

**University of Florida
College of Public Health and Health Professions
Syllabus**

**PHT6153: *Physiology for PT*
3 credit hours
Fall Semester, 2023**

Class time and location

Monday: 9:00-9:50 am, Communicore, C1-11

Tuesday: 2:30-3:20 pm, Online using Zoom

Friday 10:40-11:30 am, Online using Zoom

Primary Instructors

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Course Purpose

The purpose of this course is for first year physical therapy students to learn the fundamentals of human physiology and the acute and chronic responses to exercise. This will provide a foundation for subsequent courses in the physical therapy curriculum. Accordingly, the intent is for students to gain a basic understanding of physiology of different systems and how the body attempts to maintain “homeostasis” in light of disturbances caused by exercise. Lectures will provide an overview of the various physiological systems (e.g. respiratory, renal, etc.). In general, the lectures will follow the textbook chapters both in content and order of presentation. Please see the next page of the syllabus for a detailed list of lecture topics.

Overall course objectives

Upon successful completion of this course, students should be able to:

1. *Understand the general principles of physiology.*
2. *Understand how homeostasis is maintained, and how physiological responses are altered during exercise to maintain homeostasis.*
3. *Describe the levels of the structural components and organization of the human body, including:*
 - a. *cell types and functions of the organelles*
 - b. *tissues, organs, and organ systems*
 - c. *genetic code*
4. *Understand how genes regulate protein synthesis and genetic variability.*
5. *Understand how physiological systems are integrated at rest and during exercise. Understand how molecules move in the body and concepts related to metabolic pathways, receptors, and signaling.*
6. *Describe the control and function of each of the following physiological systems:*
 - a. *Nervous system*
 - i. *Voluntary/Autonomic*
 - ii. *Sensory nervous system*
 - b. *Muscle/neuromuscular junction*
 - c. *Bone*
 - d. *Endocrine*
 - e. *Cardiovascular*
 - f. *Respiratory*
 - g. *Renal*
 - h. *Digestive*
 - i. *Immune/lymphatic*
 - i. *Innate*
 - ii. *Adaptive*
 - j. *Integumentary system*
7. *Describe and understand the responses of the major physiological systems to exercise.*
8. *Communicate effectively with patients and colleagues on appropriate exercise prescription. Learn appropriate physiology terminology to communicate with colleagues and patients and to recognize the normal range of key physiological values.*
9. *Apply the principles of physiology to the understanding of pathophysiology. Demonstrate effective written communication of physiology concepts and how a physiology principle is altered in a clinical situation.*

Course Materials and Technology

1) Visible Body Courseware®, student subscription (2023), <https://courseware.visiblebody.com>

Course link:

https://courseware.visiblebody.com/courses/100393/join?join_course_token=Bz5CYy1FuvccoJ9hGtYvFaBX&site_license=false

2) Vander's Human Physiology: The Mechanisms of Body Function. 15th Edition. Publisher: McGraw Hill (recommended, not required)

3) Powers, S.K., Howley E.T., and Quindry J. *Exercise Physiology: Theory and Application to fitness and Performance*. McGraw Hill (recommended, not required)

For technical support for this class, please contact the UF Help Desk at:

- helpdesk@ufl.edu
- (352) 392-HELP - select option 2
- <https://helpdesk.ufl.edu/>

Topical Outline

A detailed outline of the course is provided on the next page.

