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**COURSE DESCRIPTION:**

This course provides an overview of physiology and pathophysiology of systems for physical therapists. Associated health conditions, surgical interventions, the influences of co-morbidities and pharmaceutical interventions, and safety concerns are discussed with an application to physical therapy patient/client management.

**DEPARTMENT OFFERING THE COURSE:**

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

**CREDIT HOURS:** 3 Credit Hours

**ABOUT THE PROFESSOR & CONTACT INFORMATION:**

Name: [Dr. Kevin O'Brien, PT, DPT, Cert. MDT](#)

Preferred Pronouns: He / Him / His

Phone: (701)777-3871

Email: kevin.obrien@und.edu

Office Location: UND-SMHS Suite E321, Room E341

Student Hours: By appointment

**COURSE CONTACT HOURS:**

Schedule: Mondays & Wednesdays, 1 PM – 3 PM, Rooms: W202 (Mondays), E221 (Wednesdays)

Lecture / discussion: 36 hours

Team activities / case-based learning: 7 hours

Exams / Quizzes: 5 hours

**COURSE PREREQUISITES:**

Registered in the professional Physical Therapy program.

**COURSE OBJECTIVES:**

After successfully completing this course, you (the student) should be able to:

1. Understand the signs and symptoms of selected health conditions and describe how the health conditions may influence the patient or physical therapy intervention planning. (7A, 7D5, 7D10) (Blooms: Cognitive – Understanding, Applying) (PG 1,4)
2. Apply the course concepts regarding selected health conditions, associated precautions, and intervention recommendations covered in this course to develop an appropriate medical management plan for patients with specific health conditions. (7A, 7D5, 7D6) (Blooms: Cognitive – Applying) (PG 1,2,4)
3. Analyze the effects of multiple co-morbidities and prioritize rehabilitation needs or referral opportunities to other medical disciplines appropriately. (7D1, 7D2, 7D3, 7D18) (Blooms: Cognitive – Analyzing) (PG 1,2)
4. Analyze and discuss case-based patient presentations and utilize the concepts taught in this class to identify specific pathology and develop an accurate prognosis, goals, and intervention plan based on best current evidence. (7C1, 7D5, 7D10) (Blooms: Cognitive – Analyzing, Creating) (PG 1,4)
5. Understand pharmacological intervention for selected health conditions and modify intervention plan for

the effects and precautions associated with selected medications. (7D1, 7D6) (Blooms: Cognitive – Understanding, Applying) (PG 1)

6. Understand and apply lab values, medical imaging, and patient condition data to develop and alter appropriate intervention strategies. (7A, 7D4, 7D5, 7D6) (Blooms: Cognitive – Applying, Evaluating, Creating) (PG 1,4)
7. Describe the physiological responses to infection and the development of human immunity. (7A, 7D2, 7D3) (Blooms: Cognitive – Remembering, Understanding) (PG 1)
8. Demonstrate the ability to work effectively in small group situations, demonstrating the ability to contribute ideas, listen to the ideas of others, and collaborating to organize the ideas and values of the group when assigned a task. (7C1, 7C2, 7D13) (Blooms: Affective – Receiving, Responding, Organizing) (PG 1,5)

Conditions addressed in this course include but are not limited to:

- Arthritic conditions
- Skeletal, joint, and soft tissue disorders & injuries
- Bone infection and neoplasms
- Metabolic Bone Disorders
- Joint Replacement surgical interventions (Knee, Hip, Foot/Ankle, Shoulder, Wrist & Hand)
- Common orthopedic surgical interventions
- Endocrine System
- Gastrointestinal System
- Neurological conditions---CVA, TBI, Concussion, peripheral nerve injury, CNS infection
- Laboratory Studies
- Genetics
- Hepatic/Biliary/Pancreatic Systems
- Immune System and Infectious Disease
- Pharmacology

#### **COURSE SCHEDULE AND OUTLINE OF CONTENT:**

See attached schedule. Schedule is subject to change.

