

Physiological Basis of Exercise

APK6116 | Class # 24171 | 3 Credits | Spring 2024

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Course Info

INSTRUCTOR

Max Adolphs, PhD
Office: 106G
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Email: madolphs@ufl.edu
Preferred Method of Contact: email

OFFICE HOURS

M, T, W 9:30 – 11 am

MEETING TIME/LOCATION

R Period 7-9 1:55pm– 4:55 pm FLG 225

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

There are no required texts. materials in the form of original scientific journal articles, PowerPoints, and other readings will be assigned and posted on the course Canvas page.

COURSE FORMAT

Students will attend live lectures one time per week (T Period 7-9). Students should read required readings and print out or download PDF lecture slides before coming to lecture.

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

ATTENDANCE POLICY

Attendance is not required; however, students will be responsible for all material presented in class in addition to any material posted on the class website. **If students miss any in-class assignment due an unexcused absence, they will receive a zero on that 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 at the scheduled time, 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) 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 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.

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 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. <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
- Dr. Rachael Seidler, APK Graduate Coordinator, rachaelseidler@ufl.edu
- Dr. Joslyn Ahlgren, APK Undergraduate Coordinator, 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: 330. If points are greater or less than 330, component percentages will be used to calculate final.

Evaluation Components (number of components)	Points Per Component (total)	% of Total Grade
Lecture Exams (4)	50 points each = 200 points total	60.6%
Lecture Quizzes	100 points total	30.3%
Participation	30 points total	9.1%

Exams – Each module will have an exam worth 50 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. 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. There will be a total of 100 quiz points throughout the semester.

Participation – 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.

GRADING SCALE

Students take exams and quizzes using Canvas and scores are available immediately upon submission. Students should contact the instructor as soon as possible if they feel there is an error in the grading of individual questions or submission of final grades. Final course grades will be assigned based on the table below. The grade achieved by the student and showing on Canvas is final. There is no rounding of grades in any circumstance. Any requests for additional 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.

More detailed information regarding current UF grading policies can be found here:

<https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>.

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

Letter Grade	Percent of Total Points Associated with Each Letter Grade	GPA Impact of Each Letter Grade
A	93.00-100	4.00
A-	90.00-92.99	3.67
B+	87.00-89.99	3.33
B	83.00-86.99	3.00
B-	80.00-82.99	2.67
C+	77.00-79.99	2.33
C	73.00-76.99	2.00
C-	70.00-72.99	1.67
D+	67.00-69.99	1.33
D	60.00-66.99	1.00
E	<60.00	0.00

Weekly Course Schedule

Week	Date	Topic
1	Jan 8 – Jan 12	Bioenergetics
2	Jan 15 – Jan 19	Bioenergetics
3	Jan 22 – Jan 26	Bioenergetics
4	Jan 29 – Feb 02	Cell Signaling
5	Feb 05 – Feb 09	Exam 1 – Thursday Feb 8th Nervous System
6	Feb 12 – Feb 16	Nervous System
7	Feb 19 – Feb 23	Skeletal Muscle
8	Feb 26 – Mar 01	Skeletal Muscle
9	Mar 04– Mar 08	Exam 2 – Thursday Mar 7th Autonomic Nervous System
10	Mar 11 – Mar 15	No Class – Spring Break
11	Mar 18 – Mar 22	Cardiovascular
12	Mar 25 - Mar 29	Respiratory
13	Apr 01 – Apr 05	Exam 3 – Thursday Apr 4th Acid-Base and Temperature Regulation
14	Apr 08 – Apr 12	Endocrine
15	Apr 15 – Apr 19	Injury and Repair/Training
16	Apr 22 – Apr 26	No Class – Reading Days
17		Exam 4 – Thursday May 2nd 10 - 12 PM

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.