Weekday	Date	Lecture	Exam	Recommended Reading	Potential Instructor	Comments
Friday	25-Aug	Introduction	1	Chapter 1	Forbes	
Monday	28-Aug	General Principles and Homeostasis	1	Chapter 1	Forbes	
Tuesday	29-Aug	Chemical composition of the body	1	Chapter 2	S Judge	
Friday	1-Sep	Cell Structure & Organelles	1	Chapter 3, A	S Judge	
Monday	4-Sep	Labor Day - No Class				
Tuesday	5-Sep	Genetic Code and Protein Synthesis	1	Chapter 3B,C	S Judge	
Friday	8-Sep	Metabolism/Bioenergetics and Exercise Metabolism	1	Chapter 3C,D,E	A Judge	
Monday	11-Sep	Metabolism/Bioenergetics and Exercise Metabolism	1	Chapter 3C,D,E	A Judge	Quiz 1 Due
Tuesday	12-Sep	Metabolism/Bioenergetics and Exercise Metabolism	1	Chapter 3C,D,E	A Judge	
Friday	15-Sep	Movement of Molecules	1	Chapter 4	Forbes	
Monday	18-Sep	Cell Signaling	1	Chapter 5	Forbes	
Tuesday	19-Sep	Neuron Structure and Membrane Potentials	1	Chapter 6	Forbes	
Friday	22-Sep	Action potentials	1	Chapter 6	Forbes	
Monday	25-Sep	mid-term exam				Exam 1
Tuesday	26-Sep	Special Topics: Neuromuscular Junction and Aging	2	PPT	Hepple	
Friday	29-Sep	Neural Adaptations to Exercise	2	PPT	Forbes	
Monday	2-Oct	Sensory Physiology	2	Chapter 7	Forbes	
Tuesday	3-Oct	Sensory Physiology	2	Chapter 7	Forbes	
Friday	6-Oct	Homecoming - No Class				
Monday	9-Oct	Skeletal Muscle	2	PPT	A Judge	
Tuesday	10-Oct	Skeletal Muscle Adaptations to Exercise	2	Chapter 9	A Judge	
Friday	13-Oct	Cardiac muscle, Smooth muscle	2	Chapter 9	A Judge	
Monday	16-Oct	Endocrine	2	Chapter 11	Forbes	Quiz 2 Due
Tuesday	17-Oct	Bone	2	Chapter 11/PPT	Willcocks	
Friday	20-Oct	Cardiovascular	2	Chapter 12	Forbes	
Monday	23-Oct	Cardiovascular	2	Chapter 12	Forbes	
Tuesday	24-Oct	Circulatory/CV Responses to Exercise	2	PPT	Hepple	
Friday	27-Oct	Microvascular-Mitochondrial Unit with Exercise Training	2	PPT	Hepple	
Monday	30-Oct	mid-term exam				Exam 2
Tuesday	31-Oct	Respiratory	3	Chapter 13	Forbes	
Friday	3-Nov	Respiratory	3	Chapter 13	Forbes	
Monday	6-Nov	Respiratory	3	Chapter 13	Forbes	
Tuesday	7-Nov	Clinical Correlate, Respiratory	3	PPT	Barnard	
Friday	10-Nov	Veterans Day - No Class				
Monday	13-Nov	Respiratory during Exercise	3	Chapter 13	Fuller	
Tuesday	14-Nov	Renal	3	Chapter 14	Willcocks	
Friday	17-Nov	Renal	3	Chapter 14	Willcocks	
Monday	20-Nov	Exercise and Nutrition	3	PPT	Willcocks	Assignment Due
Tuesday	21-Nov	Digestive	3	Chapter 15	Forbes	
Friday	24-Nov	Thanksgiving Holiday - No Class				
Monday	27-Nov	Immune	3	Chapter 18	Forbes	Quiz 3 Due
Tuesday	28-Nov	Clinical Correlate: Integumentary System	3	PPT	Smith	
Friday	1-Dec	Integrative physiology	3	PPT	Hepple	
Monday	4-Dec	Exercise and Aging	3	PPT	Hepple	
Tuesday	5-Dec	Exercise Homeostasis	3	PPT	Hepple	
Final Exam: 11 am, Dec. 13						Exam 3

Policy Related to Class Attendance

The instructors will not routinely monitor attendance. However, attendance during the Special Topics/Clinical Correlate lectures is required. Attendance during the Special Topics/Clinical Correlate lecture's may be monitored by the students signing an attendance sheet during class. An unexcused absence of these lectures may result in a 2% deduction from the final grade.

