

## **PT 540: CARDIOPULMONARY PHYSICAL THERAPY**

**Description:** This course is designed to expand the theoretical understanding and clinical application of cardiopulmonary physical therapy examination, evaluation, diagnosis, prognosis, intervention and outcomes. Laboratory.

### **Department of Physical Therapy:**

**Faculty:** David Relling, PT, PhD; Emily Henneman, PT, DPT, GCS

**Credit Hours:** 2 credit hours

### **Clock Hours:**

Lecture: Tuesday 8-10 am (Rm W202)

Lab: Thursday 8-10 am (Rm E312)

Discussion: N/A

### **Course Objectives:**

Upon completion of this course the student will be able to:

1. Describe normal and pathological aspects of cardiopulmonary anatomy and physiology.
2. Clinically apply cardiopulmonary anatomy and physiology to the physical therapy intervention of the client with primary or secondary cardiopulmonary impairments, functional limitations, and/or disabilities.
3. Demonstrate an understanding of purposes and precautions for client monitoring and support equipment including: mechanical ventilators, pulse oximetry, suction, intravenous lines, oxygen supplementation, and electrocardiographic (EKG) monitoring. Discuss appropriate physical therapy interventions for inappropriate patient/client responses during a physical therapy intervention.
4. Demonstrate an understanding of cardiopulmonary procedures through development of medically appropriate exercise prescriptions and instructions. These instructions must be in a format that is appropriate for the age, language, and social status of the client.
5. Demonstrate an understanding of pharmacological interventions for cardiopulmonary disorders including: type of medication, treatment effects, drug interactions, and side effects.
6. Perform a complete cardiopulmonary physical examination and recognize normal and abnormal signs and symptoms: observation, palpation, auscultation, heart & breath sounds, graded functional testing, percussion, peripheral circulation, ECG, chest mobility.
7. Understand the performance criteria for an entry-level physical therapist in the examination, evaluation, diagnosis, prognosis, and intervention of clients demonstrating impairment, functional limitations or disabilities related to a primary or secondary cardiopulmonary disease process.
8. Determine appropriate expected outcomes and prognoses of clients demonstrating impairment, functional limitations or disabilities related to a primary or secondary cardiopulmonary disease process.

9. Complete bloodborne pathogen training and demonstrate an understanding of bloodborne pathogen procedures by obtaining 80% or higher on the assessment.

**Course Prerequisites:**

Registered in Professional Physical Therapy curriculum.

**Description of Teaching Methods and Learning Experiences:**

Teaching methods in this course include lecture, practical, case scenario, and critical thinking relative to case scenarios and projects. The objectives contribute to the Practice Model Components of Patient Care: Screening\Evaluation\Progression\Discharge; Patient Care: Physical Therapy Intervention; Communications; and Education.

**Outline of Content:** See attached schedule.

**Required and Recommended Texts/Readings:**

Additional readings are highly recommended but are considered supplemental.

DeTurk WE & Cahalin LP. *Cardiovascular & Pulmonary Physical Therapy: An evidence based approach, 3<sup>rd</sup> Ed.* (D)

Jarvis C. *Pocket Companion for Physical Examination and Health Assessment 8<sup>th</sup> ed.* (P)

O'Sullivan SB & Schmitz TJ. *Physical Rehabilitation 6<sup>th</sup> Ed* (SS)

American College of Sports Medicine. *ACSM's Guidelines for Exercise Testing and Prescription 11th ed.* (G)

**Methods of Evaluation:**

Teaching methods in this course include lecture, practical, case scenario, and critical thinking relative to case scenarios and projects. The objectives contribute to the Practice Model Components of Patient Care: Screening\Evaluation\Progression\Discharge; Patient Care: Physical Therapy Intervention; Communications; and Education.

The written examinations will evaluate material, techniques, procedures and theory covered in lectures and laboratory sessions. The format of the exams may include, but are not limited to: multiple choice, true/false, multiple-multiple choice, matching, short answer, essay, and patient problems. Failure to achieve a passing score (80%) on a practical exam will result in retaking the exam one time to demonstrate competence in the content area. Failure to achieve a passing score on the re-take practical exam will result in review by the departmental scholastic standards committee and possible dismissal from the program. The initial score on all exams will be retained for overall course grading purposes. Midterm and Final examinations are considered Summative examinations. Summative examinations require scores of 76% or higher to be considered passing. Students scoring less than 76% MUST retake the summative examinations and demonstrate proficiency at 76% or higher. The initial score on all exams will be utilized for grading purposes.

