

Advanced Exercise Physiology – APK4112 Spring 2018

Instructor: Linda Nguyen, Ph.D. (email: linda.nguyen@hhp.ufl.edu)

Class time: Tues. Period 8 (3:00 – 3:50pm) FLG 260 and Thurs Period 7-8 (1:55-3:50pm) FLG 265

Office hours: Office hours are posted on Canvas

COMMUNICATION

Direct contact in person or by email. Students should only contact the course instructor by email using their UF email account. Students are responsible for checking assignments and course postings on Canvas. The instructor will post all course grades on Canvas. Students should point out any discrepancies to the instructor before the last day of class.

COURSE DESCRIPTION

This is an advanced course focusing on integrative physiology and physiological responses to exercise. The course includes three modules: I) Energetics, Metabolism, and Endocrine Exercise Physiology; II) Skeletal Muscle Excitation, Contraction, and Fatigue; and III) Cardiovascular and Hemodynamics Regulation. The course builds on principles and concepts learned in undergraduate courses in the area of physiology such as APK-2100 (Applied Human Anatomy), APK-2105 (Applied Human Physiology), and APK-3110 (Introduction to Exercise Physiology). The modules emphasize exercise and physiological responses to environmental challenges in health and disease.

STUDENT LEARNING OBJECTIVES

Upon completing this course, students will 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, cardiovascular, and ventilatory responses to exercise in health, disease, and environmental challenges
- Defend and critique material or ideas related to bioenergetics, performance, and integrative exercise physiology

COURSE MATERIAL

The instructor will post lecture slides, videos, and reading material as appropriate on Canvas. The student is responsible to identify additional resources to complement the material provided or solve problems posed in the course.

Lecture notes and materials posted on the class website are the property of the instructor or the publishers of the material. They are posted solely for students in this course, for educational purposes, and to facilitate note-taking and studying. No part of the materials may be re-distributed, reproduced, or used for any purpose other than note-taking and studying.

Textbook (optional): A custom e-book titled 'University of Florida custom e-book Advanced Exercise Physiology' (ISBN 9781492563136) is required for the course. Students can purchase the e-book through UF bookstore or the publisher's website (Human Kinetics: <http://www.humankinetics.com/products/all-products/University-of-Florida-Custom-eBook-Advanced-Exercise-Physiology>).

EVALUATIONS

Evaluation Components	% of Total Grade
Lecture exams (3)	30
Quizzes (lowest 2 scores are dropped)	20
Evaluations on class presentations	15
Instructor evaluation on presentation	15
Presentation - slides	10
Peer evaluation grade on presentation	5
Presentation attendance	5
Total	100

In-class quizzes: There will be quizzes administered in class. The quiz might address a topic that has been discussed during the module (i.e. prior lectures). These quizzes might be at the beginning, middle, or at the end of class and will consist of multiple choice, true/false, group problem-solving exercises or short answer questions. Students will take the quiz individually or in groups at the discretion of the instructor based on the type and nature of questions. There will be 1-10 questions per quiz. Quizzes may be announced (in the prior class) or unannounced. Unexcused absences on quiz days will result in a zero on the quiz. If you are ill or have an emergency, it is your responsibility to contact the instructor as soon as possible. There will be no make-up quizzes. Instead, if it is an excused absence, the following quiz will count twice. **Documentation will be required.**

Lecture Exams: There will be 3 regular multiple choice, T/F exams. **Each exam will contain 40 questions and will last 50 mins.** (i.e. a class period). Exams will be based on any assigned readings, lecture material and content covered during class. Students will take exams in the same room where lectures are given.

Presentation: Students will pair up and form groups of 2 to provide a presentation based on either a research article or a specific topic related to exercise physiology. Students can choose their own articles or topics, however, they must be approved by the instructor beforehand. The instructor may also help in determining and guiding students to appropriate articles or topics.

Presentations should be 20 minutes in duration and in the format of a PowerPoint presentation. The 20 minute time limit is strict and groups may be docked points if they exceed the 20 minutes. Thus, it is highly recommended that students practice beforehand. Conciseness, clarity, and information delivery will be part of your grade. There will be 2 minute question period after each presentation.

Evaluation rubrics for presentations will be posted on Canvas.

Presentation Slides: All groups must submit their PowerPoint presentation slides to the instructor via email the day before their presentation, at the very latest.

Instructor evaluation on group presentations: All groups will be evaluated by the instructor based on the posted rubric on Canvas.

Presentation Attendance: Attendance will be taken on presentation days. You may only drop one of those days, after which you will receive a zero for that day.

Peer Evaluations on group presentations: All students will be required to evaluate their peers on their presentations. The grading rubric will be posted on Canvas. Peer evaluations are broken up into 2 components:

- **Peer evaluation grade:** This is the grade that the group will receive based on the average grade given by the class, collectively.

- **Evaluations on presentations:** This is the grade each student will receive for evaluating each group presentation. Each student must fill out a feedback and grading form at the end of each presentation day and provide both critical and constructive feedback on that day's presentation(s).

Final Grades

Grades will be assigned based on current UF grading policies for assigning grade points:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Letter Grade	(%)	Grade Point
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

All grades will be posted directly into the CANVAS gradebook. Any discrepancies with points displayed in gradebook should be pointed out to the instructor before the last day of class. **There is no curve for this course and final grades will not be rounded up.** See the UF undergraduate catalog web page for information regarding current UF grading policies:

www.registrar.ufl.edu/catalog/policies/regulationgrades.

There will be no additional extra-credit provided in any circumstance.

GENERAL COURSE POLICIES

Attendance: Make every effort to attend all lectures. Although attendance is not taken, it is imperative for your success in the course. If a student is unable to attend a class, it is recommended to obtain any class notes from a classmate.

