials throughout the course. **SRE:** 7B, 7B1: **BLOOMS:** Affective: Responding and Valuing: **PG:** 1, 5: **THREADS:** Professionalism.
- Discuss anatomical planes, axes and human body movement description. **SRE:** 7A: **BLOOMS:** Cognitive: Remember and Apply; Psychomotor: Mechanism: **PG:** 1, 5: **THREADS:** Professionalism.
- Discuss the types of levers and applications, the resolution and composition of forces, work and power. **SRE:** 7A: **BLOOMS:** Cognitive: Remember and Apply; Psychomotor: Mechanism: **PG:** 1, 5: **THREADS:** Professionalism.
- Discuss the biomechanics of muscle contractions, including the effect of length on tension and the effect of velocity on force development. **SRE:** 7A: **BLOOMS:** Cognitive: Remember and Apply; Psychomotor: Mechanism: **PG:** 1, 5: **THREADS:** Professionalism.
- Discuss the biomechanics and kinesiology of the hip, knee, ankle/foot joints, and spine/pelvis along with muscles and forces acting on the peripheral joints and spine/pelvis in normal and pathologic conditions. **SRE:** 7A: **BLOOMS:** Cognitive: Remember and Apply; Psychomotor: Mechanism: **PG:** 1, 4, 5: **THREADS:** Professionalism.

COURSE SCHEDULE AND OUTLINE OF CONTENT:

LECTURE SCHEDULE (M/W; 7:30am-9:00am)

8/21 (W)	Anatomy: Integumentary, Connective Tissue, Lymphatics, Neurological (Room E101)	1:00pm – 5:00pm
8/22 (Th)	Anatomy: Lumbar Plexus, LE Osteology, Circulation (Room E101)	10:00am - 5:00pm
8/23 (F)	Anatomy: Gluteal/ER Musculature, hip Arthrology Biomechanics: Basic Concepts	8:00am - 11:00am 11:00am - 12:00pm
8/26	No CLASS: Orientation Day	
8/28	Biomechanics: Lever Systems/Muscle Biomechanics	
9/2	NO CLASS: Labor Day:	
9/4	Anatomy: Thigh (posterior, anterior/medial) Musculature	
9/6 (F)	Practice Written Exam (Room W206: 1:00-3:00)	
9/9	Anatomy: Thigh (posterior, anterior/medial) Musculature	
9/11	Anatomy: Thigh (posterior, anterior/medial) Musculature & Knee Arthrology	
9/13 (F)	Quiz 1 (Room E221; 1:00pm – 3:00pm)	
9/16	Biomechanics: Hip	
9/18	Biomechanics: Hip	
9/23	Anatomy: Anterior leg; dorsum of foot	
9/25	Anatomy: Popliteal Fossa; Posterior and lateral leg	
9/27 (F)	Mid-Block Exam 1 (Room E221; 1:00pm – 3:00pm)	
9/30	Biomechanics: Knee	
10/2	Biomechanics: Knee	
10/7	Anatomy: Ankle/Foot Arthrology; Leg/Foot Musculature	
10/9	Anatomy: Foot Musculature; Arches of foot	
10/14 – 10/18	Mid-term Written Examination (Wednesday, 10/16/23 - Room E221; 8:00 am – 12:00pm)	
10/21	Review Test: Go to lab early	
10/23	Biomechanics: Ankle/Foot (Lecture 7:30-9:30)	
10/28	Anatomy: Arthrology of Spine; Anterior Abdominal Wall	
10/30	Anatomy: Anterior Abdominal Wall	
11/1 (F)	Quiz 2 (Room E221; 1:00pm – 3:00pm)	

11/4	Anatomy: Deep Back Muscles
11/6	Anatomy: Intestines/Pelvic Floor
11/11	Holiday: Veteran's Day
11/13	Biomechanics: Lumbar Spine
11/18	Biomechanics: Lumbar Spine
11/20	No Lecture: Anatomy Lab Practical (8:00am - 11:00am)
11/22 (F)	Mid-Block Exam 2 (Room E221; 1:00pm – 3:00pm)
11/25	Anatomy: Intestines/Pelvic Floor
11/27	NO CLASS: Thanksgiving: Holiday
12/2	Anatomy: Posterior Abdominal Wall
12/4	Biomechanics: Normal Gait
12/9	Biomechanics: Normal Gait
12/11	Review
12/13 (F)	Anatomy/Biomechanics Final (Room E101; 8:00am – 12:00pm)
12/16 - 12/20 Finals week for all other PT classes	

PT 603 GROSS LAB SCHEDULE FALL 2024

(M/W; 9:00 am-11:00 am)

