

**College of Health and Human Performance
Department of Applied Physiology and Kinesiology
University of Florida**

**APK 4120 - Clinical Exercise Physiology
Spring 2019**

Course Instructor: Tanja Taivassalo, Ph.D.
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Office Hours: By appointment
Email: ttaivassalo@ufl.edu
Phone: (352) 294-8748
Class Meeting: MWF Period 7 (1:55 – 2:45pm) FLG 280

Class website: Canvas at: <http://elearning.ufl.edu>

University Counseling Services and Mental Health Services: <https://counseling.ufl.edu/>

University Police Department: 392-1111 or 9-1-1 for emergencies.

COMMUNICATION: Direct contact in person or by email. Students should only contact the course instructor by email using their UF email account. Students are responsible for checking assignments and course postings on Canvas. The instructor will post all course grades on Canvas. Students should point out any discrepancies to the instructor as soon as possible, before the last day of class.

COURSE DESCRIPTION: This course is required for the undergraduate specialization in Exercise Physiology offered by the Department of Applied Physiology and Kinesiology. Students completing this specialization usually seek placement in various health-related professions, medical school, or graduate school. It is an advanced undergraduate course in Clinical Exercise Physiology designed to provide students with an understanding of recent advances in exercise physiology for “clinical” populations. Particular emphasis is placed on the acute and chronic responses to exercise in patients at risk for or having cardiac, pulmonary, and metabolic diseases. Specific topics addressed include: pathophysiology of disease processes, clinical assessment of disease severity, diagnostic testing, and exercise rehabilitation in clinical populations. Students should have completed *APK 2105 Applied Human Physiology* or equivalent course in Human Physiology or Exercise Physiology before enrolling in this course.

STUDENT LEARNING OBJECTIVES:

Content: Identify, describe, and explain the basic concepts, theories and terminology of natural science and the scientific method within the subject areas of cardiac, pulmonary, and metabolic diseases. Identify, describe, and explain the major scientific developments within the subject area. Identify, describe, and explain relevant processes that govern biological and physical systems within the subject area.

Critical Thinking: Formulate empirically-testable hypotheses derived from the study of physical processes or living things within the subject area of cardiac, pulmonary, and metabolic diseases. Apply logical reasoning skills effectively through scientific criticism and argument within the subject area. Apply techniques of discovery and critical thinking effectively to evaluate experimental outcomes.

Communication: Communicate concepts clearly and effectively using written and/or graphic forms on examinations.

Course Objectives: Upon completion of this course, the student should have an understanding of the following topics in Clinical Exercise Physiology:

- a. Basic principles of health and exercise assessment
- b. Basic principles of cardiovascular physiology and clinical management
- c. Basic principles of respiratory system disorders and management
- d. Basic principles of endocrine and metabolic disorders and clinical management
- e. Basic principles of neuromuscular disorders and clinical management
- f. Basic principles of exercise training and prescription in patients with the above listed disorders
- g. Novel concepts involving exercise-based strategies as therapy for clinical conditions

COURSE MATERIAL:

The instructor will post lecture slides on Canvas prior to the lecture. Course readings that are relevant to lecture content will be posted in a specific folder on Canvas and you will be instructed as to which date the material will be covered beforehand. Other materials (i.e. videos and URL's) will also be posted as appropriate. The student is responsible to identify additional resources to complement the material provided.

Lecture notes and materials posted on the class website are the property of the instructor or the publishers of the material. They are posted solely for students in this course, for educational purposes, and to facilitate note taking and studying. No part of the materials may be re-distributed, reproduced, or used for any purpose other than note-taking and studying.

Recommended (not required) Textbook: “**Clinical Exercise Physiology**”, 4th Edition, 2018, Authors:

Ehrman, Gordon, Visich, Keteyain, Human Kinetics Publishing. While much of the course content can be found in this textbook, we will also cover novel/interesting topics that are not found in any textbook. Your primary source for studying should be your class notes and lecture slides. The textbook is supplementary and you should be able to read the textbook after reviewing your notes and understand the content. If you need additional reading material, please come see me.

EVALUATION & ACADEMIC POLICIES:

In-course exams: There will be 4 exams throughout the course as indicated in the Lecture Table below. Each exam will cover the lectures within a given module and you will be told which lectures will be tested. All exams will consist of approximately 40 to 60 multiple choice and true/false questions. Students will be told the detailed format of each exam in advance.

