

## CARDIOVASCULAR EXERCISE PHYSIOLOGY

APK7107 ~ 3 CREDITS ~ SPRING 2022

**INSTRUCTOR:** **Demetra Christou, PhD, FAHA**  
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Preferred method of contact: email

**OFFICE HOURS:** Friday 4 pm or by appointment

**MEETING TIME/LOCATION:** Friday Periods 6-8 (12:50 to 3:50 pm)/230 FLG

**COURSE DESCRIPTION:** The course is designed to provide an understanding of the basic mechanisms controlling cardiovascular function at rest and in response to exercise.

**PREREQUISITE KNOWLEDGE AND SKILLS:** APK 6116C-Physiological Bases of Exercise and Sport Sciences or equivalent.

**REQUIRED AND RECOMMENDED MATERIALS:** Class materials will include PowerPoint slides, research articles, and other online resources provided on CANVAS. You are responsible for reading all assigned materials.

Recommended textbooks to be used for background reading:

1) Advanced Cardiovascular Exercise Physiology, D Smith and B Fernhall, Champaign: Human Kinetics, 2011. ISBN: 978-0-7360-7392-9

2) Cardiovascular Physiology, 8th edition, R Berne and N Levy, St Louis: Mosby Publishing 2001. ISBN-10: 0-323-01127-6

3) Human Cardiovascular Control, LB Rowell. New York: Oxford University Press 1993. ISBN:0-19-507362-2

**COURSE FORMAT:** The course will entail synchronous in-person instruction on the scheduled days/times. There will be no recordings of the lectures posted. Attendance of all scheduled meetings in person is required. More detailed information will be made available on CANVAS.

#### **COURSE LEARNING OBJECTIVES:**

By the end of this course, students should be able to

1. identify the mechanisms controlling cardiovascular function at rest
2. discuss the influence of aging on cardiovascular structure and function
3. identify the acute and chronic cardiovascular responses to exercise
4. present/critique research articles on cardiovascular exercise physiology
5. design and present a study proposal on a topic related to cardiovascular exercise physiology.

#### **COURSE AND UNIVERSITY POLICIES:**

Requirements for class attendance, make-up exams 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>.

**ATTENDANCE POLICY:** Students are expected to attend class and to actively participate in all activities and group discussions to receive full participation points. Please note: The University has specific reasons that are acceptable for missing class which apply to both undergrad and grad students: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

**PERSONAL CONDUCT POLICY:** Students are expected to exhibit behaviors that reflect highly upon themselves and our University. UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students 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.” The Honor Code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, students are obliged to report any condition that facilitates academic misconduct to appropriate personnel. If there are any questions or concerns, students should consult the instructor of this class.

**EXAM MAKE-UP POLICY:** Unexcused absences on exam days will result in a zero on the exam. If you are ill or have an emergency that prevents you from taking the exam at the scheduled time, it is your responsibility to contact the instructor as soon as possible to try and schedule a make-up exam. Documentation of the illness or emergency will be required. Any make-up exam will be at the discretion of the instructor. Scheduling make-up exams is the responsibility of the student and should be done—if at all possible—before the scheduled exam.

**COMMUNICATION:** Students are responsible for reading emails sent by the instructor and course announcements on CANVAS. The best way to communicate with the instructor is by email. Students should expect to receive a response usually within 24 to 48 hours. All course grades will be posted on CANVAS. Any discrepancies should be pointed out to the instructor *as soon as possible, and before* the last day of class.

**TECHNOLOGY CONSIDERATIONS:** Instruction will be delivered in person during the scheduled days/times. Students are required to bring their laptop/tablet to class. Surfing the web, checking your email, making Facebook posts, or anything of that nature is unacceptable and strictly prohibited. Please keep your cell phone on silent. Recording of student presentations, in class assessments, private conversations between students in the class or between a student and the faculty during a class session is strictly prohibited. The content of this course may not be used for any commercial purpose or published without the written consent of the instructor. To “publish” means to share, transmit, circulate, distribute, or provide access to material, regardless of format or medium, to another person, including but not limited to another student within the same class section. Students found in violation of these policies will be subject to discipline under UF’s Conduct Code.

