

University of Florida

College of Public Health & Health Professions

Course Title: Introduction to Exercise Science for Physical Therapists

Course Number: PHT 6207C (Sections 1A59, 4556, 4559)

Course Semester and Year: 2024 Spring Semester, Year 1

Course Prerequisites: Physiology and Exercise Physiology for the Physical Therapist, Functional Anatomy I

Department: Department of Physical Therapy, University of Florida

Credit Hours: 2

Course Location: Virtual/CG-11 (Lecture) and Clinical Learning Center (CLC) space @ CVS 2nd floor (Lab*)

Course Days and Times: Lecture: Mondays, 8:30 – 9:30AM

First Lab: 12:50 – 2:50PM

Second Lab: 3:15 – 5:15PM

#Exceptions for Practicals (see Course Outline for 2/12, 4/22).

Course Instructors: Donovan Lott, PT, PhD, CSCS (Course Coordinator)

djlottpt@phhp.ufl.edu (Preferred communication)

Phone: (352) 273-9226

Office: 1156 of HPNP

Office Hours: Mon 2:45-3:15pm at CLC or By Appointment

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RSD Teaching Assistant: Yuting Luo, MS

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Preferred Course Communications: email

Relation to Program Outcomes:

SG1b: Students/graduates will be independent problem-solvers and critical thinkers. The demonstration of problem solving and critical thinking is evident in high level student performance across several courses throughout the curriculum.

SG1f: Students/graduates will be physical therapists who provide safe and effective physical therapy services in a variety of clinical settings.

Course Description:

The focus of this course is on principles of exercise training and prescription used in physical therapy. The basic components of the course include physiological responses to exercise, aerobic capacity/endurance exercise, strength/resistance exercise, basic nutrition, and

performance tests/measures. The application of these principles and components is also included in relation to patient care of specific diseases and disorders.

Course Objectives:

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

1. Describe, apply, and analyze core exercise principles used for exercise testing and prescription.
2. Understand and assess what are safe and normal physiological and subjective responses (BP, RR, HR, RPE, oxygen saturation) before, during, and after prescribed exercise for safe and effective exercise programs.
3. Understand and describe the differences between submaximal and maximal exercise assessment.
4. Describe and evaluate aerobic function in terms such as METs, VO₂ in L/min, etc.
5. Describe, apply, analyze, and have skill in aerobic capacity/endurance exercise prescription and the creation of a training program.
6. Describe and judge progressive, acute responses and steady-state responses to energy metabolism, heart rate, blood pressure, oxygen saturation, stroke volume, cardiac output, and respiratory rate during exercise testing.
7. Describe and discuss the application of contraindications for aerobic capacity/endurance testing.
8. Describe, administer, and interpret aerobic capacity/endurance tests and measures.
9. Describe, analyze, and apply key elements involved in the process of strength/resistance exercise for prescription and the creation of a training program.
10. Describe, analyze, and apply guidelines for frequency, intensity, time, and type (FITT) to design strength/resistance exercise prescriptions for healthy individuals and various patient populations.
11. Describe and demonstrate safety awareness (including equipment safety and emergent situations) during exercise training for exercise testing, prescription, and intervention.
12. Describe and interpret various physical activity measures.
13. Describe and discuss the benefits and application of blood flow restriction used with therapeutic exercise.
14. Describe and discuss estimated energy balance, recommended energy and macronutrient intakes, proper rehydration techniques, and nutritional ergogenic aids and their application to exercise.
15. Describe, administer, and interpret functional tests and measures for the evaluation of patients.
16. Describe and evaluate the benefits versus risks of exercise for individuals with specific diseases/disorders (diabetes and stroke) and across the lifespan (pediatrics versus geriatrics).
17. Describe, administer, and interpret muscle performance tests, multiple battery tests, and measures to evaluate patients across the lifespan and create appropriate exercise programs for them.
18. Describe and teach a patient in proper exercise prescription for both aerobic and resistance exercise.

Teaching Methods and Learning Experiences:

The course will include synchronous virtual lectures, asynchronous lectures, small group activities and discussions, online videos/lectures, lab sessions, and problem solving case studies. Guest lectures and labs will involve professionals from the UF and Gainesville communities.

Teaching Assistant Review Sessions

Select second year UF DPT students are Teaching Assistants for this course and will hold review sessions most weeks throughout the semester. These review sessions will be held outside of normal 1st and 2nd year UF DPT students' class schedules and will provide opportunities for 1st year students to ask about and discuss material presented in lecture and/or lab, to obtain greater clarity on concepts from the course, and to have more time practicing the tests, procedures, and assessments from lab. Review sessions will be in both synchronous virtual as well as in-person formats. While these review sessions are optional, students are *strongly encouraged* to attend these sessions.

Readings:

The following textbook is required:

ACSM's Guidelines for Exercise Testing and Prescription, Eleventh Edition (2022)

Required journal articles/online material will also be assigned for lectures and labs.