Absence or late arrival to an exam will result in a grade of zero, unless there is an extraordinary circumstance.

Excused absences must be consistent with university policies in the Graduate Catalog (<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#attendance>) and require appropriate documentation. Additional information can be found here: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Policy Related to Guests attending Class:

Only registered students are permitted to attend class. However, we recognize that students who are caretakers may face occasional unexpected challenges creating attendance barriers. Therefore, by exception, a department chair or his or her designee (e.g., instructors) may grant a student permission to bring a guest(s) for a total of two class sessions per semester. This is two sessions total across all courses. No further extensions will be granted. Please note that guests are **not** permitted to attend either cadaver or wet labs. Students are responsible for course material regardless of attendance. For additional information, please review the Classroom Guests of Students policy in its entirety. Link to full policy: <http://facstaff.php.ufl.edu/services/resourceguide/getstarted.htm>

Policy Related to Make-up Exams

In extraordinary circumstances it may be possible to take an exam early or late. If for any reason you are unable to attend an exam at the last minute, you must notify the instructor as soon as possible. Personal issues with respect to exams will be handled on an individual basis.

Inclusive Learning Environment

We embrace The University of Florida's Non-Discrimination Policy, which reads, "The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinion or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans' Readjustment Assistance Act." We are committed to fostering an open and inclusive environment in our College, where every student, guest instructor and contributor feels valued. If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see your instructor or refer to the Office on Multicultural & Diversity Affairs Website: <http://www.multicultural.ufl.edu/>.

Accommodations for students with disabilities

If you require classroom accommodation because of a disability, it is strongly recommended you register with the Dean of Students Office <http://www.dso.ufl.edu> within the first week of class or as soon as you believe you might be eligible for accommodations. The Dean of Students Office will provide documentation of accommodations to you, which you must then give to me as the instructor of the course to receive accommodations. Please do this as soon as possible after you receive the letter. Students with disabilities should follow this procedure as early as possible in the semester. The College is committed to providing reasonable accommodations to assist students in their coursework.

Counseling and Student Health

Students sometimes experience stress from academic expectations and/or personal and interpersonal issues that may interfere with their academic performance. If you find yourself facing issues that have the potential to or are already negatively affecting your coursework, you are encouraged to talk with an instructor and/or seek help through University resources available to you.

- The **Counseling and Wellness Center** 352-392-1575 offers a variety of support services such as psychological assessment and intervention and assistance for math and test anxiety. Visit their web site for more information: <http://www.counseling.ufl.edu>. On line and in person assistance is available.
- **U Matter We Care** website: <http://www.umatter.ufl.edu/>. If you are feeling overwhelmed or stressed, you can reach out for help through the You Matter We Care website, which is staffed by Dean of Students and Counseling Center personnel.
- The **Student Health Care Center** at Shands is a satellite clinic of the main Student Health Care Center located on Fletcher Drive on campus. Student Health at Shands offers a variety of clinical services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: <https://shcc.ufl.edu/>
- Crisis intervention is always available 24/7 from: Alachua County Crisis Center: (352) 264-6789 <http://www.alachuacounty.us/DEPTS/CSS/CRISISCENTER/Pages/CrisisCenter.aspx>
- **University Police Department:** [Visit UF Police Department website](#) or call 352-392-1111 (or 9-1-1 for emergencies).
- **UF Health Shands Emergency Room / Trauma Center:** For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; [Visit the UF Health Emergency Room and Trauma Center website.](#)

Do not wait until you reach a crisis to come in and talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone so do not be afraid to ask for assistance.

Office hours

Please call or email the instructor to set up an appointment.

Website

We will use the UF **Canvas** E-Learning System accessed at <https://lss.at.ufl.edu/> .