#### **DESCRIPTION OF TEACHING METHODS AND LEARNING EXPERIENCES:**

Teaching methods in this course include lecture, case-based scenarios, and Team-Based Learning pedagogy. Students will be required to demonstrate competency in course content through quizzes, active learning and application activities, and written examinations. The above objectives contribute to the Practice Model Components of Foundational Science; Clinical Science, Professional Practice, Patient/Client Practice and Management.

#### **COURSE MODE OF DELIVERY:**

- Synchronous, in person
- Occasional asynchronous, video recorded content

#### **MATERIALS – TEXT, READINGS, & SUPPLEMENTARY READINGS:**

Goodman, CG; Fuller, KS, *Pathology: Implications for the Physical Therapist*, 5<sup>th</sup> edition  
Giangarra CE, Brotzman, SF; Manske, RC, *Clinical Orthopaedic Rehabilitation*, 4<sup>th</sup> edition

#### **METHODS OF STUDENT EVALUATION:**

In this course, your learning will be assessed in the following ways:

- Individual Readiness Assurance Tests (IRAT) are used to evaluate individual student preparation and content knowledge.

- Team Readiness Assurance Tests (TRAT) are used to evaluate the team’s foundational content knowledge and preparedness for the application activities. Immediate feedback mechanisms are used with TRATs to reinforce priority content concepts and accuracy of foundational knowledge.
- Team application activities and graded assignments are used to evaluate the application of course concepts and clinical decision making as well as collaborative teamwork.
- Written block examinations (4) to assess content knowledge, retention, and application.

**GRADING SCALE:**

Grading Scale		Breakdown	
A	90% to 100%	Individual Readiness Assessment Tests (IRATs)	15%
B	80% to 89.9%	Team Readiness Assessment Tests (TRATs)	10%
C	76% to 79.9%	Graded Application Activities and Assignments	15%
F	< 76%	Written Examinations (4 x 15% each)	60%

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

**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](#).

**UNIVERSITY OF NORTH DAKOTA POLICIES & RESOURCES:**

Academic Integrity

Academic integrity is a serious matter, and any deviations from appropriate behavior will be dealt with strongly. At the discretion of the professor, situations of concern may be dealt with as a scholastic matter or a disciplinary matter. As a scholastic matter, the professor has the discretion to determine appropriate penalties for the student’s workload or grade, but the situation may be resolved without involving many individuals. An alternative is to treat the situation as a disciplinary matter, which can result in suspension from the University, or have lesser penalties. Be aware that I view this as a very serious matter and will have little tolerance and/or sympathy for questionable practices. A student who attempts to obtain credit for work that is not their own (whether that be on a paper, quiz, homework assignment, exam, etc.) will likely receive a failing grade for that item of work, and at the professor’s discretion, may also receive a failing grade in the course. For more information read the [Code of Student Life](#).

Resolution of Problems

Should a problem occur, you should speak to your instructor first. If the problem is not resolved by speaking with your instructor, refer to the college grievance policy by contacting the department chair or the dean’s office. Should the problem

persist after taking these initial steps, you have the right to go to the provost next, and then to the president.

### 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.

### Student Disability Resources

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](mailto: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 Adjustments

Students who need assistance with academic adjustments related to pregnancy or a pregnancy related condition may contact the Equal Opportunity & Title IX Office 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](#).

### 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 & Title IX and Title IX/ADA Coordinator, Twamley Hall, 701.777.4171, [UND.EO.TitleIX@UND.edu](mailto:UND.EO.TitleIX@UND.edu) or the Office for Civil Rights, U.S. Dept. of Education, 230 S. Dearborn St., 37<sup>th</sup> Floor, Chicago, IL 60604 or any other federal agency. The full [Notice of Non-discrimination](#) is available online through Equal Opportunity & Title IX.