Current event assignment: You will be placed in teams of 3 to 4 students (depending on overall class size) and select a current topic or news (within last 2 years) in the field of clinical exercise physiology, and relevant to topics discussed in class (clinical conditions, exercise training, exercise-related strategies, impact of physical inactivity, etc). They may be in the form of news articles, stories, television clips, etc that have scientific rationale and research study underlying the story. You will present the current event topic during class on an assigned date as a team, using no more than 10 slides, and can discuss why the topic is relevant (does it support/refute material learned in class?), why is it novel, what are your own ideas/concerns about the topic (not mentioned in the news item), are there other conditions for which this news item may be relevant? You will have 8 minutes to present, and 5 minutes to answer questions from the Instructor and students. Start listening and paying attention to the news now...you can submit your topic at any time but no later than **March 20th**. Topics will be granted first come, first serve, to avoid repetition. Suggested links for searching ideas include (but not limited to) CNN health; Mayo Clinic Healthy Lifestyle; NY Times Health; Runners World; BBC health...

Final Exam: This will be held during the final exam period and will be a cumulative test of your knowledge of material presented throughout the course. Questions may also arise from the in-class student presentations..

1. **Students will be responsible for all material presented in class in addition to the lecture material posted on the class website.** Exam questions will be derived from lecture material as presented in class, assigned readings if any, and any class handouts posted on website.
2. Lecture notes will be made available on the class website day prior to class.
3. All students must be present at the scheduled exam prior to any student completing the exam and leaving the examination room. Once any student has completed the exam and left the exam room, no late-arriving students will be admitted to the exam.
4. Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found in the online catalog at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

Table 1: Method of grade evaluation in APK4120

Evaluation	Grade
Exams during course	15% each (x4)
Current event assignment	20%
Final Exam (cumulative)	20%
Total Grade:	100%

FINAL GRADES: Grades will be assigned based on current UF grading policies for assigning grade points: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Your final course grade will consist of the evaluations listed above. Exams may be scaled but the final course grades will not be changed. There will be no exceptions. No extra-credit assignments will be offered in this course. There will be no exceptions.

Students whose percentage grades lie in the decimal points between two letter grades may be considered for the higher grade based on their performance in the class. **Students should not email the instructor requesting consideration for a higher grade or additional extra-credit.** There will be no additional extra-credit provided in any circumstance. This is a departmental policy and outside the control of the instructor.

Grading Scale:

A	93.0-100	A-	90.0-92.9
B+	87.0-89.9	B	83.0-86.9
B-	80-82.9	C+	77.0-79.9
C	73.0-76.9	C-	70.0-72.9
D+	67.0-69.9	D	63.0-66.9
D-	60.0-62.99	E	Below 60.0

GENERAL COURSE POLICIES:

Attendance: Attendance will not be recorded for lectures. Make every effort to attend all lectures since you are responsible for all material covered in lecture. **Failure to attend class will almost certainly result in a significantly lowered grade.** Lectures will begin at the scheduled times. Students will be expected to arrive on-time, and in the event of tardiness, to enter the room with as little disruption as possible.

Respect: Students will be expected to show respect to the instructors and all students in the class. Students behaving disrespectfully (talking during lectures, making inappropriate or threatening statements to instructor or students, using phones in class, etc.) will be dismissed from the lecture or exam at hand. All university regulations governing student behavior will be enforced

Electronic records: No audio or video recordings may be made of any part of this course without written consent by the instructor. Any material recorded shall be used solely by students in the course and cannot be published, shared with others not taking the course, or made publicly available online in any circumstance.

Make-up Exams: Unexcused absences/availability for exams will result in a zero on the exam. Students who are ill or have an emergency that prevents from taking the exam during the time available are responsible for contacting the instructor as soon as possible. Make-up exams are offered at the discretion of the instructor given that there is a medical, family, or other emergency that deems the need for a make-up. Requirements for class attendance and make-up exams, assignments, and other work are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

A student experiencing an illness should visit the UF Student Health Care Center to seek medical advice and obtain documentation. If you have an illness, family emergency or death, please contact the Dean of Students Office (www.dso.ufl.edu) and follow the DSO Care Team procedures for documentation and requesting a make-up assignment (<https://www.dso.ufl.edu/care/courtesy-letters/>). The DSO will contact the instructor. Do not provide any documentation to the instructor regarding illness or family emergency. This is your personal and protected information. The DSO is qualified to receive and verify the documents you provide. The instructor will follow the recommendations from the DSO.

Canvas: A ticket number received from UFIT Helpdesk must accompany requests for make-ups due to technical issues (see Academic Resources below). The ticket number will document the time and date of the problem. If the time and date are past the assignment deadline, the request may not be granted. You must e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

Requirements for class attendance and make-up exams, assignments, and other work are consistent with the university policies that can be found at <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

Accommodations for students with disabilities: Students requesting classroom or other special accommodations for disabilities must first register with the Dean of Students Office— Disability Resource Center (www.dso.ufl.edu/drc/). The Dean of Students Office will provide documentation to the student who must then present the documentation to the instructor when requesting accommodation. Per the disability resource center: for optimal consideration, you must see the professor within the first three (3) days of class. Schedule a meeting with the instructor to make arrangements that will be best suited to you.