Professional Expectations and Academic Integrity

Professional behavior is critical for a successful transition from the classroom to the clinical setting. The faculty recognizes the importance of this by incorporating the development and evaluation of professional behavior into each academic course. Professional Behavior is described in the Student Handbook that each student receives and acknowledges reading/understanding upon beginning the DPT program. Professional behavior is expected at all times; including during scheduled class. Cheating, lying, misrepresentation, or plagiarism in any form is unacceptable and inexcusable behavior.

Furthermore, students are expected to act in accordance with the University of Florida policy on academic integrity (see Student Conduct Code, the Graduate Student Handbook or these web sites for more details: <https://sccr.dso.ufl.edu/students/student-conduct-code/>

<https://sccr.dso.ufl.edu/process/students-rights-responsibilities/>
<http://www.graduateschool.ufl.edu/media/graduate-school/pdf-files/handbook.pdf>

Students may be referred to the Professionalism Committee if they exhibit behavior not in accordance to these standards/expectations.

Laptop & Smartphone policy

Laptops, tablets, etc. are permitted for taking notes. *However, texting, emailing, etc. during class is not permitted.*

Dress Code

Please review the policies for lecture attire in your Student Handbook.

Online classes and audio/visual recordings

Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

Professionalism and COVID

As students pursuing a path in the health professions or public health, it is crucial to demonstrate professional behaviors that reflect integrity and commitment to the health of patients, fellow health professionals, and the populations we serve. To accomplish this, a strong responsibility for the well-being of others must be evident in our decisions, along with accountability for our actions. Professionalism in the health disciplines requires adherence to high standards of conduct that begin long before graduation. This is particularly true during times of health emergencies such as the COVID pandemic, given our professional habits can have a direct impact upon the health of persons entrusted to us.

In response to COVID-19, the following guidelines are to maintain your learning environment and to enhance the safety of our in-classroom interactions, and protect the community participants involved in community engagement and service learning.

Face coverings are recommended during class and within buildings. Please honor any requests from peers, faculty, staff, and members of the public for you to wear a mask when you are interacting with them. If someone is wearing a mask, please ask if they prefer that you wear one too. Respect for the rights and dignity of individuals is the first principle of our professional code of ethics and a core value of the DPT program.

Guidelines for students who are experiencing symptoms

If you are experiencing COVID-19 symptoms (<https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>), please stay home and use an at-home Covid test or make an appointment in the community for a Covid-19 PCR test: <https://floridahealthcovid19.gov/testing-sites/> If you are feeling acutely ill then please contact your physician or the Student Health Care Center (see "When to Seek Emergency Medical Attention" at <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>)

If you test negative for COVID-19 but are still not feeling well, then please remain out of class until your symptoms resolve and you feel well enough to attend. If you test positive for COVID-19, you can use the

CDC Quarantine and Isolation calculator to determine your isolation period and receive guidance on masking: <https://www.cdc.gov/coronavirus/2019-ncov/your-health/quarantine-isolation.html>

It is recommended but not required that you take an at-home test on Day 6 of isolation to determine if you are still infectious. If that test is positive then you should stay home until the test is negative or through Day 10 of isolation, whichever comes first. Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work (<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>).

Exams and scoring

This course will be graded according to the departmental guidelines located in the student handbook. We will follow the standard grading scale listed below. Exams will consist primarily of multiple choice questions but may also contain short written answers, fill-in-the-blank, and/or diagrams.

Summary of grading

Exam 1:	25%
Exam 2:	25%
Exam 3:	25%
Quizzes:	15%
Assignment:	10%

Exams (75% of final grade; three exams each worth 25%):

Exams will consist primarily of multiple choice questions but may also contain short written answers, fill-in-the-blank, and/or diagrams. Exams must be done independently without any assistance from others and without any resources (textbooks, websites, etc.).

Exams will be written in a classroom using a laptop with access to Canvas online. For the exams, **Canvas LockDown Browser** will be utilized.

