

# PHYSIOLOGY OF EXERCISE AND TRAINING

APK3110 | 3 Credits | SUMMER B 2025

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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](mailto:bgordon1@ufl.edu)  
Preferred Method of Contact: email

### OFFICE HOURS

Monday 12-2p  
Friday 12-2p  
Note: Please email and confirm office hours when you attend

### MEETING TIME/LOCATION

Lectures on M,T,W,Th,F - Period 2 (9:30-10:45am) in FL GYM 265

### UNDERGRADUATE TEACHING ASSISTANT CONTACTS:

(This is the coordinator and practitioner of Iron Gators Extra Credit)

- JULIA THURLOW – [juliathurlow@ufl.edu](mailto:juliathurlow@ufl.edu)

## 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.

### **RECOMMENDED MATERIALS**

S.K. Powers, E. T. Howley, and J. Quindry (2024). Exercise Physiology: Theory and Application to Fitness and Performance, McGraw-Hill, New York. 12<sup>th</sup> ed. ISBN10: 1264529813 | ISBN13: 9781264529810

### **COURSE FORMAT**

Students will attend live lectures five times each week.

## **Course & University Policies**

### **ATTENDANCE POLICY**

Students are expected to make every effort to attend all lectures. 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 & 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*.

### **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.

## **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. Students can complete evaluations in three ways:

The email they receive from GatorEvals,  
Their Canvas course menu under GatorEvals,  
The central portal at <https://my-ufl.bluera.com>

Guidance on how to provide constructive feedback is available at <https://gatorevals.ua.ufl.edu/students/>. Students will be notified when the evaluation period opens.

Summaries of course evaluation results are available to students at <https://gatorevals.ua.ufl.edu/public-results/>.

## Getting Help

### HEALTH & WELLNESS

- **U Matter, We Care:** If you or someone you know is in distress, please contact [umatter@ufl.edu](mailto: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](mailto: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](mailto:vcourt@ufl.edu)
- Dr. Demetra Christou (she/her), APK Department Vice Chair, [ddchristou@hhp.ufl.edu](mailto:ddchristou@hhp.ufl.edu)
- Dr. Steve Coombes (he/him), APK Graduate Coordinator, [rachaelseidler@ufl.edu](mailto:rachaelseidler@ufl.edu)
- Dr. Joslyn Ahlgren (she/her), 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 Exams         | 40%              |
| Comprehensive Final Oral Exam | 25%              |

|                        |              |
|------------------------|--------------|
| Your Story Assignment  | 5%           |
| Quizzes                | 10%          |
| In-Class Assignments   | 20%          |
| Iron Gator Assessments | Extra Credit |

**Midterms** - 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.

**Oral Final Exam** – The oral final exam will be scheduled four days at the end of the semester. The exam will last 20 minutes. Students will randomly choose 3 major topics in exercise science, then they will explain the topic and answer questions from Dr. Gordon regarding each topic. The topics can include the following:

- ATP Usage during exercise (explaining the three energy systems)
- Lactate Threshold
- Oxygen Deficit and EPOC
- VO<sub>2</sub> max
- Types of signaling molecules in the body
- Factors that influence muscular strength
- Comparison of muscle fiber types
- Reading an ECG
- Cardiovascular changes during a maximal aerobic test
- Adaptations due to cardiovascular training
- Adaptations due to resistance training

**Quizzes** – Quizzes will be given throughout the semester after each chapter covered. These quizzes will be administered at the end of class. These quizzes are short and to the point, usually 10 questions. Each quiz could contain fill-in-the-blank, multiple choice, short answer, and true or false questions. Students can only use notes they created during the quizzes.

**In-class Assignments** – At the end of each class period there will be some form of in-class assignment, e.g. free-response questions, essay question, multiple choice questions etc. Students do not need to complete every in-class assignment. Students will be expected to complete 3 out of 5 in-class assignments per week to receive full credit.

**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

### WEEKLY SCHEDULE

| Week | Dates     | Topics   | Assignments                       |
|------|-----------|--|-----------------------------------|
| 1    | 6/30-7/3  | Chapter 1: Measurements<br>Chapter 3: Bioenergetic   | Quiz 1<br>Quiz 2                  |
| 2    | 7/7-7/11  | Chapter 4: Exercise Metabolism<br>Chapter 5: Cell Signaling and Hormonal Responses to Exercise                     | Quiz 3<br>Quiz 4<br><b>Exam 1</b> |
| 3    | 7/14-7/18 | Chapter 7: Nervous System: Structure and Control of Movement<br>Chapter 8: Skeletal Muscle: Structure and Function | Quiz 5<br>Quiz 6                  |
| 4    | 7/21-7/25 | Chapter 9: Circulatory Response to Exercise<br>Chapter 10: Respiration during Exercise                             | Quiz 7<br><b>Exam 2</b><br>Quiz 8 |

|   |          |  |  |
|---|----------|--|--|
| 5 | 7/28-8/1 | Chapter 11: Acid Base Balance During Exercise<br>Chapter 13: The Physiology Training | Quiz 9<br>Quiz 10  |
| 6 | 8/4-8/8  | Chapter 19: Factors Affecting Performance<br>Chapter 20: Training for Performance    | <b>Final Exam</b> – Scheduled on canvas between 8/7 and 8/10 |
|   |          |  |  |

## 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 Dr. Gordon
- 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. 😊