R, 8/22	Intro to lab, lab coat distribution, meet lab table TA (8:00-10:00)
F, 8/23	Lab Dissection: Gluteal region/Lateral Rotators (1:00-3:00)
M, 8/26	NO CLASS: Orientation Day
W, 8/28	Gluteal region/Lateral Rotators
M, 9/2	NO CLASS: Labor Day
W, 9/4	Gluteal region/Lateral Rotators and Posterior Thigh
M, 9/9	Posterior Thigh
W, 9/11	Femoral Triangle, begin Anterior Thigh
M, 9/16	Anterior Thigh
W, 9/18	Anterior Thigh
M, 9/23	Medial Thigh
W, 9/25	Practice Lab Exam
M, 9/30	Medial Thigh
W, 10/2	Anterior Leg/Dorsum of foot
M, 10/7	Anterior Leg/Dorsum of foot
W, 10/9	Table Review
M-F 10/14-10/18	NO LAB: Mid-Term Week Mid-Term Lab Exam I (Thru Anterior Thigh)
M, 10/21	Popliteal Space and Posterior/Lateral Leg (Lab early)
W, 10/23	Popliteal Space and Posterior/Lateral Leg (Lab 9:30)
M, 10/28	Plantar Surface of Foot
W, 10/30	Plantar Surface of Foot
M, 11/4	Plantar Surface of Foot
W, 11/6	Anterior Abdominal Wall
M, 11/11	NO CLASS: Veteran's Day
W, 11/13	Anterior Abdominal Wall
M, 11/18	Table Review
W, 11/20	Lab Exam II (Thru Plantar Surface of Foot)
M, 11/25	Internal Structures
W, 11/27	NO CLASS: Happy Thanksgiving!!
M, 12/2	Internal Structures
W, 12/4	Complete all Dissections
M, 12/9	Table Review
W, 12/11	Table Review
12/13	Final Written and Lab Exam (Friday prior to Finals week)

DESCRIPTION OF TEACHING METHODS AND LEARNING EXPERIENCES:

Teaching methods in this course include lectures, small group activities, discussion, and cadaver lab experience.

Laboratory - lab consists of cadaver dissection, introduction to imaging, active learning with dry lab activities, case study presentations/discussions, online learning experiences, and small group discussions with teaching assistants to review content and prepare for upcoming examinations.

- a) Information is presented in laboratory and discussion format. Independent learning is expected throughout the course to promote life-long learning in the anatomical sciences and their application to patient care practices. The course requires dissection and study of human cadaveric specimens working in groups of 4 students. Clinical case presentations prepared and presented by the students are used to enhance the learning experience in the laboratory. Discussion sessions allow the students to interact in small groups with teaching assistants, providing the opportunity for individual and group learning utilizing methods that can be tailored to the needs of the specific students. Group discussion and tutorial opportunities enhance the learning opportunities for the students.

COURSE MODE OF DELIVERY:

- Synchronous, in-person

MATERIALS

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.

***Note:** A Theme *Atlas of Anatomy* is provided for each dissecting table in the lab.

Anatomy Laboratory Manual

Instructor Schindler

Available on Blackboard only, each lab table will be provided with a hard copy of the Laboratory Manual

Recommended Supplies: Colored pencils.

METHODS OF STUDENT 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%. Lab examinations will consist of a minimum of three (3) exams covering specific blocks of material. See the grading criteria below.

Grading (Grade based on total points):

Midterm Written Examination

90-100% = A

Final Written Examination

80-89.9% = B

Mid-Block Examinations

76-79.9% = C

Quizzes

< 76% = Unsatisfactory

Lab examinations

Case Studies

Any questions regarding the grading of exams are to be handled in a professional manner and **in writing** with an explanation of your concern and your reference that includes the page number to justify your

answer. Any correspondence concerning exams must be made within 1 week from the time exams are taken by the student. After that time, no alterations to exam grades will be made and existing scores will be used for grade calculations

For more information on grading policies, please refer to the [UND-PT Scholastic Standards Document](#)

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 is expected throughout this course. Students will be held responsible for material presented in lecture and dissected in the laboratory, pertinent information covered in the texts related to the topics discussed in lecture/lab/discussion, and all material covered in lecture and laboratory including laboratory manual, case presentations, and any additional information presented during laboratory sessions.

QUESTIONS/PROBLEMS

If, during the course of the semester, questions should arise, the first step is to approach the primary instructor, Dr. Gary Schindler. If satisfaction is not achieved, the Department Chair, Dr. Cindy Flom-Meland would be the next person to contact. Please refer to the Scholastic Standards Manual for further details. All questions regarding exams should be referred to Dr. Gary Schindler.

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 expectations 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

Makeup Work/Examinations (written): 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.