Technology: Phones/Smartphones/PDAs must be turned to silent or off during all lectures and exams. Vibrate and quiet settings are not acceptable. Any cell phone used during a lecture will be considered a violation of the course policies. 2 violations will result in 10% reduction in your final grade; 3 violations will result in 30% reduction, etc. Laptop computers and Tablet devices are welcome in class as long as used for class-related work. Surfing the web, checking email, making social media posts, or anything of that nature will be considered a violation as above. Please contact the UF Computing Help Desk and e-Learning Support Services (www.helpdesk.ufl.edu/) if you have any technical issues with Canvas or your email.

Course Evaluation: Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at <https://evaluations.ufl.edu/>. Evaluations are typically

open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/>.

Academic Honesty: Cheating on exams in any way will not be tolerated. Cheating includes, but is not limited to: attempting to look or looking at another student’s exam or answers; allowing another student to look at one’s exam or answers; falsifying information to obtain a make-up exam; revealing information about a make-up exam taken before the regularly-scheduled exam is given; attempting to obtain exam questions in advance of the exam. If a student is made aware of cheating, approached by another student to conspire to cheat, or concerned that another student may be attempting to look at his/her exam or answers, it is that student’s responsibility to notify the instructor to avoid implication in cheating incidents. **Any student caught cheating on any exam will receive a zero for that exam. There will be no exceptions. Additionally, the instructor may assign a failing grade for the course.** In all cases, students will be subject to the regulations and consequences, which can include probation or expulsion from the University, outlined in the Student Handbook.

As a UF student, 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 UF, 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 assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks. Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct. It is your responsibility to know and comply with all UF policies and procedures regarding academic integrity and the Honor Code. Violations of the Honor Code are not tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <https://sccr.dso.ufl.edu/process/student-conduct-code/>

SCHEDULE OF LECTURE TOPICS: Every effort will be made to adhere to the tentative exam dates listed on the course outline, but exam dates are subject to change by the instructor with advance notice to students.

Table 2:

	DATE	TOPIC	Recommended Text Chapter
1	Jan 7	Overview of course and outline	
2	Jan 9	Dallas bed rest study – review paper (Saltin, 1968)	
3	Jan 11	Dallas bed rest study continued	
4	Jan 14	Physical Inactivity as root of chronic disease	
5	Jan 16	Physical Inactivity continued	
6	Jan 18	Mechanisms of disease (Jones and Killian 2002)	
	Jan 21	NO CLASS – Martin Luther King Day	
7	Jan 23	Mechanisms of disease continued and review for exam 1	
8	Jan 25	Exam 1	
9	Jan 28	Coronary artery disease- pathophysiology and scope	
10	Jan 30	CAD and atherosclerosis	
11	Feb 1	CAD and ECG/exercise – guest lecture	
12	Feb 4	Cardiac rehabilitation – guest lecture	
13	Feb 6	Hyperlipidemia and dyslipidemia	
14	Feb 8	Obesity and metabolic syndrome	
15	Feb 11	Hypertension	
16	Feb 13	Hypertension continued	

17	Feb 15	Heart failure – guest lecture	
18	Feb 18	Exam 2	
19	Feb 20	Exercise and Aging: Guest lecture by Dr. Hepple	
20	Feb 22	Exercise and Aging: Guest lecture by Dr. Hepple	
21	Feb 25	Diabetes	
22	Feb 27	Diabetes and exercise	
23	March 1	To be determined	
	March 4	NO CLASS – SPRING BREAK	
	March 6	NO CLASS – SPRING BREAK	
	March 8	NO CLASS – SPRING BREAK	
24	March 11	COPD: Dr. Reid	
25	March 13	Asthma: Dr. Reid	
26	March 15	Skeletal muscle adaptation to exercise	
27	March 18	Exam 3	
28	March 20	Research Topic due to Instructor Neuromuscular disease	
29	March 22	Neuromuscular disease	
30	March 25	Novel exercise based strategies – Eccentric cycling	
31	March 27	Novel exercise based strategies – Vascular occlusion	
32	March 29	Novel exercise based strategies – Intermittent hypoxia	
33	April 1	Novel exercise based strategies – Myostatin blockers	
34	April 3	Novel exercise based strategies – Exercise mimetics	
35	April 5	Novel exercise based strategies – Exercise mimetics continued	
36	April 8	Exam 4	
37	April 10	Class presentations	
38	April 12	Class presentations	
39	April 15	NO CLASS	
40	April 17	Class presentations	
41	April 19	Class presentations	
42	April 22	Class presentations	
43	April 24	Class presentations	
	April 30	Final Exam from 3 – 5 pm	