Physiology of Exercise and Training
APK 3110C (course #10795)
Department of Applied Physiology and Kinesiology
Spring 2019
UPDATED December 14, 2018

Course Instructor: Scott K. Powers. Office- room 112 FLG
(Office phone: 352-294-1713) Classroom-CSE E222; class meets-MWF (Period 6 (12:50-1:40PM));

Scott Powers-**Office hours:** Monday and Wednesdays: 11:30AM-12:30PM
Other hours by appointment.

Graduate Teaching Assistant:
Branden Nguyen; email address: branden.nguyen@ufl.edu; Office hours: Monday, Wednesday, and Fridays @ 4:05PM-4:55PM in room 115 FLG

Undergraduate Teaching Assistants:
Jessica Silk; email address: jsilk@ufl.edu; office hours-Wednesday and Fridays @ 9:35AM-10:25AM in room 115 FLG
Alan Lam; email address: alandlam@ufl.edu; office hours-Tuesday @9:35-10:25AM and Wednesday @ 10:40-11:30AM in room 115 FLG
Andrew Chrystman; email address: achrystman@ufl.edu; office hours-Monday @11:45-12:35PM and Thursday @3:00-3:50PM in room 115 FLG

Course prerequisite: APK 2105C (C grade or better) along with junior standing or above

Course Description and objectives: This introductory exercise physiology course is directed toward undergraduate students that possess a general understanding of human anatomy and physiology. This course will provide the student with a basic understanding of both acute and chronic responses to muscular exercise. Emphasis will be directed toward an understanding of muscle bioenergetics and metabolism as well as the cardiopulmonary responses to both acute and chronic exercise. Moreover, students will learn about training-induced adaptations and will be exposed to real-world applications of exercise prescription in the prevention of obesity and chronic disease. Finally, this course will focus on an integrative approach toward understanding exercise physiology and incorporate a problem-based learning method that will emphasize the importance of critical thinking skills.

Learning Objectives:
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

Exams and grades: Students will be evaluated based on grades from four examinations. Exams will consist of multiple choice and/or true-false questions. Please bring pre-sharpened pencils to exams. Exams will be administered during the regular class period. Students will also have the opportunity to earn 4 points of extra credit by completing 4 unannounced quizzes (note-quizzes will be unannounced and administered near the end of class).

Exam content: More than 90% of the exam content will come directly from the recommended textbook (Powers and Howley, Exercise Physiology, 10e). Please note that the 10th edition of this book contains significant new material that cannot be found in the 9th edition of the book. In addition to material from the textbook, selected lectures will contain "new" information found in scientific publications. If you plan to purchase the 10th edition of the textbook, please consider an electronic edition of the book that also contains the "connect" package. The "E" edition of the text will save you a significant amount of money and the connect package contains learning tools that will assist you in mastering the material.

Unannounced quizzes for extra points: During the semester, you will have the opportunity to earn extra points by completing four (4) unannounced quizzes (worth 1 point each). Points earned from these quizzes will be added to your point total for the semester. These quizzes will be multiple choice or true false and will focus on the current lecture topic. Quizzes will be unannounced and administered near the completion of the lecture period. Although attendance is not required in this course, you must be present in class to earn the extra points from the quiz.

Grading summary and scale:
Grades will be assigned based on points earned in the course. The relative point value of the four examinations and fout quizzes are as follows:

Exam # 1	**25 points**
Exam # 2	**25 points**
Exam #3	**25 points**
Exam #4	**25 points**
Quiz #1	**1 point**
Quiz #2	**1 point**
Quiz#3	**1 point**
Quiz#4	**1 point**

Total possible points =104

Grading Scale based on total points earned:

Letter grade	Total points
A	**93 or above**
A-	**90-92**
B+	**86-89**
B	**83-85**
B-	**80-82**
C+	**76-79**
C	**73-75**
C-	**70-72**
D+	**66-69**

D	**63-65**
D-	**60-62**
E	**59 or less**

General course policies

Accommodations for students with disabilities: Students requesting classroom accommodation must first register with the Dean of Student Office. The Dean of Students office will provide documentation to the student who will provide this documentation to the instructor. The instructor will then assist the student with additional time for exams and other appropriate classroom accommodations.

Class attendance, quizzes, and make-up exams:
1) Class attendance is not mandatory. However, missing class will likely have a negative impact on learning and therefore, could negatively influence your exam scores and final grade in the course. Further, missing classes will prevent the student from the opportunity to earn "extra points" during unannounced quizzes).

2) **Four (unannounced) quizzes (for extra credit) will be given during the semester.** Although class attendance is not required, you must be present in class to take the quiz. No make-up quizzes will be administered for missing class for any reason.