*****No make-up LAB EXAMS are permitted in this course except in extreme circumstances (i.e. student is hospitalized). Students may be required to complete a separate assignment if a laboratory exam is missed.**

LABORATORY INFORMATION:

Required Equipment: Disposable Gloves, Latex Free (students purchase)

Provided Equipment: Theme's Atlas and Lab Manual for each dissection table
Dissection Tools for each table
Lab Coat, provided by the PT Department (\$25 fee if not returned at end of the semester)
Face Shields
Scalpel Blades (provided by the department unless overuse occurs)

Attendance/Participation:

Attendance/Participation is required at all assigned lab sessions. Due to the presence of chemicals used in preparation of the cadavers, if pregnant or planning to become pregnant during the semester, please notify the instructor. If any other situation would limit your attendance/participation in lab activities, please notify the instructor on the first day of class (or as soon as the situation becomes known) to determine the appropriate course of action. Failure to do so may result in unsuccessful completion of the course.

Lab Rules:

Lab coats are required at all times.

NO open-toe shoes. Hair longer than shoulder length must be tied back.

NO FOOD OR DRINK IS ALLOWED IN THE LAB AT ANY TIME

Dissection is to occur **ONLY** during regular lab times **AND** a faculty member must be present in the lab.

See the Lab Manual for additional information.

Independent lab learning is encouraged and expected throughout this course. The lab is accessible to PT 604/606 students any time another class is not using the lab. DO NOT disturb Med Gross Labs on Tuesdays and Thursdays. The lab is to remain LOCKED at all times other than regularly scheduled lab times. **Visitors and guests are NOT allowed in the gross lab at any time.**

The cadavers we are privileged to utilize in the study of gross anatomy are graciously donated to the University through the Deeded Body Program. The opportunity to review and dissect the human body is a privilege that carries with it an important responsibility for treating the human cadaver with utmost respect and dignity. Conversational language of cadaver dissection outside the laboratory should be respectful and discreet and **discussing anatomy lab or the cadaver dissection in any electronic or social media forum is not allowable. Failure to abide by these guidelines may result in disciplinary action and/or dismissal from the course. If any student has a family member or friend who has donated their body to the University through the Deeded Body Program, please notify the course instructor.

COURSE ACCESS & TECHNICAL REQUIREMENTS

This course was developed and will be facilitated utilizing Blackboard. For access go to:

<http://blackboard.UND.edu> and log in with your NDUS Identifier. If you do not know your NDUS Identifier or have forgotten your password, please visit [Your NDUS Account Webpage](#)

Visit the [UND Technical Requirements](#) webpage for more information. Students are expected to use their official UND email in the course. For technical assistance, please contact [UND Technical Support](#) at 701.777.2222

ARTIFICIAL INTELLIGENCE (AI)

Artificial Intelligence tools are allowed in this course as approved by the instructor(s). Students are required to disclose if they use AI-generated text or images and how they apply it in their work. Failure of students to acknowledge their use of AI or using fabricated information could result in their violation of the Academic Integrity Policy. Students must ensure the originality of their work, maintain academic integrity, and avoid any type of plagiarism. The students need to understand the material and complete assignments on their own, using AI tools as a supplement rather than a replacement for their work. Students should not use sources that are cited by AI tools without having read them because generative AI tools can either create fake citations or cite a real piece of writing, but the cited content may be inaccurate. The faculty reserves the right to use various plagiarism-checking tools in evaluating students' work, including those screening for AI-generated content, and impose consequences accordingly.

For more information on AI Policies, please visit [Artificial Intelligence Resources](#).

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, 401 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.

The full [Notice of Non-discrimination](#) is available online through Equal Opportunity & Title IX.

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 Student Disability Resources 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 Student Disability Resources at the start of their program. More information can be obtained by email UND.sdr@UND.edu or by phone at 701.777.2100.

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 the [student religious accommodation request form](#). To learn more, please consult UND's [Religious Accommodations Policy](#) or 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](#) and in [UND's Protections for Pregnant and Parenting Students and Employees Policy](#).

Reporting Discrimination, Harassment, or Sexual Misconduct

If you or a friend has experienced sexual misconduct, such as sex-based 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, age, disability, sex, sex characteristics, 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 Equal Opportunity & Title IX Office any incidents of potential 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 & Title IX](#) webpage.

Health and Safety

UND is committed to maintaining a safe learning environment and asks students and instructors to be flexible when necessary to promote quality learning experiences.

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 stay home.

- 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.
- If you will have an extended absence due to serious illness or other uncontrollable circumstances, you may request an absence notification through [Community Standards and Care Network](#).
- If your instructor is ill, they may need to cancel class or temporarily move your course to online delivery.

Please contact [Student Health Services](#) if you have health questions by calling 701.777.4500 or visiting myhealth.und.edu