

# PHYSIOLOGY OF EXERCISE AND TRAINING

APK3110 | 3 Credits | SUMMER B 2023

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## Course Info

### INSTRUCTOR

Ben Gordon, Ph.D., NSCA-CSCS, ACSM C-EP  
Office: FLG 106I  
Office Phone: 352-294-1755  
Email: bgordon1@ufl.edu  
Preferred Method of Contact: email

### OFFICE HOURS

Weekly office hours by appointment, schedule a zoom meeting with the instructor at your preferred time.

### MEETING TIME/LOCATION

Lectures on M,T,W,Th,F - Period 2 (9:30-10:45am) in CSE E220

## COURSE DESCRIPTION

This introductory course in exercise physiology is designed to provide a basic understanding of acute and chronic physiological responses to exercise. Particular attention will be placed upon muscle bioenergetics, metabolism, and the cardiopulmonary responses to exercise. At the completion of this course, students should:

1. Understand the physiological responses to acute exercise—specifically regarding:
  - The cardiopulmonary responses
  - Temperature regulation during work
  - Principles of exercise metabolism
  - Acid-base regulation
  - Mechanical and biomechanical properties of skeletal muscle fiber types
  - Regulation of skeletal muscle contraction
  - Limiting factors in submaximal and maximal work
2. Understand the physiological responses to chronic exercise—specifically regarding:
  - Systemic and cellular adaptations to aerobic exercise training
  - Systemic and cellular adaptations to anaerobic exercise training
  - Systemic and cellular adaptations to resistance exercise training
  - Principles of effective physical conditioning techniques

## PREREQUISITE KNOWLEDGE AND SKILLS

Successful completion of APK 2105C (Applied Human Physiology w/ Lab) with a grade of C or better.

## REQUIRED MATERIALS

S.K. Powers and E. T. Howley (2018). Exercise Physiology: Theory and Application to Fitness and Performance, McGraw-Hill, New York. 10<sup>th</sup> ed.

## COURSE FORMAT

Students will attend live lectures five times each week. Students should read required textbook pages before coming to class.

## Course & University Policies

### ATTENDANCE POLICY

Students are expected to make every effort to attend all lectures and labs. If students cannot make it to the live lecture, then they should watch the recorded version of the zoom lecture. Attendance will be used as extra credit at the discretion of the instructor. Keep in mind there is no penalty for not coming to the live lecture.

### PERSONAL CONDUCT POLICY

Students are expected to exhibit behaviors that reflect highly upon themselves and our University:

- Read and refer to the syllabus
- Watch/Attend all Lectures
- Show respect for the authority of the graduate and undergraduate TAs through politeness and use of proper titles. In addition, understand that TAs are the authority on lab grades, Dr. Gordon will defer to their decision on lab grades. If you have questions regarding your lab grade, discuss it with your TA FIRST.
- Use of professional, courteous standards for all emails and discussions:
  - Descriptive subject line
  - Body of the email should be concise but have sufficient detail
- Adherence to the UF Student Honor Code: <https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>
  - Honor code violations of any kind will not be tolerated and sanctions will be determined by the course instructor for first-time violators
  - Any use, access, or handling of technology during assessments will result in zero points for that assessment **and** potential failure of the course
  - All allegations, regardless of the severity, will be reported to the Dean of Students Office for University-level documentation and processing. This includes looking at your neighbor's test form during an assessment or plagiarizing part or all of another student's lab report.

## EXAM MAKE-UP POLICY

Make-up exams will be given at the discretion of the instructor. Unexcused missed exams will result in a zero on the exam (this includes contacting the instructor after the exam if you are ill). If you have a serious emergency or life event, please contact the Dean of Students Office ([www.dso.ufl.edu](http://www.dso.ufl.edu)) and they will contact your instructors so that you do not have to provide documentation of the emergency/death in order to get a make-up exam. 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/>.

## 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. Linda Nguyen, APK IDEA Liaison, [linda.nguyen@hhp.ufl.edu](mailto:linda.nguyen@hhp.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 percentage-accruing components of the course.

