

Western Kentucky University
Doctor of Physical Therapy Program

<u>Course Number:</u>	DPT 772
<u>Course Title:</u>	Cardiopulmonary Rehabilitation
<u>Credit Hours:</u>	3
<u>Online ZOOM Lectures:</u>	Tuesday, Wednesday, Thursday 9:00 - 11:00 CT
<u>Laboratory Skills:</u>	Per schedule in Fall 2020 semester. TBA
<u>Office Hours:</u>	By appointment.
<u>Professor:</u>	Dr. Mike Kennedy, PT, DPT Dr. Mark Schafer, Ph.D., ACSM- CEP, CSCS

Required Texts:

1. Hillegass E. Essentials of Cardiopulmonary Physical Therapy, . 4th ed. St. Louis, MO: Elsevier; 2017. (*Primary Textbook for Lecture material*)
2. Reid WD, Chung F, Hill K. Cardiopulmonary Physical Therapy: Management and Case Studies. 2nd ed. Thorofare, NJ: SLACK; 2014. (*Labs and case studies*)
3. Riebe D, Ehrman JK, Liguori G, Magal M, eds. ACSM's Guidelines for Exercise Testing and Prescription. 10th ed. Philadelphia, PA: Wolters Kluwer; 2018.

Contact Information:

Dr. Michael Kennedy – Office Phone: 270-745-3608; **Email:** michael.kennedy@wku.edu

Dr. Mark Schafer - Office Phone: 270-745-5857; **Email:** mark.schafer@wku.edu

Course Description:

Evaluation and treatment of patients with cardiopulmonary disease and dysfunction emphasizing the response of cardiac, circulatory, and pulmonary systems to exercise. Prerequisite: Open only to DPT students in good standing.

Course Objectives:

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

1. Describe the pathological conditions of the cardiopulmonary system commonly encountered by physical therapists. (7D19)
2. Describe the regulatory systems which modulate pulmonary ventilation and gas exchange at rest and during exercise. (7D19w)
3. Describe central and peripheral regulation of cardiac function and circulatory dynamics at rest and during exercise. (7D19e)
4. Discuss the chronic and adaptive responses of the cardiac, pulmonary, and circulatory systems to exercise training. (7D19e) (7D26i)
5. Discuss the physical therapy examination process leading to differential diagnosis for the cardiopulmonary system. (7D19w)
6. Demonstrate safe and skillful application of selected screening, examination, and data collection procedures. (7D17) (7D18) (7D19w)
7. Discuss the need for appropriate documentation as required by health care systems. (7D32)
8. Document results of selected outcome measures in a consistent and precise manner in

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individual patient/client records. (7D31)

9. Identify and respond to emergency signs, symptoms, and situations in an effective manner. (7D33)
10. Discuss the contributions of other health care professionals and support personnel to the management of pathological conditions of the cardiopulmonary system commonly seen by physical therapists. (7D16) (7D29)
11. Evaluate conditions not appropriate for physical therapy intervention and describe how to refer for appropriate care. (7D16)
12. Provide culturally competent first-contact care to patients/clients needing physical therapy services. (7D8)
13. Cooperates, collaborates, communicates, and integrates care with other health care practitioners as necessary to meet the patient's/client's needs. (7D24)
14. Evaluate data from the examination to formulate a clinical judgment that leads to a diagnosis, prognosis, and intervention plan consistent with findings and the literature for cardiopulmonary pathology. (7D19) (7D20) (7D22) (7D23) (7D24) (7D26)
15. Prescribe an appropriate exercise program for a patient with compromised cardiopulmonary function. (7D27i)
16. Demonstrate a commitment to excellence, lifelong learning, critical inquiry, and clinical reasoning by skillfully incorporating current evidence into physical therapy practice for cardiac and pulmonary disorders. (7D15)
17. Explain the medical interventions utilized in the management of pathological conditions of the cardiopulmonary system commonly seen by physical therapists. (7D27)

Specific Skills: The student will be able to:

