UF College of Health & Human Performance
Department of Applied Physiology and Kinesiology
UNIVERSITY of FLORIDA

PHYSIOLOGY OF EXERCISE AND TRAINING

APK3110C ~ 3 CREDITS ~ SUMMER B 2020

INSTRUCTOR: **Blain Harrison, PhD, ATC, CSCS**
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Preferred Method of Contact: email

OFFICE HOURS: Virtual Office Hours via Zoom are available by appointment

MEETING TIME/LOCATION: Lecture videos and course assignments are delivered online via the APK3110c Canvas page

COURSE DESCRIPTION: Survey in exercise physiology which 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: APK2105C with a grade of C; junior standing or above; APK or AT majors only

REQUIRED AND RECOMMENDED MATERIALS:

Required Text: Powers, S., and E. Howley. 2018. *Exercise Physiology: Theory and Application to Fitness and Performance*. 10th edition. New York: McGraw-Hill Companies. ISBN 9781259870453

COURSE FORMAT: APK3110C course materials are delivered in an online format. Students will be assigned daily readings and lecture videos along with homework questions to be due by the start of the next day to ensure that the reading has been completed.

COURSE LEARNING OBJECTIVES:

Upon completion of this course students will be able to:

1. Summarize the processes of cellular respiration for the production of ATP from carbohydrate, fat and protein fuel substrates.
2. Compare the relative use of carbohydrate, fat, and protein fuel substrates on the basis of intensity and duration of exercise.
3. Discuss the role of the major organ systems in the performance of various forms of exercise and the primary adaptations of the major organ systems to various forms of chronic exercise training.
4. Differentiate between activities that are primarily aerobic or anaerobic.
5. Identify the metabolic adaptations to endurance, sprint, and resistance training.
6. Predict the responses of the cardiovascular system during exercise and to exercise training.
7. List both the respiratory response and the factors that control breathing during exercise
8. Explain the role skeletal muscle plays during exercise
9. Interpret the sliding filament model of muscle contraction
10. Differentiate fast twitch from slow twitch muscle fibers.
11. Contrast the effects of acute and chronic exercise on hormone (endocrine) secretion.
12. Identify the primary physiological factors that determine anaerobic and endurance performance in athletes.
13. Outline the central and peripheral causes of fatigue.
14. Recommend alterations to training variables when exercising in a hot or cold environment

COURSE AND UNIVERSITY POLICIES:

ATTENDANCE POLICY: Students are expected to participate in APK3110C daily by responding to daily poll questions provided by the instructor on the Yellowdig discussion board platform. Students will access Yellowdig directly within the APK3110c Canvas page. Students earn points with each Yellowdig interaction and these points will count towards the participation grade for the course.

PERSONAL CONDUCT 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 the instructor or TA in this class.

EXAM MAKE-UP POLICY: Students unable to complete an exam by the assigned due date outlined in this syllabus may request to complete the exam early. No make-up exams will be allowed. Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found in the online catalog at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx."

ACCOMMODATING STUDENTS WITH DISABILITIES: Students requesting accommodation for disabilities must first register with the Dean of Students Office (http://www.dso.ufl.edu/drc/). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

COURSE EVALUATIONS: 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 or directly in CANVAS. 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.

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 opti on 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/

GRADING:

Evaluation Components (number of each)	Weighted Percentage of Final Grade
Participation Homework	20%
YellowDig Participation	10%
Midterm Exam	20%
Weekly Quizzes (x 4)	15%
Applied Exercise Physiology Project	10%
Comprehensive Final	25%

Participation Homework – There are 24 daily homework assignments consisting of 5 objective questions from the assigned daily textbook reading and lecture video. One homework assignment is due each day of the week, Monday – Thursday. A given day's reading assignment and accompanying homework questions will be available a minimum of 2 weeks in advance of the due date for the homework questions. For example, the homework questions from the daily reading and lecture video for Monday of week 3 of the course will be available on Monday of week 1 of the course.

YellowDig Participation – The instructor will post daily announcements and poll questions to the Yellowdig discussion board platform that students will access via a link in the APK3110C Canvas course page. Students earn points for each interaction with the yellowdig posts with different types of interactions earning a different amount of points. A maximum of 1,200points may be earned per week and a total of 4,000 points earned in Yellowdig equates to a score of "100" for the YellowDig participation assignment in Canvas. Yellowdig will push an updated grade to Canvas on a weekly basis so that students may keep track of this portion of their grade.