Class attendance is expected 100% of the time. Students must notify the department by phone at 701.777.2831 or email [ptoffice@und.edu](mailto:ptoffice@und.edu) of any absences. If an absence is anticipated, make up examinations should be completed *prior to* the absence. If an absence is unanticipated, ***make-up examinations must be made-up by the student within three days of the student's return to classes.*** If an absence occurs, missed assignments, quizzes, or projects may be made up based on faculty discretion.

**GRADING:**

Exam I	20%
Exam II	20%
Exam III/Final	25%
Practical Exam I	10%
Practical Exam II	10%
Projects/Assignments	10%
Attendance/Participation	5%

**GRADES:**

90-100%	A
80-89.9%	B
76-79.9%	C
<76%	Unsatisfactory

**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

**DISABILITY ACCESS STATEMENT:**

Contact me, David Relling (office 777-4091, email [david.relling@und.edu](mailto:david.relling@und.edu)), or visit Rm E-347 UND SMHS) to request disability accommodations, discuss medical information, or plan for an emergency evacuation. To get confidential guidance and support for disability accommodation requests, students are expected to register with DSS at [UND.edu/disability-services](http://UND.edu/disability-services), 180 McCannel Hall, or 701.777.3425.

**COVID 19 STATEMENT:**

UND is committed to maintaining a safe learning environment while providing quality learning experiences for our students. COVID-19's continued presence within our UND community may necessitate changes in classroom management as the academic year progresses. 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, particularly if you are experiencing symptoms of COVID-19, or if you have been directed by health professionals to quarantine or isolate. Students who test positive for COVID-19 are expected to immediately self-isolate/quarantine. 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 Student Rights and Responsibilities](#). 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. Instructors may require students to wear masks in the classroom or in the laboratory as a preventative measure designed to facilitate uninterrupted classroom engagement and to facilitate health and safety in the classroom. If your instructor does require masks in class or in a laboratory, you are expected to comply with that request.

UND also strongly encourages all members of the University community, including students, to get vaccinated, seek out testing when needed, and model positive behavior both on- and off-campus to foster a healthy and safe learning environment for all students. Individuals who would like to discuss disability accommodations regarding masks should contact the Disability Services for Students (DSS) office at 701-777-2664 or [UND.dss@UND.edu](mailto:UND.dss@UND.edu). Individuals who are unable to wear a mask due to a sincerely held religious belief should contact the UND Equal Opportunity and Title IX Office at 701.777.4171 or [UND.EO.TitleIX@UND.edu](mailto:UND.EO.TitleIX@UND.edu).

**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, Director of Equal Employment Opportunity/Affirmative Action and Title IX Coordinator, 401 Twamley Hall, 701.777.4171, [und.affirmativeactionoffice@UND.edu](mailto:und.affirmativeactionoffice@UND.edu) or the Office for Civil Rights, U.S. Dept. of Education, 500 West Madison, Suite 1475, Chicago, IL 60611 or any other federal agency.

**Reporting Sexual Violence**

If you or a friend has experienced sexual violence, such as sexual assault, domestic violence, dating violence or stalking, or sex-based harassment, please contact UND's Title IX Coordinator, Donna Smith, for assistance: 701.777.4171; [donna.smith@UND.edu](mailto:donna.smith@UND.edu) or go to [UND.edu/affirmative-action/title-ix](http://UND.edu/affirmative-action/title-ix).

**Faculty Reporting Obligations Regarding Sexual Violence**

It is important for students to understand that faculty are required to share with UND's Title IX Coordinator any incidents of sexual violence 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 the victim of sexual violence, you can find information about confidential support services at [UND.edu/affirmative-action/title-ix](https://www.und.edu/affirmative-action/title-ix).

**UND CARES RESPONSE TEAM:** The [UND Cares Response Team](#) is available to assist with incidents involving UND students 24 hours a day, seven days a week. They respond to incidents such as major accidents, missing students, sickness that interferes with attending classes, death, suicidal ideations, situations involving self-harm, psychological trauma and sexual violence. Contact directly at 701.777.2664 during regular business hours OR 701.777.3491 after hours.

