

PHYSIOLOGICAL BASIS OF EXERCISE

APK 6116C

3 CREDITS

SPRING 2022

INSTRUCTOR:

Max Adolphs, Ph.D.

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Preferred method of contact: email

OFFICE HOURS:

Monday, Wednesday, Friday 9:30am – 10:30am

Thursday 12:00pm – 2:00pm

MEETING TIME/LOCATION: Florida Gym Room 285

Thursday | Periods 7-9 (1:55pm – 4:55pm)

REQUIRED MATERIALS:

- **TEXTBOOK:** There are no required texts. materials in the form of original scientific journal articles, PowerPoints, and other readings will be assigned and posted on the course Canvas page.

COURSE OVERVIEW: This graduate level exercise physiology course is designed to examine the acute and chronic physiological responses to exercise. Topics covered include the systemic and cellular adaptations that occur in response to acute and chronic exercise, the physiological adaptations that occur in specific organ systems with exercise and principles of effective training paradigms to elicit physiological changes.

PREREQUISITE KNOWLEDGE AND SKILLS: APK6116 is an introductory exercise physiology course aimed at graduate students who possess an undergraduate level understanding of human exercise physiology. This course is specific for students enrolled in the APK Online Master's Program and there are no course prerequisites to take APK6116. However, any previous experiences in the following areas will be helpful to students taking this course: medical terminology, physiology, exercise physiology, anatomy, and/or biology.

PURPOSE OF COURSE: The purpose of this course is for graduate students to obtain an understanding of human physiological processes and how these processes respond to different stimuli and perturbations (i.e. exercise). Course content will present information and engage students in exercise physiology that promotes analytical, critical and creative thinking within the framework of health and movement. Students will be asked to not only understand basic physiological processes of the human body but will also be expected to apply these fundamental concepts to a physical activity/athlete of their choice. This is intended to enhance the long-term retention of the concepts covered and prepare students for future courses they may take which require health or movement-based problem solving.

COURSE GOALS: By the end of this course, students will be able to:

- Understand and identify theories and laboratory techniques utilized in assessing human physiological responses to exercise and training.
- Graphically describe and explain systemic and cellular changes that occur with exercise
- Explain the efficacy of specific exercise training paradigms and the effect on the human body, both at the systemic and cellular level
- Identify and describe the gross and microscopic structures of the organ systems covered.
- Describe the relationship between structure and function at all levels of anatomical organization (molecular, cellular, tissue, organ, system, organism).
- Predict changes in function and adaptations on the body's organ systems if given a disease, environmental perturbation or training paradigm
- Critically evaluate and interpret scientific literature in exercise physiology
- Engage in critical and constructive academic discussions of exercise physiology topics
- Effectively communicate (written and verbally) with peers and professions using scientific knowledge in exercise physiology

COURSE POLICIES:

PARTICIPATION POLICY: You are expected to participate in class discussions and activities to receive credit (see evaluation components below).

ASSIGNMENT POLICY: All assignments are open-resource; however, please avoid using random web-sites and sites such as Wikipedia. Your #1 resource should be your textbook and appropriate scientific literature. Late submissions for all assessments/assignments/discussion posts are not accepted.

EXAM POLICY: There will be 4 lecture exams during this semester. These exams are closed-notes exams.

MAKE-UP POLICY: Unexcused missed exams will result in a zero on the exam. If you are sick or have an emergency that prevents you from taking the exam at the scheduled time, it is your responsibility to contact the instructor as soon as possible. Documentation of the illness or emergency will be required. If you need to schedule a make-up exam, please email the course instructor giving a detailed explanation and attaching any documentation that verifies your reasoning. Make-up exams will be given at the discretion of the instructor. Scheduling make-up exams is the responsibility of the student and should be done—if at all possible—before the scheduled exam time. If you have a serious emergency or death, please contact the Dean of Students Office (www.dso.ufl.edu) and they will contact your instructor so that you do not have to provide documentation of the emergency/death in order to get a make-up exam. Make-up exams are not permitted for the following (among others): family vacation, sporting event travel, attending weddings (unless you are IN the wedding), having exams in other classes on the same day.

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>.

UF POLICIES:

UF STUDENT COMPUTING REQUIREMENTS: As a course with some online components and as per the UF student computing requirements, “access to and on-going use of a computer is required for all students.” UF does not recommend students relying on/regularly using tablet devices, mobile phones or Chromebook devices as their primary computer as it may not be compatible with specific platforms used in this course or UF (<https://it.ufl.edu/policies/student-computing-requirements/>). Access to fast, secure Wi-Fi will be necessary for this course. If a student is in an area with limited wi-fi access, UF students can access **eduroam** for free with their GatorLink log-in credentials.

How to connect to eduroam:

1. If you can get a Wi-Fi signal at any of the eduroam locations (see below) and your mobile device (laptop, smartphone, or tablet) has already been configured for eduroam, then you will automatically connect.
2. Otherwise, follow the instructions for connecting here: <https://helpdesk.ufl.edu/connecting-to-eduroam-off-campus/>.