3) **Make-up exams** will be available for students that cannot take exams during the assigned period due to health problems or an emergency. Documentation of the illness or emergency will be required. Please contact instructor in advance for approval of make-up exams.

Recommended textbook: All lectures, study questions, and most (>90%) of the exam content will be based on material contained in the following textbook:

Powers, S. K. and Howley, E.T. (2018) *Exercise Physiology: theory and application to fitness and performance*, McGraw-Hill, New York. 10e
Section web address:
https://connect.mheducation.com/class/s-powers-powersexercisephysiologyfall2018

Online course evaluation: Students are expected to provide feedback on the quality of instruction in this course based upon 10 criteria. These evaluations are conducted online at: https://evaluations.ufl.edu

Note that these evaluations are typically open during the last 2-3 weeks of the semester and students will be provided specific times that these evaluations are open. A summary of these assessments will be available to students at: https://evaluations.ufl.edu.

Use of Technology during class: Labtop computers and tablet devices for note taking are welcome in class. However, surfing the web, email, facebook posts or related behaviors are not permitted during class time. Upon arrival to class, **please silence your cell phone** or other personal communication devices.

Class demeanor: Students are expected to arrive to class on time but tardiness is acceptable when transportation or personal conflicts require the student to arrive to class later than the scheduled time.

Communication with instructor: The best way to communicate with your instructor is face-to-face before or after class. Outside of class, please contact your instructor by email (spowers@hhp.ufl.edu) to schedule a time to meet. Please do not use the email address in e-learning. You are responsible for checking course postings on eLearning (CANVAS).

UF's honesty policy: 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 with the instructor in this class.

Phone number and contact site for university counseling services and mental health services: 392-1575
http://www.counseling.ufl.edu/cwc/Default.aspx
Phone number for university police department: 392-1111 or please dial 9-1-1 for emergencies.

Tentative Exercise Physiology-Fall 2019 lecture schedule*

*Note that the lecture schedule is subject to change. Changes will be announced in class and online during the e-Learning website.

August/September/October

Date	Topic	Chapter	Study questions
1/7	Course introduction & History of exercise physiology, searching literature, and science metrics	0	none
1/9	Common measurements-exercise physiology	1	1-9
1/11	Control of internal environment	2	1-8
1/14	Bioenergetics	3	1-17
1/18	Bioenergetics	3	1-17
1/21	Exercise metabolism	4	1-11
1/23	Exercise metabolism	4	1-11
1/25	Exercise metabolism-guest lecture	4	1-11
1/28	Cell signaling and hormonal response-exercise	5	2-10
1/30	Cell signaling and hormonal response-exercise	5	2-10
2/1	Special guest lecture-1 point extra credit for attendance		
2/4	Review for exam 1		
2/4	**Exam 1**	1,2,3,4,5	
2/6	Nervous system-control of movement	7	2-17
2/8	Nervous system-control of movement	7	2-17
2/11	Skeletal muscle-exercise	8	1-8
2/13	Skeletal muscle-exercise	8	1-8
2/15	Skeletal muscle-exercise	8	1-8
2/18/	Cardiovascular function-exercise	9	1-10
2/20	Cardiovascular function-exercise	9	1-10
2/22	Cardiovascular function-exercise	9	1-10
2/25	Cardiovascular function-exercise	9	1-10
2/27	Review for exam 2		
3/1	**Exam 2**		
3/4-8	**Spring break-no class**		

October/November

Date	Topic	Chapter	Study questions
3/11	Respiratory system and exercise	10	1-12
3/13	Respiratory system and exercise	10	1-12
3/15	Respiratory system and exercise	10	1-12
3/18	Respiratory system	10	1-12
3/20	Acid-base balance exercise	11	1-7
3/22	Acid-base balance exercise	11	1-7
3/25	Temperature regulation	12	1-22
3/27	Temperature regulation	12	1-22
3/29	Temperature regulation	12	1-22
4/1	Review for exam 3		
4/3	**Exam 3**		
4/5	Training adaptation	13	2-12
4/5	No class		
4/10	Training adaptation	13	2-12
4/12	Training adaptation	13	2-12
4/15	Training adaptation	13	2-12

November/December

Date	Topic	Chapter	Study questions
4/17	Exercise prescription-health and wellness	16	2-10
4/19	Nutrition and body composition	18	TBD
4/22	Review exam 4		
4/24	**Exam 4**	16,18,19, 21	

Check below

Exam 1 will cover chapters 1-5
Exam 2 will cover chapters 7-10
Exam 3 will cover chapters 11-13
Exam 4 will cover chapters 16,18,19,21