LockDown Browser Requirement

This course requires the use of LockDown Browser for online exams. Watch this video to get a basic understanding of LockDown Browser:

<https://www.respondus.com/products/lockdown-browser/student-movie.shtml>

Download Instructions

Download and install LockDown Browser from this link:

<https://download.respondus.com/lockdown/download.php?id=364713981>

Once Installed

- Start LockDown Browser
- Log into to Canvas
- Navigate to the exam

Note: You won't be able to access an exam that requires LockDown Browser with a standard web browser. If this is tried, an error message will indicate that the test requires the use of LockDown Browser. Simply start LockDown Browser and navigate back to the exam to continue.

Guidelines

When taking an online exam follow these guidelines:

- Before starting the test, know how much time is available for it, and also that you've allotted sufficient time to complete it
- Turn off all mobile devices, phones, etc. and don't have them within reach
- Clear your area of all external materials - books, papers, other computers, or devices

- LockDown Browser will prevent you from accessing other websites or applications; you will be unable to exit the test until all questions are completed and submitted

Getting Help

Several resources are available if you encounter problems with LockDown Browser:

- The Windows and Mac versions of LockDown Browser have a "Help Center" button located on the toolbar. Use the "System & Network Check" to troubleshoot issues.

Quizzes (15% of final grade, three quizzes each worth 5%)

Three quizzes will be taken using VisibleBody Courseware and will be worth a total of 15%. These will be "open book" quizzes that you can use your notes, textbook, and other resources to help answer the questions. Questions will be multiple choice, short written answers, fill-in-the-blank, and/or diagrams. These quizzes must be done independently.

Quizzes are due on September 11, October 16, and November 27 at 9:00 am (start of class)

Estimate time to complete: 30 minutes/quiz

Assignment – 10% of final grade

Choose one of the "General Principles of Physiology" and apply it to an individual/patient you have been in contact with this fall semester through your REACH group, Putting Families First, Equal access clinic, etc. The person may or may not have a diagnosed medical condition. The **objective** of this assignment is to demonstrate an understanding of the "General Principles of Physiology" covered in class and the textbook, and to apply one of these principles to a clinical situation. The written assignment is to be completed independently by each student and should be a **maximum of one page, double spaced** (not including the list of references). Figures/diagrams can also be included as an appendix.

The grade will be based on the following:

- 1) Briefly describing the individual/patient and condition/pathology, if applicable (2 marks). Please do not use any personal identifying information (e.g., name).
- 2) Choosing one of the "general principles of physiology" and describing how it is relevant to the individual/patient (8 marks).

The assignment is due the **Monday before Thanksgiving (Nov. 20) at 5:00 pm**. Each day it is late, a 1 mark deduction will be incurred.

Estimate time to complete: 3 hours

Scale

93-100% = A	4.0 grade point
90-92% = A-	3.67 grade point
87-89% = B+	3.33 grade point
83-86% = B	3.0 grade point
80-82% = B-	2.67 grade point
70-79% = C	2.0 grade point
60-69% = D	1.0 grade point
< 60% = E	0 grade point

Learning objectives

Most chapters will be accompanied by specific learning objectives. These objectives are provided to help you focus your studying. While the exams may cover material not specifically addressed in the learning objectives, the majority of the exam questions will be covered in these objectives.

Powerpoint

PDF files of the lecture slides will be provided after each class.

How to study for this course?

1. Read the assigned readings and posted links/material, preferably prior to class.
2. Review the learning objectives for each chapter. Also, answer the relevant review questions and exam questions at the end of the chapter.
3. To best distill knowledge from the lectures, you should make drawings and/or outlines. These drawings/outlines will help you organize your notes and integrate knowledge.

Course evaluations

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

The schedule, policies, and assignments described in this syllabus are subject to change in the event of extenuating circumstances or by mutual agreement between the instructor and the students.