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

- Learning-support@ufl.edu
- (352) 392-HELP - select option 2
- <https://lss.at.ufl.edu/help.shtml>

Equipment:

-Personal stethoscope and blood pressure cuff are required. A *digital watch* with stopwatch (to 1/100th sec) is *strongly* recommended.

-Personal computer/tablet and printer as indicated by both the University and College requirements.

Responsibilities of the student:

Students are expected to attend and be prepared for all lecture and laboratory sessions. Students are expected to arrive to lecture and lab sessions in a punctual manner, and *with the appropriate clothing* and equipment. Required readings/review of online materials must be done *prior* to class so that discussion of the material may take place.

Class Demeanor Expected by the Professor

- Ensure cell phones are turned off during class time.

- Avoid using laptop computers/electronic devices for tasks that are not pertinent to the lecture/lab session.
- Be respectful and polite in all interactions with your peers, guests, and instructors.
- Actively participate in labs and be engaged in lecture through attentive listening, asking questions, and discussion.

Dress Code

- Lecture or laboratory attire as per the student handbook is acceptable for lectures unless there is a guest lecturer where lecture/professional attire is expected and will be announced in advance.
- Laboratory attire as per the student handbook is required for all labs and lab practicals.

Health Considerations

In this class, our labs will consist of various aerobic and muscular performance tests and exercises. These exercises may make you feel warm, tired, short of breath, or fatigued. It is expected that you will dress appropriately in your lab attire to stay cool during exercise and bring covers to stay warm when not exercising. **If you have a physical condition that limits your ability to engage in cardiovascular conditioning or muscle strengthening exercises, it is strongly suggested that you consult the Office of Disability Resources and Services as soon as possible, to make accommodations for laboratory sessions and assignments. In addition, be certain to bring any medications or devices (i.e. inhaler, medication, orthotics) to each class, if prescribed by your physician for exercise.**

Student evaluation:

Attendance:

Students are expected to attend and be prepared for all virtual and in-person lecture sessions. Students are expected to log-in/arrive to all class/lab sessions in a punctual manner. Required readings/viewings of course materials outlined in the syllabus must be done *prior* to the session so that discussion of the material may take place. Attendance of all in-person lab sessions is mandatory. In the event of a personal crisis, students should contact the course coordinator so that individual exceptions can be granted with a plan to make up the material missed. Professional communication is expected to occur regarding any potential exceptions to any of these responsibilities.

Performance of the student will be evaluated by exams, quizzes, lab practicals, a small group case study, and assessment of student's display of professionalism during lecture and lab sessions. The student will be expected to read/watch any assigned materials prior to class/lab and to participate in discussions led by the instructor and/or guest lecturers as

well as be actively engaged and participate in lab sessions. **Up to 15% may be deducted from the overall grade and/or any specific evaluation for lack of preparation, participation, and/or professionalism.**

Lab Practicals: Students must achieve a score of 80% or higher, in order to pass a practical. If the score is lower than 80%, the student must repeat the practical. If a student must repeat a practical exam, the highest grade the student may obtain for that exam is 80%. Students may repeat a practical only one time. If a student does not pass on the second attempt, the student must appeal to the Department Progressions Committee for a third chance. Failure on a third chance, if granted, will result in an “e” for the course. A student, who repeatedly fails practical exams on the first attempt in one or more courses, will be referred to the DPT Program Director for academic advising and a plan of remediation.

In the event of a student failing to present for either of the exams or practicals, the attendance policy as described in the UF DPT Student Handbook will be the default guide for action for both excused and unexcused absence. The one **exception being that a physician’s note will be required if the student is unable to test due to illness**. Provided the student satisfies the criteria for an excused absence, a live-proctored exam or practical will be conducted at the instructor’s earliest convenience.

Brief Description of Small Group Case Study: This case assignment is one where you will work in a small group, and each student in the small group will receive the same grade (worth 15% of your overall grade). As a group, you will submit your completed document via Canvas by noon ET on April 22nd (having ~4 weeks to complete the assignment) with all of your names on top of the document. The case will focus on assessing cardiovascular and muscular performance of a patient at the time of an initial evaluation and then again 4 weeks later. Based on the information provided in the case from the patient's evaluation findings, you will utilize what you have learned in the course to appropriately develop an initial exercise program. You will then outline the progression of that exercise program based on the measures and findings from the patient's 4-week progress note.

Grading:

Exams: (will occur at CLC)	40%
Exam 1: 15%	
Exam 2: 25%	
Quizzes:	15%
Lab Practicals:	30%
Practical 1: 15%	
Practical 2: 15%	
Small Group Case Study:	15%

Grading is scored according to the grading policy; University of Florida, College of Health Professions, Department of Physical Therapy, Student Handbook.

For greater detail on the meaning of letter grades and university policies related to them, see the Registrar's Grade Policy regulations at:
<http://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Percentage or points earned in class								
	93%-100%	90%-92%	87%-89%	83%-86%	80%-82%	70%-79%	60%-69%	Below 60%
Letter Grade equivalent	A	A-	B+	B	B-	C	D	E

Letter Grade	A	A-	B+	B	B-	C	D	E	WF	I	NG	S-U
Grade Points	4.0	3.67	3.33	3.0	2.67	2.0	1.0	0.0	0.0	0.0	0.0	0.0

Course Outline – Schedule subject to change:

The Course Coordinator can (and will) make changes to this schedule at his discretion. All changes will be announced during class/lab time, by email (to UF address), and/or through posting onto Canvas E-learning.