18. Assess standard vital signs (blood pressure, heart, and respiratory rate) at rest, during activity, and after activity. (7D19a,e,w)
19. Assess thoracic movements and breathing patterns at rest, during activity, and during exercise. (7D19k,v)
20. Perform auscultation of heart sounds. (7D19e)
21. Perform auscultation and mediate percussion of the lungs. (7D19w)
22. Palpate pulses. (7D19e)
23. Perform or analyze an electrocardiogram. (7D19e)
24. Perform claudication time tests. (7D19e)
25. Perform tests of pulmonary function and ventilatory mechanics. (7D19w)
26. Analyze blood gas studies. (7D19e,w)
27. Assess activities that aggravate or relieve edema, pain, dyspnea, or other symptoms. (7D19a)
28. Assess cardiopulmonary response to performance of ADL's and IADL's. (7D19f)
29. Assess capillary refill time. (7D19e)
30. Assess chest wall mobility, expansion, and excursion. (7D19k)
31. Assess cough and sputum. (7D19w)
32. Assess ventilatory muscle strength, power, and endurance. (7D19o,w)
33. Assess for cyanosis. (7D19e,w)
34. Assess posture and anthropometric measures as they relate to fitness and cardiopulmonary function. (7D19b,r)
35. Educate the patient and prescribe exercises for airway clearance and breathing including: active cycle of breathing/forced expiratory technique, assistive cough techniques, autogenic drainage, breathing strategies (i.e., paced breathing, pursed-lip breathing), chest percussion,

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vibration, and shaking, postural drainage and positioning, suctioning, techniques to maximize ventilation (i.e.: maximum inspiratory hold, staircase breathing, manual hyper-inflation).

(7D26a,h,i)

36. Educate the patient with compromised cardiopulmonary function in a home exercise program. (7D26h)
37. Educate patients in self-care and home management utilizing assistive devices to enhance cardiopulmonary function. (7D27b,h)
38. Explain the benefits and safety precautions of exercise to a patient with comprised cardiopulmonary function. (7D27h,i)
39. Demonstrate proper positioning for postural drainage, chest therapy, and airway clearance techniques. (7D27a)

Course Structure and Learning Experience:

The instructional format will consist of synchronous online **ZOOM lectures** scheduled on **Tuesday, Wednesday, and Thursday from 9:00 to 11:00 AM CT**. The expectation for the course is that you will read the assigned chapters/hand-outs/articles/supporting material and attend each Online Zoom lecture. Online Zoom Lectures and Labs will be supplemented when assigned with lectures/material from Rehab Essentials online course - *Management of Patients with Cardiovascular and Pulmonary Disorders* <https://moodle.rehabessentials.com/> Due to COVID -19 the laboratory component of the summer course will be moved to the Fall 2020 semester. More details of the when the labs will be scheduled will be provided when the dates and times are set.

Evaluation Methods:

1. **Attendance:** Attendance and promptness to class will be monitored. Students are **considered tardy** if they do not arrive before the scheduled starting time class and you must be log on to ZOOM and be ready for class to begin. As such, 1% of the total grade will be taken off per tardiness and 2% of the total grade will be taken off per **unexcused absence**. Refer to page 35 of the 2017 student manual.
2. **Quizzes:** There will be approximately 8 quizzes. Quizzes will cover the material from the required readings and lectures. Therefore, all readings and online lectures need to be completed **PRIOR** to class. Each quiz is worth 15 to 20 points and will be ~10 multiple choice questions and true/false questions. *Online quizzes will be provided on Blackboard at assigned dates and times*. Further instructions will be provided by the instructor and details will be provided in regards to quizzes. There are no make-up quizzes unless there is an excused absence. If you have an excused absence you can make-up the quiz. Make-up quizzes must be completed within 24 hours and it is the responsibility of the student to schedule this with the instructor. If the Quiz is not completed in this time, you will receive a zero.
3. **Exams:** There will be 2 exams (Midterm worth ~ 75 points and a cumulative Final worth ~ 100 points) via Blackboard . If any student does not or cannot take the exam due to an emergency, then plans must be made at the discretion of the professor to complete all coursework within a specified time period. Each student must take the exam.