### Reporting of Discrimination, Harassment, or Sexual Misconduct

If you or a friend has experienced sexual misconduct, such as sex-based harassment, sexual assault, domestic violence, dating violence, or stalking, please contact the [Equal Opportunity & Title IX Office](#) or UND's Title IX Coordinator, Donna Smith, for assistance: 701.777.4171; [donna.smith@UND.edu](mailto: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, political belief or affiliation, or any other characteristic protected by state or federal law.

### 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 on the [Equal Opportunity & Title IX webpage](#).

More information about UND's policies, reporting options, and response can be found at [SafeUND](#).

## PT 607: Pathophysiology for Physical Therapists I

Class Schedule: Mon & Wed 1:00 – 3:00 PM, Rooms: W202 (Monday), E221 (Wednesday)

Course Coordinator: Dr. Kevin O'Brien

Fall 2024

Week	Date	Room	Topic	Presenter
Pre-Week	23-Aug (F) 300-500p	W202	Immune System / Immunology	Kevin
1	26-Aug (M)		<b>NO CLASS - ORIENTATION</b>	
	28-Aug (W)	E221	Infectious Disease	Kevin
2	2-Sep (M)		<b>NO CLASS - LABOR DAY</b>	
	4-Sep (W)	E221	Musculoskeletal Infections Watch Musculoskeletal Metabolic Disorders video prior to 11-September	Kevin
3	9-Sep (M)	W202	Pharmacology	Dave
	11-Sep (W)	E221	<b>BLOCK I IRAT / TRAT &amp; APPLICATION</b>	Kevin
4	16-Sep (M)	W202	<b>BLOCK I EXAM</b>	
	18-Sep (W)	E221	Arthritis	Kevin
5	23-Sep (M)	W202	Bone and Soft Tissue Injury	Kevin
	25-Sep (W)	E221	Hip Pathology and Surgery	P. Johnson
6	30-Sep (M)	E101	Lab Studies	B. Solberg
	2-Oct (W)	E221	Total Joint Arthroplasty	D. Schall
7	7-Oct (M)	W202	<b>BLOCK II IRAT / TRAT &amp; APPLICATION</b>	
	9-Oct (W)	E221	<b>BLOCK II EXAM</b>	
8	14-Oct – 18-Oct		<b>NO CLASS – MIDTERM WEEK</b> Watch Knee Conditions video lecture prior to 21 Oct	
9	21-Oct (M)	W202	Knee Surgery	P. Johnson
	23-Oct (W)	E221	Endocrine	Kevin
10	28-Oct (M)	W202	Diabetes	E. Johnson
	30-Oct (W)	E221	Ankle / Foot Surgery	Y. Chauhan
11	4-Nov (M)	W202	Genetics	Archana
	6-Nov (W)	E221	Pediatric Genetics	Mohamed
12	11-Nov (M)		<b>NO CLASS – VETERANS DAY</b>	
	13-Nov (W)	E221	<b>Block III IRAT / TRAT &amp; Application</b>	Kevin
13	18-Nov (M)	W202	<b>BLOCK III EXAM</b>	
	20-Nov (W)	E221	Spine Pathology / Nerve Entrapment	M. Gourneau

14	25-Nov (M)	W202	Neuropathology - CVA	Cindy
	27-Nov (W)		<b>NO CLASS – THANKSGIVING</b>	
15	2-Dec (M)	W202	Neuropathology – TBI / Concussion	Cindy
	4-Dec (W)	E221	Gastrointestinal	Dave
16	9-Dec (M)	W202	Hepatobiliary	Dave
	11-Dec (W)	E221	<b>Block IV IRAT / TRAT &amp; Application</b>	Kevin
17	16-Dec - 20-Dec		<b>FINALS WEEK</b>	

**\*\*\*Schedule is subject to change based on the needs of the course. Any changes to the schedule will be announced via email and posted on course Blackboard site.**