**ACCOMMODATING STUDENTS WITH DISABILITIES:** Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center by visiting their Get Started page at <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester. For optimal consideration, students must see the instructor within the first week of class. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

**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/>.

## GETTING HELP:

### Health and Wellness

- U Matter, We Care: If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) or 352 392-1575
- Counseling and Wellness Center: <https://counseling.ufl.edu/>, 352-392-1575
- Sexual Assault Recovery Services (SARS) - Student Health Care Center, 352-392-1161

- University Police Department, 352-392-1111 (or 9-1-1 for emergencies)  
<http://www.police.ufl.edu/>

#### Academic Resources

- E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml>
- Career Connections Center, Reitz Union, 352-392-1601. Career assistance and counseling. <https://career.ufl.edu/>
- Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.
- Teaching Center, Broward Hall, 352-392-2010 or 352-392-6420. General study skills and tutoring. <http://teachingcenter.ufl.edu/>
- Writing Studio, 302 Tigert Hall, 352-846-1138. Help brainstorming, formatting, and writing papers. <http://writing.ufl.edu/writing-studio/>
- Student Complaints On-Campus: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/> On-Line Students Complaints: <http://distance.ufl.edu/student-complaint-process/>

#### INCLUSION, DIVERSITY, EQUITY, AND ACCESSIBILITY RESOURCES

I am committed to providing a learning environment that supports inclusion, diversity, equity and accessibility (IDEA) and promotes respect for individuals of all identities. For suggestions or concerns related to IDEA, please reach out to me or any of the following:

- Dr. Joslyn Ahlgren, APK IDEA Liaison and Undergraduate Coordinator, [jahlgren@ufl.edu](mailto:jahlgren@ufl.edu)
- Dr. Rachael Seidler, APK Graduate Coordinator, [rachaelseidler@ufl.edu](mailto:rachaelseidler@ufl.edu)

#### GRADING:

Evaluation Components	% of Total Grade
Exam 1, 2 and 3 (20% each)	60%
Presentations	15%
Study proposal	15%
Attendance and participation	10%

**Exams** – There will be 3 exams in this course and will focus on the reading assignments and material presented in lectures. Exams will be scheduled during normal class meetings.

**Presentations** – Research articles will be selected by the instructor and assigned to each student for presentation. The order of presenters and articles will be posted on CANVAS. Students are responsible for reading all assigned articles and being prepared to participate in the discussions. Specific instructions related to the presentations will be provided.

**Study proposal** – You will design and present a study proposal on a topic related to cardiovascular exercise physiology. Detailed instruction will be provided.

**Attendance and participation** – You are expected to attend class and to actively participate in all activities and contribute to group discussions to receive full participation points. More information on participation points will be provided. Please note that the University has specific reasons that are acceptable for missing class which apply to both undergrad and grad students: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

**GRADING SCALE:** The following grading scale will be used in this course.

Letter Grade	Percent of Total Points	GPA Impact of Each Letter Grade
A	90-100%	4.00
B+	87-89%	3.33
B	80-86%	3.00
C+	77-79%	2.33
C	70-76%	2.00
D+	67-69%	1.33
D	60-66%	1.00
E	0-59%	0

For detailed information on current UF grading policies, please see the catalog: <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

## TENTATIVE COURSE SCHEDULE:

Week	Date	Topic
1	F – Jan 7	Course overview Intro
2	F – Jan 14	Cardiac myocytes Electrical activity of the heart
3	F – Jan 21	Heart as a pump Echocardiography and cardiac adaptations to exercise
4	F – Jan 28	Vascular structure IMT and exercise to reduce CVD
5	F – Feb 4	<b>Exam 1</b> Endothelial and vascular smooth muscle function
6	F – Feb 11	Hemodynamics and peripheral circulation Green review on vascular adaptations to exercise
7	F – Feb 18	Arterial blood pressure and arterial stiffening Green review on vascular adaptations to exercise
8	F – Feb 25	Arterial blood pressure and arterial stiffening
9	F – Mar 4	<b>Exam 2</b> Work on study proposal
10	F – Mar 11	<b>Spring Break</b>
11	F – Mar 18	Aging (Thijssen review and Seals review)
12	F – Mar 25	Acute exercise responses
13	F – Apr 1	Chronic training adaptations (Fleg review)
14	F – Apr 8	Study proposals
15	F – Apr 15	<b>Exam 3</b>