*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 for health sciences, and dean. (Last revised 8/2022)*

<b>PT 540: CARDIOPULMONARY PHYSICAL THERAPY</b>		<b>Dave</b>
<b>SCHEDULE OF CLASS CONTENT</b>		<b>Emily</b>
<b>LECTURE: T 8-10 am; LAB Thur 8 to 10 am</b>		
<b>FACULTY: David Relling, PT, PhD; Emily Heneman, PT, DPT</b>		
<b>Date</b>	<b>Topic</b>	<b>Readings</b>
23-Aug	Introduction to course; Pulmonary Anatomy, Physiology, Assessment	D: Ch 4 (Pulm) & 5
25-Aug	Pulmonary Assessment (Lecture)	D Ch 9
30-Aug	Pulm Pathophysiology, Assessment, Diagnosis,	D Ch 7; P Ch3,9,11; G Ch 2, 3 (pp58-61), 4
1-Sep	Pulmonary Assessment	D Ch 9
6-Sep	Pulmonary Assessment, Diagnosis, Testing	D Ch 9
8-Sep	Pulmonary Intervention	D 19, 20 & 21; G pp251-61
13-Sep	Pulmonary Intervention	D 19, 20 & 21; G pp251-61
15-Sep	Pulmonary Intervention	D 19, 20 & 21; G pp251-61
20-Sep	Pulmonary Intervention	D 19, 20 & 21; G pp251-61
22-Sep	Pulmonary Application SIM	D Ch 17
27-Sep	<b>Exam I--Pulmonary (Comprehensive)</b>	D Ch 4 & 5
29-Sep	CV Anatomy, Physiology, Pathophysiology	D Ch 17
4-Oct	CV Anatomy, Physiology, Pathophysiology	
6-Oct	<b>Pulmonary Practical Exam (7:30-10:00 am)</b>	D Ch 4 & 5
11-Oct	CV Examination & Evaluation	D Ch 10
13-Oct	Cardiac Examination	D Ch 10; P Ch 3,4,12,13
18-Oct	CV Examination & Evaluation	D Ch 10
20-Oct	Cardiac Examination--(Lecture)	D Ch 10; P Ch 3,4,12,13
25-Oct	EKG--Lecture	D Ch 10; P Ch 3,4,12,13
27-Oct	EKG	
1-Nov	CV Examination & Evaluation	D Ch 10
3-Nov	Cardiac Examination	D Ch 11; G: pp441-48
8-Nov	<b>Exam II--CV Anat, Phys, Path, Exam, Eval</b>	D Ch 18
10-Nov	<b>Cardiovascular Practical Examination</b>	
15-Nov	Cardiac SIM: CV Intervention for medical and surgical interventions	
17-Nov	<b>Cardiovascular Practical Examination</b>	G: Ch 4-10
22-Nov	Cardiac SIM: CV Intervention for medical and surgical interventions	G: Ch 4-10
24-Nov	Thanksgiving Break	
29-Nov	GXT (DR), Exercise Prescription (EH), CV Reha	D Ch 22; P: Ch 13; SS Ch 14
1-Dec	Exercise Prescription, CV Rehabilitation (Lectur	D Ch 22; P: Ch 13; SS Ch 14
6-Dec	Vascular, lymphedema & wounds	
8-Dec	Vascular, lymphedema & wounds	
Dec 12-16 finals	<b>FINAL WRITTEN EXAM</b>	
<b>REQUIRED TEXTS:</b>		
<b>NOTE: All readings from DeTurk/Cahalin and Jarvis are considered required.</b>		
Additional readings are highly recommended but are considered supplemental.		
DeTurk WE & Cahalin LP. <i>Cardiovascular &amp; Pulmonary Physical Therapy 3rd ed (D)</i>		
Jarvis C. <i>Pocket Companion for Physical Examination and Health Assessment 8<sup>th</sup> ed. (P)</i>		
O'Sullivan SB & Schmitz TJ. <i>Physical Rehabilitation 6<sup>th</sup> Ed (SS)</i>		
American College of Sports Medicine. <i>ACSM's Guidelines for Exercise Testing and Prescription 11th ed. (G)</i>		