Midterm Exam – The midterm exam will consist of 30 multiple choice questions worth 2 points each and 4 essay questions worth 5 points each for a total of 100points. Students will complete the exam online using the Honorlock proctoring service. Students have 2 hours to complete the exam. Students with accommodations will be provided extra time as indicated by their DRC letter. The midterm exam is available for 24 hours on Friday,

July 24 and must be completed by 11:59pm of that day. Students will not be able to view their answer choices or correct answers until Saturday, July 25.

Weekly Quizzes – A 20 question, multiple choice, timed quiz is assigned for Friday of Week 1, Week 2, Week 4, and Week 5 of the course. Each quiz will be completed using the Honorlock proctoring system and students have 30min to complete the quiz. Students with DRC accommodations will be allotted extra time according to their letter. Weekly quizzes contain questions from that week's course readings and lecture videos only, they are not cumulative.

Applied Exercise Physiology Project – Students will describe the responses and adaptations of the cardiovascular, respiratory, muscular, nervous, and endocrine systems created by acute and chronic participation in an exercise of their choice. Detailed instructions and a grading rubric are provided on Canvas. The project is due **Friday, August 7, 2020**.

Comprehensive Final – The final exam will consist of 75 multiple-choice questions, each worth 1 pts. You will be allowed 100 minutes to complete this exam using the Honrolock proctoring system. Students with DRC accommodations will be given extra time according to their DRC letter. The final exam is available for 24 hours on Friday, August 14 and must be completed by 11:59pm of that day. Students will not be able to view their answer choices nor the correct answers until Saturday, August 15.

GRADING SCALE: Grades will be posted immediately to Canvas since all assignments are administered through Canvas. Final grades will be rounded up at the __.5% threshold. More detailed information regarding current UF grading policies can be found here: https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/. 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.

Letter Grade	Percent of Total Points Associated with Each Letter Grade	GPA Impact of Each Letter Grade
A	93.00-100%	4.0
A-	90 – 92.99%	3.7
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
E	0-59.99%	0

WEEKLY COURSE SCHEDULE:

APK 3110c - Class Schedule

Please note that the instructor reserves the right to alter the syllabus or schedule if it is determined that such a change with benefit the course and the students.

Module	Dates	Topic	Pages In Text
1		Mon: Chapter 1 – Measurement in Exercise Physiology Tues: Chapter 2 – Control of Internal Environment Wed: Chapter 3 - Bioenergetics Thurs: Chapter 3 - Bioenergetics Friday: Weekly Quiz	Mon: p.16-29 Tues: p.30-39 Wed: p.40-53 Thurs: p.54-67
2		Mon: Chapter 4 Exercise Metabolism Tues: Chapter 4 Exercise Metabolism Wed: Chapter 5 Cell Signaling and Hormone Response Thurs: Chapter 5 Cell Signaling and Hormone Response Friday: Weekly Quiz	Mon: p.68-79 Tues: p.80-91 Wed: p.92-109 Thurs: p.110-126
3		Mon: Chapter 6 Exercise and the Immune System Tues: Chapter 6 Exercise and the Immune System Wed: Chapter 7 The Nervous System Thurs: Chapter 7 The Nervous System Friday: Midterm Exam (Chapters 1 – 7)	Mon: p.127-132 Tues: p.133-139 Wed: p.140-151 Thurs: p.152-165
4		Mon: Chapter 8 Skeletal Muscle: Structure and Function Tues: Chapter 8 Skeletal Muscle: Structure and Function Wed: Chapter 9 Circulatory Responses to Exercise Thurs: Chapter 9 Circulatory Responses to Exercise Friday Weekly Quiz	Mon: p.166-179 Tues: p.180-192 Wed: p.193-208 Thurs: p.209-223

5	Mon: Chapter 10 Respiration During Exercise Tues: Chapter 10 Respiration During Exercise Wed: Chapter 11 Acid Base Balance Thurs: Chapter 12 Temperature Regulation Friday: Weekly Quiz Friday: Applied Exercise Physiology Project Due	Mon: p.224-240 Tues: p.241-255 Wed: p.256-268 Thurs: p.269-292
6	Monday: Chapter 13 Physiology of Training Tuesday: Chapter 13 Physiology of Training Wed: Chapter 13 Physiology of Training Thurs: Study for Final exam Friday: Final Exam (cumulative)	Mon: p.293-304 Tues: p.305-317 Wed: p.318-328 Thurs: study

Final Exam: Friday August 14, 20120 available online, due by 11:59pm

SUCCESS AND STUDY TIPS:

- **Complete all homework assignments. These provide the best source of practice questions when preparing for exams**
- **Complete all assigned reading carefully.**