

# Physiological Basis of Exercise

APK6116 | 3 Credits | Fall 2022

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## Course Info

**INSTRUCTOR** **Max Adolphs, PhD**  
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Email: madolphs@ufl.edu  
Preferred Method of Contact: email

**OFFICE HOURS** Office hours will be shared weekly via email and students may also request individual appointments via email

**MEETING TIME/LOCATION** This class is entirely on-line. All your course lectures will be in video format and all assessments will be submitted in canvas.

**Course Website:** [www.http://lss.at.ufl.edu](http://lss.at.ufl.edu)

## COURSE DESCRIPTION

This graduate level exercise physiology course is designed to examine the acute and chronic physiological responses to exercise. Topics covered include the systemic and cellular adaptations that occur in response to acute and chronic exercise, the physiological adaptations that occur in specific organ systems with exercise and principles of effective training paradigms to elicit physiological changes.

## PREREQUISITE KNOWLEDGE AND SKILLS

*APK6116 is an introductory exercise physiology course aimed at graduate students who possess an undergraduate level understanding of human exercise physiology. This course is specific for students enrolled in the APK Online Master's Program and there are no course prerequisites to take APK6116. However, any previous experiences in the following areas will be helpful to students taking this course: medical terminology, physiology, exercise physiology, anatomy, and/or biology.*

## REQUIRED AND RECOMMENDED MATERIALS

**TEXTBOOK:** Exercise Physiology: Theory and Application to Fitness and Performance by Powers, Howley and Quindry 11<sup>th</sup> edition. McGraw-Hill.

**SUPPLEMENTARY MATERIALS:** Addition materials in the form of original scientific journal articles will also be assigned and posted on the course Canvas page.

## COURSE FORMAT

Students will watch multiple pre-recorded lectures each week. Students should read required readings and print out or download PDF lecture slides before watching lectures.

## COURSE LEARNING OBJECTIVES:

By the end of this course, students will be able to:

- Understand and identify theories and laboratory techniques utilized in assessing human physiological responses to exercise and training.
- Graphically describe and explain systemic and cellular changes that occur with exercise
- Explain the efficacy of specific exercise training paradigms and the effect on the human body, both at the systemic and cellular level
- Identify and describe the gross and microscopic structures of the organ systems covered.
- Describe the relationship between structure and function at all levels of anatomical organization (molecular, cellular, tissue, organ, system, organism).
- Predict changes in function and adaptations on the body's organ systems if given a disease, environmental perturbation or training paradigm
- Critically evaluate and interpret scientific literature in exercise physiology
- Engage in critical and constructive academic discussions of exercise physiology topics
- Effectively communicate (written and verbally) with peers and professions using scientific knowledge in exercise physiology

## Course & University Policies

### UF STUDENT COMPUTING REQUIREMENTS

As a 100% online course and as per the UF student computing requirements, "access to and on-going use of a computer is required for all students." UF does not recommend students relying on/regularly using tablet devices, mobile phones or Chromebook devices as their primary computer as it may not be compatible with specific platforms used in this course or UF (<https://it.ufl.edu/policies/student-computing-requirements/>). Access to fast, secure Wi-Fi will be necessary for this course. If a student is in an area with limited wi-fi access, UF students can access **eduroam** for free with their GatorLink log-in credentials.

#### *How to connect to eduroam:*

1. If you can get a Wi-Fi signal at any of the eduroam locations (see below) and your mobile device (laptop, smartphone, or tablet) has already been configured for eduroam, then you will automatically connect.
2. Otherwise, follow the instructions for connecting here: <https://helpdesk.ufl.edu/connecting-to-eduroam-off-campus/>.

There are more than 100 Wi-Fi hotspots in Florida, including several state university campuses and community colleges. You don't have to sit in a car--many locations have open spaces and communal rooms available so you can get online while socially distancing and following CDC guidelines in an air-conditioned space. Also, in Florida all of the UF/IFAS Research and Education Centers (REC) are equipped with eduroam, so if you live in a rural area of your county you can visit an REC to securely watch course videos and take care of your academic needs. Here's a link to all the eduroam sites in the U.S.: <https://incommon.org/eduroam/eduroam-u-s-locator-map/>.

