

Physiological Basis of Exercise

APK6116C | Class # 10407 | 3 Credits | Fall 2025

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Course Info

INSTRUCTOR

Max Adolphs, PhD
Office: 106G
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Preferred Method of Contact: email

OFFICE HOURS

M, T, W 9:30 – 10:30 am

MEETING TIME/LOCATION

T Period 7-8 (12:50 PM – 3:50 PM)
FLG 235

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 two time per week. 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

University of Florida students are bound by the Honor Pledge. On all work submitted for credit by a student, the following pledge is required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The [Student Honor Code and Conduct Code \(Regulation 4.040\)](#) specifies a number of behaviors that are in violation of this code, as well as the process for reported allegations and sanctions that may be implemented. All potential violations of the code will be reported to Student Conduct and Conflict Resolution. If a student is found responsible for an Honor Code violation in this course, the instructor will enter a Grade Adjustment sanction which may be up to or including failure of the course.

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 before the scheduled exam time. 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 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>

APPROPRIATE USE OF AI TECHNOLOGY

The UF Honor Code strictly prohibits [cheating](#). The use of any materials or resources prepared by another person or Entity (inclusive of generative AI tools) without the other person or Entity's express consent or without proper attribution to the other person or Entity is considered *cheating*. Additionally, the use of any materials or resources, through any medium, which the Faculty / Instructor has not given express permission to use and that may confer an academic benefit to a student, constitutes *cheating*.

IN-CLASS RECORDING

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 guest 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.

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://my-ufl.bluera.com/>. 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 someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit [U Matter, We Care website](#) to refer or report a concern and a team member will reach out to the student in distress.
- **Counseling and Wellness Center:** Visit the [Counseling and Wellness Center website](#) or call 352-392-1575 for information on crisis services as well as non-crisis services.
- **Student Health Care Center:** Call 352-392-1161 for 24/7 information to help you find the care you need, or visit the [Student Health Care Center website](#).
- **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; or visit the [UF Health Emergency Room and Trauma Center website](#).
- **GatorWell Health Promotion Services:** For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit the [GatorWell website](#) or call 352-273-4450.

ACADEMIC RESOURCES

- **E-learning technical support:** Contact the [UF Computing Help Desk](#) at 352-392-4357 or via e-mail at helpdesk@ufl.edu.
- **Career Connections Center:** Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.
- **Library Support:** Various ways to receive assistance with respect to using the libraries or finding resources.
- **Teaching Center:** Broward Hall, 352-392-2010 or to make an appointment 352-392-6420. General study skills and tutoring.
- **Writing Studio:** 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.
- **Student Complaints & Grievances:** Students are encouraged to communicate first with the involved person(s), but [here](#) is more information on the appropriate reporting process.

APK ADMINISTRATORS

For suggestions or concerns related to APK courses or programming, please reach out to any of the following:

- Dr. David Vaillancourt (he/him), APK Department Chair, vcourt@ufl.edu
- Dr. Demetra Christou (she/her), APK Department Vice Chair, ddchristou@hwp.ufl.edu
- Dr. Steve Coombes (he/him), APK Graduate Coordinator, rachaelseidler@ufl.edu
- Dr. Joslyn Ahlgren (she/her), 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 respectfully ignored.

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	August 25-29	Bioenergetics
2	September 1-5	Bioenergetics
3	September 8-12	Bioenergetics
4	September 15-19	Exam 1 – Tuesday September 16th Bioenergetics
5	September 22-26	Cell Signaling
6	September 29-October 3	Nervous System
7	October 6-10	Nervous System
8	October 13-17	Exam 2 – Tuesday October 14th Skeletal Muscle
9	October 20-24	Skeletal Muscle
10	October 27-31	Cardiovascular
11	November 3-7	Cardiovascular
12	November 10-14	No Class – Veterans Day
13	November 17-21	Exam 3 – Tuesday November 18th Cardiovascular Respiratory
14	November 24-28	No Class – Thanksgiving Break
15	December 1-5	Endocrine
16	Exam 4 – December 10th 8:00 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.

CASCE Standards Included in this Course

Human Anatomy and Physiology
a. Structure and function of body systems
b. Musculoskeletal system
c. Neuromuscular system
d. Cardiovascular system
e. Respiratory system
Exercise Physiology
a. Bioenergetics of exercise and training
b. bioenergetic limiting factors in exercise performance
c. Substrate depletion and repletion
d. Bioenergetic limiting factors in exercise performance
e. Oxygen uptake and the aerobic and anaerobic contributions to exercise
f. Metabolic specificity of training

g. Endocrine responses to resistance exercise
h. Synthesis, storage, and secretion of hormones
i. Muscle as the target for hormone interactions
j. Role of receptors in mediating hormonal changes
k. Categories of hormones
l. Heavy resistance exercise and hormonal increases
m. Mechanisms of hormonal interactions
n. Hormonal changes in peripheral blood
o. Adaptations in the endocrine system
p. Primary anabolic hormones
q. Adrenal hormones
r. Other hormonal considerations

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.