Evaluation Components (n)	% of Total Grade
Midterm Lecture Exam	50%
Comprehensive Lecture Final	25%
Your Story Assignment	5%
Quizzes	20%
Attendance	Extra Credit
Iron Gator Assessments	Extra Credit

**Midterms And Final Exam** - The midterm lecture exams will (generally) consist of roughly 40 fill-in the blank, multiple choice and true/false questions and 2 free-response questions. The comprehensive lecture final will consist of 40 multiple choice questions and 2 short answer questions.

**Quizzes** – Quizzes will be given throughout the semester after each chapter covered. These quizzes will be administered on canvas and they will be open for 3 days. These quizzes are short and to the point. Each quiz could contain fill-in-the-blank, multiple choice, short answer, and true or false questions. Each quiz will range between 5 and 10 questions.

**Your Story Assignment** - This is a short assignment at the start of the semester to help Dr. Gordon get to know you. There are 10 simple questions to answer about yourself that you'll turn in. Once you turn in the document, you'll sign up for a 15-minute time slot to meet with Dr. Gordon, so you can get to know each other.

**APK IRON GATORS** – This is an extra-credit project to get APK students more involved in fitness testing and physical activity. APK IRON GATORS will post record assessment scores for every component of fitness (skill and health related) for anyone in APK. Within IRON GATORS there is a specific challenge known as the IRON GATOR challenge. The challenge requires a student to score in the 85<sup>th</sup> percentile in 10 different assessments of fitness. Every assessment a student attempts is worth .02% on a student's final grade, and an attempt of 10 assessments for the IRON GATOR challenge is worth 1% on a student's final grade.

Letter Grade	Percent Associated with Grade	GPA Impact
A	90.00-100%	4.0
B+	87.00-89.99%	3.33
B	80.00-86.99%	3.0
C+	77.00-79.99%	2.33
C	70.00-76.99%	2.0
D+	67.00-69.99%	1.33
D	60.00-66.99%	1.0
F	0-59.99%	0

## Weekly Course Schedule

### CRITICAL DATES & UF OBSERVED HOLIDAYS

- No Class: July 4<sup>th</sup> Independence Day

## WEEKLY SCHEDULE

Week	Dates	Topics	Assignments
1	7/3-7/7	Chapter 1: Measurements Chapter 3: Bioenergetics	Quiz 1 Quiz 2
2	7/10-7/14	Chapter 4: Exercise Metabolism Chapter 5: Cell Signaling and Hormonal Responses to Exercise	Quiz 2 Quiz 4 <b>Exam 1</b>
3	7/17-7/21	Chapter 7: Nervous System: Structure and Control of Movement Chapter 8: Skeletal Muscle: Structure and Function	Quiz 5 Quiz 6
4	7/24-7/28	Chapter 9: Circulatory Response to Exercise Chapter 10: Respiration during Exercise	Quiz 7 <b>Exam 2</b> Quiz 8
5	7/31-8/4	Chapter 11: Acid Base Balance During Exercise Chapter 13: The Physiology Training	Quiz 9 Quiz 10
6	8/7-8/11	Chapter 19: Factors Affecting Performance Chapter 20: Training for Performance	<b>Final Exam – 8/11</b>

## SUCCESS AND STUDY TIPS

- Read the text. Exercise Physiology: Theory and Application to Fitness and Performance is one of the best textbooks in the field of Applied Physiology, and it was written by Dr. Scott Powers a former professor at the University of Florida.
- Snow-ball the lecture notes. Begin studying lecture material immediately after the first lecture. Then, after the second lecture, begin your studies with day one lecture material. Continue this all the way up to the exam.
- If you get lost or don't understand the material or an assignment, ask the instructor. If it's a question regarding lecture than ask Dr. Gordon. If it's a question regarding lab, ask your TA. That's what we're here for, to facilitate learning.

- While you're studying try and engage your classmates. This material is meant to be discussed and used.
- If there is something in the textbook that was NOT covered in lecture, you are not expected to know it. There is a lot in the text that we don't have time to cover.
- Rather than memorizing tables and charts, look at data tables and graphs and see what trends or themes you can determine from those. Can you describe what you see and what the significance is?
- Lastly, don't get overwhelmed by the material for these classes, just and have fun. 😊