If you have any problems connecting to eduroam you can call (352-392-HELP/4357) or [email](#) the UF Computing Help Desk.

## ATTENDANCE POLICY

Because this is an entirely online course, you are not expected to physically be on UF's campus at any time. However, you are expected to participate in discussion posts, assignments, engagement activities, and exams. If a due date is missed due an unexcused reason then a zero will be assigned for that specific assignment.

## PERSONAL CONDUCT POLICY

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, you are obliged to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult the instructor in this class.

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; or allowing another student to look at one's exam or answers. 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.

## EXAM MAKE-UP POLICY

Unexcused missed exams will result in a zero on the exam. If you are sick or have an emergency that prevents you from taking the exam when it is due, it is your responsibility to contact the instructor as soon as possible. Documentation of the illness or emergency will be required. If you need to schedule a make-up exam, please email the course instructor giving a detailed explanation and attaching any documentation that verifies your reasoning. Make-up exams will be given 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 time. If you have a serious emergency or death, please contact the Dean of Students Office ([www.dso.ufl.edu](http://www.dso.ufl.edu)) and they will contact your instructor so that you do not have to provide documentation of the emergency/death in order to get a make-up exam. Make-up exams are not permitted for the following (among others): family vacation, sporting event travel, attending weddings (unless you are IN the wedding), having exams in other classes on the same day.

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>.

## ACCOMMODATING STUDENTS WITH DISABILITIES

Students requesting accommodation for disabilities must first register with the Dean of Students Office (<http://www.dso.ufl.edu/drc/>). DRC-registered students must request their accommodation letter to be sent to their instructors via the DRC file management system prior to submitting assignments or taking quizzes/exams.

Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations. Students may reach out and contact their course instructor to verify receipt of their accommodation letter.

**Students registered with the DRC:** DRC-registered students will take their exams, both lecture and lab, in Canvas similar to other students but with their specific accommodations (i.e. extended time, use of screen reader, etc.) Please contact the instructor if the start time of exams needs to be adjusted due to overlap with other courses.

*It is imperative that you verify your specific access needs with your course instructor at least 48 hours PRIOR to scheduled assessments.*

## 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/>. Thank you for serving as a partner in this important effort.

## Getting Help

### HEALTH & 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, 392-1161
- University Police Department, 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](mailto:Learning-support@ufl.edu). <https://lss.at.ufl.edu/help.shtml>
- Career Connections Center, Reitz Union, 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, 392-2010 or 392-6420. General study skills and tutoring. <http://teachingcenter.ufl.edu/>
- Writing Studio, 302 Tigert Hall, 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

For suggestions or concerns related to IDEA, please reach out to any of the following:

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

## Grading

The following table outlines the four components to the course on which you will be evaluated. The total points earned from each component will be summed and divided by the total points possible in the course: 620. If points are greater or less than 620, component percentages will be used to calculate final.

Evaluation Components (number of components)	Points Per Component (total)	% of Total Grade
Lecture Exams (4)	100 points each = 400 points total	64%
Lecture Quizzes	100 points total	16%
Weekly Discussions	60 points total	10%
Lab Assignments	15 points each = 60 points total	10%

### Exams

Each module will have a timed exam worth 100 points. Question formats may include: fill in the blank, multiple choice, multiple response, true/false and short answer/free response. Students are not permitted access to any kind of materials or notes during these exams and will utilize HonorLock for exam proctoring. Exam questions are generated by the course instructor and will be based on the lecture material and any supplemental material assigned to students.

### Lecture Quizzes

Following most lectures, students will take a multiple-choice and/or short answer quiz over the lecture material. While the quizzes will be open book and notes, they will also be timed. There will be a total of 100 quiz points throughout the semester.

