UF Department of Applied Physiology and Kinesiology
College of Health and Human Performance
UNIVERSITY of FLORIDA

Advanced Exercise Physiology

APK6170 | Class # 21552 | 3 Credits | Fall 2025

Connect with HHP

@UFHHP
@ufhhp
@UF_HHP
APK LinkedIn

Instructor: **Max Adolphs, Ph.D.**
Office: FLG 106G
Office Phone: 352-294-1731
Email: madolphs@ufl.edu
Preferred Method of Contact: email

Office Hours: Office hours will be posted to Canvas weekly

Course Website: www.http://lss.at.ufl.edu

Course Description: This course is designed to provide a detailed understanding of acute and chronic responses to exercise. Particular attention is placed upon understanding the physiological responses to exercise at both a systems and cellular level. Emphasis is placed on muscle contractile properties, muscle bioenergetics and the endocrine responses to exercise.

Prerequisite Knowledge and Skills: APK6116C with a minimum grade C

Required and Recommended Materials: All materials needed for this course will be provided by the instructor

Course Learning Objectives: By the end of this course, students should be able to:

- Define, describe, and illustrate basic and advanced bioenergetics and physiological processes involved in the regulation of metabolism, skeletal muscle contraction and fatigue, blood flow and blood pressure, and breathing.
- Explain the integration of multiple systems in response to exercise and solve problems in that context
- Interpret and propose explanations for the metabolic, muscle, and cardiovascular responses to exercise in health, disease, and environmental challenges
- Defend and critique material or ideas related to bioenergetics, performance, and integrative exercise physiology Course Policies:

Participation 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.

Assignment Policy: All assignments are open-resource; however, please avoid using random web-sites and sites such as Wikipedia. Late submissions for all assessments/assignments/discussion posts are not accepted.

Exam Policy: There will be 3 lecture exams during this semester. These exams are closed-notes exams and will be proctored through Honorlock.

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 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.

UF 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 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.

University Policy on 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.

PERSONAL CONDUCT & ACADEMIC INTEGRITY

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.

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*.

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@hhp.ufl.edu
- Dr. Steve Coombes (he/him), APK Graduate Coordinator, scoombes@ufl.edu
- Dr. Joslyn Ahlgren (she/her), APK Undergraduate Coordinator, jahlgren@ufl.edu

Grading:

The following table outlines the point-accruing components of this course. The points listed are approximate and the final grade will be weighted based on the percentages of each category regardless of the actual number of points.

Evaluation Components (number of components)	Points Per Component (total)	% of Total Grade
Lecture Exams (3)	30 points each = 90 points total	45%
Lecture Quizzes	90 points total	45%
Participation	20 points total	10%

Exams (45% of final grade) – Exams will be at the end of each module (three exams total, one per module). Each exam will contain 25-35 questions and will last 50 minutes. Exams will be based on reading assignments and content covered in discussions and lectures. Questions will be multiple choice and true/false. Exams require the use of HonorLock so that no other material can be accessed. Class materials, notes, or other sources cannot be used during the exams. Unauthorized use of materials will be considered a violation of the Academic Honor Code.

Quizzes (45% of final grade) – There will be timed quizzes administered throughout the semester using Canvas. The quizzes will address topics presented during lectures and assigned reading. The quiz will consist of short-

questions or simple problem-solving exercises. Students will take the quiz individually and are permitted to use any materials they want while taking them. There will be 1-10 questions per quiz.

Participation (10% of final grade) - 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/.

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	63.00 – 66.99%	1.00
D-	60.00 – 62.99%	0.67
E	0.00 – 59.99%	0.00

Weekly Course Schedule:

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.

Module 1
Topic 1 – Cell structure
Topic 2 – Membrane Potentials
Topic 3 – Enzyme Kinetics
Topic 4 – Glucose Uptake
Module 2
Topic 1 – Glycogen Metabolism
Topic 2 – Energy Systems and Bioenergetics
Topic 3 – Skeletal Muscle, Macro, Micro, and Molecular Structure
Topic 4 – Neuromuscular Junction, Neuromuscular Transmission, and EC Coupling
Topic 5 – Calcium-activated force and cross-bridge cycle

Module 3
Topic 1 – Active Contractile Properties
Topic 2 – Muscle Fatigue
Topic 3 - Cardiovascular Autonomic and Hormonal Control
Topic 4 – Baroreflex and Exercise Blood pressure
Topic 5 – Smooth Muscle: Structure-Function and Extrinsic Control
Topic 6 – Intrinsic Control and Exercise Hyperemia
Topic 7 – Renal Physiology and Response to Exercise

Tentative dates and course plan.

Week	Class Activity	Module
August 21-22	Topic 1	Module 1
August 25-29	Topics 1-2	
September 1-5	**No Class September 1st – Labor Day** Topics 2-3	
September 8-12	Topic 3	
September 15-19	Topic 4 **Exam 1 due by Sunday, Sep 21st at midnight**	
September 22-26	Topic 1 and 2	Module 2
September 29-October 3	Topic 2	
October 6-10	Topics 2 and 3	
October 13-17	Topics 3 Topic 4 **No Class October 17th – Homecoming**	
October 20-24	Topic 4	
October 27-31	Topics 4 and 5 **Exam 2 due by Sunday, November 2nd at midnight**	
November 3-7	Topics 1 and 2	Module 3
November 10-14	**No Class Monday, November 11th – Veteran's Day** Topic 3	
November 17-21	Topics 4 and 5	
November 24-28	**No class – Thanksgiving**	
December 1-5	topics 6 and 7	
Final Exam Week	**Exam 3 Due by Saturday, December 13th at midnight**	

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.

Success and study tips:

- Read the book/ PowerPoints/ Papers before watching lectures
- Physiology is highly conceptual. Trying to memorize everything does not work (plus that approach is boring). 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 physiology is a huge mistake that almost never ends well.
- Repetition is key to learning complex concepts. Go over the material again and again.