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4. **Lab:** (Labs are scheduled for the Fall 2020 semester. More information will be provided when dates and times are set)
- a. There will be lab activities for each scheduled lab. Be prepared to participate in lab daily, even if lab is not scheduled. If you are not prepared for lab/have lab attire (i.e. Shorts, t-shirt, and Sports Bra's) on hand you will be asked to leave class per the Student Manual. Lab handouts will be on Blackboard for you to print and bring to lab. Any lab that consists of work/data to hand in, must turn in work/data in by the **end of class unless otherwise specified**. Any time after class it is considered late.
 - i. Any of the following will result in a professional concern report and an automatic 2% reduction in your overall grade, per occurrence: failure to actively participate in lab, leaving a lab early, turning in an incomplete or falsified lab handout, or failure to turn in your lab handout when it is due.
There are no make-up labs, however points will not be deducted if it is an excused absence
 - b. **Participation and Preparation:** Mandatory. Failure to participate, including non-clinical use of your phone during class, will result in a 2% reduction in your overall grade per occurrence. The professor reserves the right to ask you to leave class if you or your phone becomes a disruption.

✓
Check-offs:

- a. There will be a Midterm and Final check-off. This is an opportunity to practice and display the skills needed to pass the practical examination as well as display proficiency to the professor and your peers. These are pass/fail. Refer to pages 37-39 of the 2017 Student Manual for the check-off procedures.

✓
Practical Exam: There will be 1 cumulative practical exam. Each student will be graded on his/her ability to perform all skills tested according to **Intermediate performance:**

- a. A student who requires clinical supervision less than 50% of the time managing patients with simple conditions, and 75% of the time managing patients with complex conditions.
- b. At this level, the student is proficient with simple tasks and is developing the ability to consistently perform skilled examinations, interventions, and clinical reasoning.

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Tentative Course Grading:

The final course grade is a letter grade. The course grade will be based on the following:

Quizzes (TBA)	~120 points (32%)
Midterm Exam	75 points (20%)
Final Exam	100 points (27%)
Lab Practical exam	75 points (20%)
Participation, Preparation	Mandatory
Professionalism	Mandatory
Total	370

Numeric and Letter Grade Translation:

A	90-100
B	80-89.99
C	70-79.99
F	<70

Instructional Practices:

1. Teaching Methods for lecture

- a. Online Lectures via ZOOM and supplemental Rehab Essentials Online lectures
- b. Class discussion
- c. Student self-study

2. Teaching Methods for labs

- a. Online lectures and skill demonstrations prior to assigned lab
- b. Pre- lab skill demonstrations prior to skill application

3. Teaching Aides

- a. Video
- b. PowerPoint

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Course Policies:

1. Refer to WKU DPT Student Manual for the following items:

- a. Student Responsibilities
- b. Student Disability Services
- c. Copyright
- d. Academic Misconduct
- e. Religious Holidays Policy
- f. WKU Writing Center
- g. Missed Class(es)/Student

Professionalism:

- ✓ **Email Communication with Professor:** If you have any questions regarding course goals, tasks, or activities, you are expected to contact the professor to discuss them. It is expected that you are polite, professional and courteous in all communications. An attempt will be made to respond to your email within 24 hours Monday-Friday and within 48 hours over the weekend. It is expected that you maintain professionalism and politeness with all email communication. All email communication should contain basic professional elements such as a salutation (Dear....), complete sentences, and a closing or signature. Failure to do so could trigger a professionalism concern report (see below).
- ✓ **Classroom and Laboratory Housekeeping:** In accordance with the Student Manual you are responsible for maintaining and cleaning up the classroom and lab spaces. Students are responsible for 1) cleaning and organizing all classroom surfaces 2) cleaning and organizing storage room, 3) laundry. This will be included in your professionalism grade. Failure to perform will result in a 2% deduction.
- ✓ **Professional Responsibilities and Relationships:** As a doctor of physical (DPT) student and future physical therapist, you have chosen to pursue a profession which requires personal integrity, compassion, and a constant awareness of the commitment made. Exhibiting personal behaviors consistent with a respect for this profession and having pride in your work are central tenets of professionalism. You are expected to incorporate them into your daily life. To demonstrate commitment to these responsibilities while enrolled in the WKU DPT Program, you will be held to the professional standards in the student manual and you are expected to:
- ✓ **Professionalism Concern Process:** Violation of classroom professionalism policy may simply result in providing the student with feedback on his or her behavior. However, if the breach is significant enough, the student will be asked to leave the classroom. This will result in an unexcused absence and a 2% reduction in the student's overall grade. The professor will also complete the **Student Professionalism Concern Report**. Once the form is completed, the student will meet individually with the Professor to discuss the situation.