### Weekly Discussions

Each student will be required to participate in weekly discussions. Every week, by Sunday at midnight Eastern Time each student will write one question and respond to at least one question in the discussion board. The written question will consist of a topic or concept they found interesting and would like to know more about or that they do not understand. There will be a total of 60 discussion points throughout the semester.

### Lab Assignments

Throughout the semester each student will complete four lab assignments each worth 15 points. The labs will consist of fictitious data related to course topics that each student will have to analyze and answer questions about.

## GRADING SCALE

See the UF undergraduate catalog web page for information regarding current UF grading policies: [www.registrar.ufl.edu/catalog/policies/regulationgrades](http://www.registrar.ufl.edu/catalog/policies/regulationgrades). *Any requests for extra credit or special exceptions to these grading policies will be interpreted as an honor code violation (i.e., asking for preferential treatment) and will be handled accordingly.*

*The following table describes the grade scale and GPA impact of each letter grade.*

Letter Grade	Points Needed to Earn Each Letter Grade	Percent of Total Points Associated with Each Letter Grade	GPA Impact of Each Letter Grade
A	576.55-620	93.00-100	4.00
A-	557.95-576.54	90.00-92.99	3.67
B+	539.35-557.94	87.00-89.99	3.33
B	514.55-539.34	83.00-86.99	3.00
B-	495.95-514.54	80.00-82.99	2.67
C+	477.35-495.94	77.00-79.99	2.33
C	452.55-477.34	73.00-76.99	2.00
C-	433.95-452.54	70.00-72.99	1.67
D+	415.35-433.94	67.00-69.99	1.33
D	372.00-415.34	60.00-66.99	1.00
E	0-3371.99	<60.00	0.00

## Weekly Course Schedule

Week	Date	Topic
1	Aug 24 – Aug 26	Homeostasis/ Bioenergetics
2	Aug 29 – Sep 2	Bioenergetics
3	Sep 5 – Sep 9	<b>No class Sep 5<sup>th</sup> (Labor Day)</b> Bioenergetics
4	Sep 12 – Sep 16	Cell Signaling <b>Exam 1 completed by Sunday, Sep 18<sup>th</sup> at midnight Eastern</b>
5	Sep 19 – Sep 23	Nervous System
6	Sep 26 – Sep 30	Nervous System
7	Oct 3 – Oct 7	Skeletal Muscle <b>No Class Oct 7<sup>th</sup> (Homecoming)</b>
8	Oct 10 – Oct 14	Skeletal Muscle
9	Oct 17 – Oct 21	Autonomic Nervous System <b>Exam 2 completed by Sunday, Oct 23<sup>rd</sup> at midnight Eastern</b>
10	Oct 24 – Oct 28	Cardiovascular
11	Oct 31 – Nov 4	Cardiovascular Respiratory
12	Nov 7 – Nov 11	Respiratory
13	Nov 14 – Nov 18	Acid-Base and Temperature Regulation <b>Exam 3 completed by Sunday, Nov 20<sup>th</sup> at midnight Eastern</b>
14	Nov 21 – Nov 25	Endocrine <b>No Class Nov 23-25 (Thanksgiving)</b>
15	Nov 28 – Dec 2	Injury Repair
16	Dec 5 – Dec 9	Training and Adaptations <b>No Class Dec 8-9 (Reading Days)</b>
17	Final Exam Week	<b>Exam 4 completed by Sat, Dec 17<sup>th</sup> at midnight Eastern</b>

*Disclaimer: This syllabus represents current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity.*

**STUDY TIPS:**

- Read the book before watching the lectures.
- Physiology is highly conceptual. Trying to memorize everything does not work (plus that approach is boring anyways). When lectures are going on, focus less on taking notes and more on trying to comprehend concepts. This will help tremendously on exams.
- Go over the goals/ learning objectives section after each lecture and see if you can answer the learning objectives which correspond to the material that was covered. If you are struggling to understand them, meet with me!
- To expand on the last point, you should study daily. Trying to cram everything in before an exam in exercise physiology is a huge mistake that almost never ends well.
- Repetition is key to learning complex concepts. Go over the material again and again.