Date

Jan 8th Topic: Syllabus & Intro Lecture on Exercise (Principles of and Responses to Exercise)
Assigned Materials: ACSM Ch 2 pages 30-45; Piercy et al. The Physical Activity Guidelines for Americans. *JAMA* 2018; Highlighted sections from Frese et al. BP Measurement Guidelines. *Cardiopulm Phys Ther J* 2011.
Recommended Resources: Mueller & Maluf. "Physical Stress Theory" to Guide Physical Therapist Practice, Education, and Research. *PTJ* 200.

Jan 15th
NO CLASS HELD
Topic: Aerobic Function
Assigned Materials: Online Material

Jan 22nd Topic: Physiological/Subjective Response to Exercise; Cardiovascular Fitness Testing and Exercise
Assigned Materials: ACSM Ch 3 pages 58-61 + Box 3.1 & Box 3.2, pages 73-90; ACSM Ch 4 pages 113-132; Online Material

Jan 29th Topic: Aerobic Exercise Prescription
Assigned Materials: ACSM Ch 5 pages 142-152; Online Material

- Feb 5th Topic for lecture: Aerobic Exercise Testing and Prescription: Contraindications, Tests, and Measures for Aerobic Capacity/Endurance Exercise
Assigned Materials: Online Material
- Feb 12th** ***EXAM 1 during Lecture*** and
#PRACTICAL 1 during Lab from 12 until ~8pm
- Feb 19th Topic: Strength & Resistance Exercise I
Assigned Materials: ACSM Ch 3 pages 90-100; Online Material
- Feb 26th Topic: Strength & Resistance Exercise II
Assigned Materials: ACSM Ch 5 pages 153-158; Online Material; Please review associated material from Physiology course for greater depth
- Mar 4th** **Spring Break**
NO CLASS
HELD
- Mar 11th Topic: Strength & Resistance Exercise III
Assigned Materials: ACSM Ch 5 pages 158-161; Online Material
- Mar 18th Topic: Physical Activity; Blood Flow Restriction
Assigned Materials: Online Material
- Mar 25th Topic: Intro to Nutrition & Hydration; Fitness tests and measures; Resistance exercise catch-up
Assigned Materials: ACSM Ch 3 pages 61-73; ACSM Ch 7 pages 215-217; Online Material
- Apr 1st Topic: Special Considerations Across the Lifespan
Assigned Materials: ACSM Ch 6 pages 167-171, 177-186; ACSM Ch 12 pages 460-464; Online Material
- Apr 8th Topic: Special Considerations for the Diabetic Population
Assigned Materials: ACSM Ch 9 pages 276-285; Online Material
- Apr 15th Topic: Special Considerations for the Stroke Population
Assigned Materials: ACSM Ch 8 pages 248-251; Online Material
- Apr 22nd** Topic: Catch Up and Review
SMALL GROUP CASE STUDY due by 12pm
#PRACTICAL 2 during Lab from 12 until ~8pm
- May 1st** **EXAM 2**

Communication Guidelines: Students should follow DPT Program guidelines (see UF DPT Student Handbook) for professional behavior, should be clear with communication, and respectful to all guests, peers, and instructor.

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 UF DPT Student Handbook that each student receives and acknowledges reading/understanding upon beginning the DPT program. Professional behavior is expected at all times; including but not exclusively: during scheduled class, curricular and clinical activities, extracurricular professional events, community and clinical activities. *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 Professional Development Committee if they exhibit behavior not in accordance to these standards/expectations.

Students are expected to act in accordance with the University of Florida policy on academic integrity. As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge:

“We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.”

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied:

“On my honor, I have neither given nor received unauthorized aid in doing this assignment.”

It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For additional

information regarding Academic Integrity, please see Student Conduct and Honor Code or the Graduate Student Website for additional details:

<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>

<http://gradschool.ufl.edu/students/introduction.html>

Please remember cheating, lying, misrepresentation, or plagiarism in any form is unacceptable and inexcusable behavior.

Recording Within the Course

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

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>

Online Faculty Course Evaluation Process

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/>.

SUPPORT SERVICES

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.

Inclusive Learning Environment

Public health and health professions are based on the belief in human dignity and on respect for the individual. As we share our personal beliefs inside or outside of the classroom, it is always with the understanding that we value and respect diversity of background, experience, and opinion, where every individual feels valued. We believe in, and promote, openness and tolerance of differences in ethnicity and culture, and we respect differing personal, spiritual, religious and political values. We further believe that celebrating such diversity enriches the quality of the educational experiences we provide our students and enhances our own personal and professional relationships. 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 opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans' Readjustment Assistance Act." If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see your instructor or refer to the Office of Multicultural & Diversity Affairs website: www.multicultural.ufl.edu