Title IX Statement:

- ✓ WKU is committed to supporting faculty, staff and students by upholding WKU's Title IX Sexual Misconduct/Assault Policy (#0.2040) and the Discrimination and Harassment Policy (#0.2040). Under these policies, discrimination, harassment and/or sexual misconduct based on sex/gender are prohibited. If you experience an incident of

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sex/gender-based discrimination, harassment and/or sexual misconduct, you are encouraged to report it to the Title IX Coordinator, Andrea Anderson, 270-745-5398 or Title IX Investigators, Michael Crowe, 270-745-5429 or Joshua Hayes, 270-745-5121. Please note that while you may report an incident of sex/gender-based discrimination, harassment and/or sexual misconduct to the faculty member, WKU faculty are “Responsible Employees” of the University and **MUST** report what you share to WKU’s Title IX Coordinator or Title IX Investigator. If you would like to speak with someone who may be able to afford you confidentiality, you may contact WKU’s Counseling and Testing Center at 270-745-3159.

Student Accessibility Resource Center (SARC):

- ✓ In compliance with University policy, students with disabilities who require academic and/or auxiliary accommodations for this course must contact the Student Accessibility Resource Center located in Downing Student Union, 1074. SARC can be reached by phone number at 270-745-5004 [270-745-3030 TTY] or via email at sarc.connect@wku.edu. Please do not request accommodations directly from the professor or instructor without a Faculty Notification Letter (FNL) from The Student Accessibility Resource Center.

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DPT 772 – TENTATIVE ONLINE LECTURE & LAB SCHEDULE – 2020

Date	ZOOM Lectures	Reading/resources	Lab
Week 1			
7/14	Cardiac anatomy & physiology Surface anatomy	Hillegass Ch 1 & 2 Cardiac Section	Surface anatomy - Peripheral vascular Exam
7/15	EKG – Basics/Intro	Hillegass Ch 9	Resting & Exercise EKG prep
7/16	EKG – Interpretation	Hillegass Ch 9	Rhythm and 12 Lead EKG Interpretation
Week 2			
7/21	Cardiac Pathophysiology – MI, CHF, PAD	Hillegass Ch 3, 4 RGs; Ch 11, 12, 13 Cardiac Section RGs	Heart Auscultation
7/22	Cardiac Diagnostic Test and Procedures	Hillegass Ch 8	Ankle-Brachial Index (ABI)
7/23	Cardiovascular Assessment & Intervention	Hillegass Ch 16	Clinical Exercise Testing (GXT)
Week 3			
7/28	Cardiac Rehabilitation - Exercise Testing & Prescription	ACSM Ch. 5 and Ch. 9	Aerobic/endurance field tests
7/29	Review – Lecture catch-up	Midterm	Lab Practical
7/30	Pulmonary Anatomy & Physiology	Hillegass Ch 1 & 2 Pulmonary	Thorax & chest Exam
Week 4			
8/4	Restrictive Lung Dysfunction & Chronic Obstructive Pulmonary Diseases	Hillegass Ch 5 & 6	Lung Auscultation
8/5	Pulmonary Diagnostic Tests & Procedures	Hillegass Ch 10	Spirometry
8/6	Pulmonary Assessment & Interventions	Hillegass Ch 16 & 17 Pulmonary Section	Breathing exercises Airway clearance techniques & Oxygen
Week 5			
8/11	Pulmonary Assessment & Interventions Cont.	Hillegass Ch 16 & 17 Pulmonary Section	Lines, tubes, drains, Post-op
8/12	Pediatric cardiopulmonary – Guest Lecture	Hillegass Ch 20 RG	Postural drainage
8/13	Review – Lecture catch-up	Final Exam	Lab Practical

**The instructor reserves the right to make changes in the course schedule as needed to accommodate guest lecturers or to alter course content.*

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TBA

Group 1	Group 2
TBA	TBA