Electronic records: No audio or video recordings may be made of any part of this course without consent by the instructor. Any material recorded shall be used solely by students in the course and cannot be published, shared with others not taking the course, or made publicly available online in any circumstance.

Make-up Exams: To schedule a make-up exam, please fill out the **make-up exam request form** posted in CANVAS and submit it to your course instructor. **Documentation will be required.** Unexcused missed exams will result in a zero on the exam (this includes contacting the instructor **after** the exam if you are ill). **You are absolutely not permitted a make-up exam for work, volunteer position or personal travel/vacations, so please make your travel arrangements accordingly.**

A student experiencing an illness should visit the UF Student Health Care Center to seek medical advice and obtain documentation. If you have an illness, family emergency or death, please contact the Dean of Students Office (www.dso.ufl.edu) and follow the DSO Care Team procedures for documentation and

requesting a make-up assignment (<https://www.dso.ufl.edu/care/courtesy-letters/>). The DSO will contact the instructor. Do not provide any documentation to the instructor regarding illness or family emergency. This is your personal and protected information. The DSO is qualified to receive and verify the documents you provide. The instructor will follow the recommendations from the DSO.

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>.

Accommodations for students with disabilities: Students requesting classroom or other special accommodations for disabilities must first register with the Dean of Students Office—Disability Resource Center (www.dso.ufl.edu/drc/). The Dean of Students Office will provide documentation to the student who must then present the documentation to the instructor when requesting accommodation. Please, provide the request to the instructor as soon as possible.

Students registered with the DRC: Several components of the course involve assessments in groups and/or in-class. It is impractical to conduct in-class assessments (i.e. quizzes) at the DRC, as those overlap with lecture or discussion sessions. However, the instructor can make arrangements for students to complete in-class assessments with extended time or supervised in a different environment near the classroom. It is strongly recommended that you submit all of your lecture exam requests through the DRC in the first week of classes to ensure that they are approved in time.

Technology: The use of cell phones (and the like) is strictly prohibited during lectures and exams. Any cell phone used during a lecture will be considered a violation of the course policies and will result in a zero on participation points for the module.

Laptop computers and Tablet devices are welcome in class as long as used for class-related work. Surfing the web, checking email, making social media posts, or anything of that nature will result in zero for participation in the module. Please contact the UF Computing Help Desk and e-Learning Support Services (www.helpdesk.ufl.edu/) if you have any technical issues with Canvas or your email.

Course Evaluation: Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu>.

Academic Honesty: As a UF student, you have committed yourself to uphold the Honor Code, which includes the following pledge: *"We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."* You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at UF, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."* It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks. Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct. It is your responsibility to know and comply with all UF policies and procedures regarding academic integrity and the Honor Code. Violations of the Honor Code are not tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: <http://www.dso.ufl.edu/SCCR/honorcodes/honorcode.php>.

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 so that a team member can reach out to the student.

Counseling and Wellness Center:

<http://www.counseling.ufl.edu/cwc/Default.aspx>, 392-1575;

and the University Police Department: 392-1111 or 9-1-1 for emergencies.

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 Resource Center, Reitz Union, 392-1601. Career assistance and counseling.

<http://www.crc.ufl.edu/>

Library Support, <http://cms.uflib.ufl.edu/ask>.

Various ways to receive assistance with respect to using the libraries or finding resources.

Advanced Exercise Physiology – **TENTATIVE schedule***

* The schedule is subject to change. Changes will be announced in class or on Canvas.

Week	Day - Date	Topic
1	T-Jan. 9	Syllabus; Enzymes
	R-Jan. 11	Enzymes; Energy Systems and Bioenergetics
2	T-Jan. 16	Non-hormonal Signaling and Exercise
	R-Jan. 18	Hormones and Exercise
3	T-Jan. 23	Hormones and Exercise
	R-Jan. 25	Carbohydrate Metabolism <i>Presentations – Group 1, 2</i>
4	T-Jan. 30	Carbohydrate Metabolism; Lipid Metabolism
	R-Feb.1	<i>Class activity</i>
5	T-Feb. 6	Lipid Metabolism; Oxidative Phosphorylation
	R-Feb. 8	<i>Presentations – Group 3, 4</i>
6	T-Feb. 13	Exam 1

	R-Feb. 15	Skeletal Muscle & Action Potentials <i>Presentations – Group 5, 6</i>
7	T-Feb.20	Neuromuscular Transmission
	R-Feb. 22	<i>Presentations – Group 7, 8</i>
8	T-Feb. 27	Muscle Contraction
	R-Mar. 1	Muscle Contraction
9	T-Mar.6	Spring Break – No Class
	R-Mar. 8	Spring Break – No Class
10	T-Mar.13	Skeletal Muscle Fatigue
	R-Mar. 15	Class activity
11	T-Mar.20	Exam 2
	R-Mar. 22	Autonomic and hormonal control of CV system <i>Presentations – Group 9, 10</i>
12	T-Mar.27	Hemodynamics and peripheral circulation
	R-Mar. 29	Hemodynamics and peripheral circulation <i>Presentations – Group 11, 12</i>
13	T-Apr. 3	Vascular structure & function
	R-Apr. 5	Vascular structure & function <i>Presentations – Group 13, 14</i>
14	T-Apr. 10	CV responses to acute aerobic exercise
	R-Apr. 12	CV responses to acute resistance exercise
15	T-Apr. 17	Body Fluid Balance
	R-Apr. 19	Class activity
16	T-Apr. 24	Exam 3
	R-Apr. 26	No class – Reading Day