

Physiology of Exercise and Training

APK3110C | Class # 10564 | 3 Credits | Fall 2023

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Office Hours: M, W, F 9:30 – 11 am

Meeting Time/Location: WEIM 1084;_M, W, F | Period 2 (8:30 AM - 9:20 AM)

Course Description: Survey in exercise physiology that provides an overview of the acute and chronic responses to exercise. Particular attention is placed on understanding muscle bioenergetics and metabolism as well as the cardiopulmonary responses to exercise. Special topics include exercise testing, training technologies, and exercise in hot and cold environments.

Prerequisite Knowledge and Skills: APK 2105C with minimum grade of C

Required and Recommended Materials: Exercise Physiology: Theory and Application to Fitness and Performance by Powers & Howley 11th edition e-book with CONNECT access.

Course Format: Students will attend live lectures five times each week. Copies of the lecture slides will be posted on the course website (on Canvas) prior to each lecture.

Course Learning Objectives: By the end of this course, students should be able to:
understand the physiological responses to acute and chronic exercise in the context of:

- Skeletal muscle
- Skeletal muscle bioenergetics and metabolism
- Cardiovascular system
- Pulmonary system
- Acid base-balance during exercise
- Limiting factors to exercise performance
- Exercise testing for health and performance

To select the appropriate tests for evaluating different components of fitness and athletic performance and become familiar with the current recommendations for exercise prescription for improving fitness and sport-specific performance

Course Policies:

Attendance Policy: Students are expected to be in class and participate in discussions. Any missed assignments will result in a zero for the assignment. No late or make-up assignments will be accepted unless prearranged or the absence is excused.

Make-up assignments (exams, quizzes, etc.) will be given at the discretion of the instructor and documentation of the reason for missing the assignment will **always** be required for consideration. Students will not be permitted a make-up assignment for personal travel/vacations, work, or volunteering conflicts. This includes requesting to take an assignment early for personal travel/vacations. With regard to lecture exams, many students will encounter having multiple exams in one day and this is not a permissible reason for a make-up exam. Only if another exam is scheduled for the same time/overlaps with this course's exams will a request be considered. If a student experiences a serious emergency or life event, they should contact the Dean of Students Office (www.dso.ufl.edu) so the office can contact your instructor directly. 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>.

If a student arrives late to the exam, they will still be permitted to take the exam (without penalty) with the remaining time left as long as no other student has submitted their exam and has left. If a student is late to the exam and at least one student has already completed their exam and has left, the late-arriving student will be subjected to the policy below with a penalty deduction on their exam.

In the case that a student is late and another student has already left or misses an exam due to an unexcused reason (i.e. overslept, mixed up the exam time, etc.), the exam can be taken with **a 20% penalty if taken within 24 hours** of the original exam time or with a **40% penalty if taken within 48 hours** of the original exam time. If a student is unable to take the exam within 48 hours of the original exam time, this will result in a **zero grade for that exam**.

Personal Conduct Policy: Students are expected to exhibit behaviors that reflect highly upon themselves and our University. **Audio or video recordings** of any part of this course or activities in class are **not allowed without written consent by the instructor**. Any material recorded shall be used solely by students in the course. Recorded material from the class cannot be published, shared with others not taking the course, or made publicly available online in any circumstance.

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 or TA in this class.

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 and 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. Rachael Seidler, APK Graduate Coordinator, rachaelseidler@ufl.edu
- Dr. Joslyn Ahlgren, 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)	50 points each = 150 points total	54.5%
Lecture Quizzes	100 points total	36.4%
Participation	25 points total	9.1%

Exams (54.5% 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. 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 (36.4% of final grade) – There will be timed and untimed quizzes administered throughout the semester using Canvas. The quizzes will address topics presented during lectures and assigned reading. The quizzes will consist of short-questions or simple problem-solving exercises. Students will take the quizzes assigned during lectures individually and are permitted to use any materials they want while taking them. When at-home quizzes are assigned, students are permitted to work in groups if desired. There will be approximately 100 quiz points throughout the semester but will be worth 36.4% of the total grade regardless of the number of total points. Quiz due dates will be posted on Canvas. Quizzes are graded on the accuracy of answers, NOT on completion. It will be the student's responsibility to know the due dates and to complete the homework assignment in a timely manner (all deadlines are in EST). It is highly recommended that students complete their at-home quizzes early rather than waiting last minute.

Participation (9.1 % 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 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/>.

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:

Tentative dates and course plan.

Week	Dates	Lecture Topic
1	Aug 23 – Aug 25	Chapter 3: Bioenergetics
2	Aug 28 – Sep 1	Chapter 3: Bioenergetics
3	Sep 4 – Sep 8	No Class Monday Sep 4 th – Labor Day Cell Structure and Membrane Potentials (readings provided)
4	Sep 11 – Sep 15	Chapter 7: Nervous System (Cell Structure and Membrane Potential)
5	Sep 18 – Sep 22	Chapter 8: Skeletal Muscle
6	Sep 25 – Sep 29	Exam 1 – Monday Sep. 25th at 8:30am in WEIM 1084 Chapter 8: Skeletal Muscle Chapter 4: Bioenergetics
7	Oct 2 – Oct 6	Chapter 4: Bioenergetics No class Friday October 6 th – Homecoming
8	Oct 9 – Oct 13	Chapter 9: Circulatory Response to Exercise
9	Oct 16– Oct 20	Chapter 9: Circulatory Response to Exercise
10	Oct 23 – Oct 27	Chapter 10: Respiration During Exercise
11	Oct 30 – Nov 3	Exam 2 – Monday Oct. 30th at 8:30am EST in WEIM 1084 Chapter 10: Respiration During Exercise
12	Nov 6 – Nov 10	Chapter 10: Respiration During Exercise No class Friday November 10 th
13	Nov 13 – Nov 17	Chapter 11: Acid-base Balance
14	Nov 20 – Apr 24 th	Chapter 5: Hormonal Response No Class Nov. 22 nd through Nov. 24 th – Thanksgiving

15	Nov 27 – Dec 1	Chapter 13: Aerobic and Anaerobic Training
16	Dec 4 – Dec 8 th	Chapter 14: Resistance Training No Class Dec 7 th and 8 th - Reading days
Final Exam – Thursday, December 14 th 12:30 to 2:30 PM in WEIM 1084		

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.