There are more than 100 Wi-Fi hotspots in Florida, including several state university campuses and community colleges. You don't have to sit in a car--many locations have open spaces and communal rooms available so you can get online while socially distancing and following CDC guidelines in an air-conditioned space. Also, in Florida all of the UF/IFAS Research and Education Centers (REC) are equipped with eduroam, so if you live in a rural area of your county you can visit an REC to securely watch course videos and take care of your academic needs. Here's a link to all the eduroam sites in the U.S.: <https://incommon.org/eduroam/eduroam-u-s-locator-map/>.

If you have any problems connecting to eduroam you can call (352-392-HELP/4357) or [email](#) the UF Computing Help Desk.

UNIVERSITY POLICY ON ACCOMMODATING STUDENTS WITH DISABILITIES: Students requesting accommodation for disabilities must first register with the Dean of Students Office (<http://www.dso.ufl.edu/drc/>). DRC-registered students must request their accommodation letter to be sent to their instructors via the DRC file management system prior to submitting assignments or taking quizzes/exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations. Students may reach out and contact their course instructor to verify receipt of their accommodation letter.

Students registered with the DRC: DRC-registered students will take their exams, both lecture and lab, in Canvas similar to other students but with their specific accommodations (i.e. extended time, use of screen reader, etc.) Please contact the instructor if the start time of exams needs to be adjusted due to overlap with other courses.

It is imperative that you verify your specific access needs with your course instructor at least 48 hours PRIOR to scheduled assessments.

UNIVERSITY POLICY ON ACADEMIC MISCONDUCT: Academic honesty and integrity are fundamental values of the University community. Students should be sure that they understand the UF Student Honor Code at <https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>.

- Honor code violations of any kind will not be tolerated and sanctions will be determined by the course instructor for first-time violators
- Any use, access, or handling of technology during an exam will result in a zero on the exam
- Students should use proper citations on assignments. Plagiarism of any kind is not permitted and violations will be reported.
- All allegations, regardless of the severity, will be reported to the Dean of Students Office for University-level documentation and processing

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/>. Thank you for serving as a partner in this important effort.

GETTING HELP:

For issues with technical difficulties for Canvas, please contact the UF Help Desk at:

- helpdesk@ufl.edu
- (352) 392-HELP - select option 2
- <https://request.it.ufl.edu/>

Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from Helpdesk when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

Other resources are available at <http://www.distance.ufl.edu/getting-help> for:

- Counseling and Wellness resources
- Disability resources
- Resources for handling student concerns and complaints
- Library Help Desk support

Should you have any complaints with your experience in this course please visit <http://www.distance.ufl.edu/student-complaints> to submit a complaint.

GRADING POLICIES:

The following table outlines the four components to the course on which you will be evaluated. The total points earned from each component will be summed and divided by the total points possible in the course: 330. If points are greater or less than 330, component percentages will be used to calculate final.

Evaluation Components (number of components)	Points Per Component (total)	% of Total Grade
Lecture Exams (4)	50 points each = 200 points total	60.6%
Lecture Quizzes	100 points total	30.3%
Participation	30 points total	9.1%

Exams – Each module will have an exam worth 50 points. Question formats may include: fill in the blank, multiple choice, multiple response, true/false and short answer/free response. Students are not permitted access to any kind of materials or notes during these exams. Exam questions are generated by the course instructor and will be based on the lecture material and any supplemental material assigned to students.

Lecture Quizzes – Following most lectures, students will take a multiple-choice and/or short answer quiz over the lecture material. There will be a total of 100 quiz points throughout the semester.

Participation – Participation will be determined based on the student’s preparedness assessed by involvement in class activities or lectures and contributions to classroom discussions. Students are required to participate through presentation of a lecture slide, providing answers on the board, and discussion of applied questions in front of class. The instructor will select a group to participate, but students can also volunteer to participate. There are no pre-arrangements of questions or topics for specific students. Students should be prepared to present all slides, answer all questions, and discuss all problems assigned for the day.

A rubric for assignment of participation points is below:

Excellent	30 pts	<ul style="list-style-type: none"> - Defines, describes, and illustrates concepts - Explains, assesses and criticizes ideas - Demonstrates preparation and reading of assignments - Is always involved in class discussions
Good	27 pts	<ul style="list-style-type: none"> - Defines, describes, and illustrates concepts - Explains, assesses and criticizes ideas - Evidence of reading assignments, but not fully prepared - Is often involved in class discussions
Reasonable	24 pts	<ul style="list-style-type: none"> - Defines, describes, and illustrates concepts - Explains, assesses, or criticize some ideas - Evidence of incomplete reading of assignments and preparation - Is occasionally involved in class discussions
Basic	21 pts	<ul style="list-style-type: none"> - Defines and describes some concepts - Explains but cannot assess and criticize ideas - Clearly unprepared and lacking evidence of reading assignments - Is rarely involved in class discussions
Bare Minimum	18 pts	<ul style="list-style-type: none"> - Defines and describes some concepts - Unable to explain, assess, or criticize ideas - Clearly unprepared and lacking evidence of reading assignments - is never involved in class discussions
Unacceptable	0 pts	<ul style="list-style-type: none"> - Refuses to engage in discussion or answer questions when asked - Engaged into inappropriate behaviors (using cell phone, social media, visiting irrelevant websites) - Not present

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/>.

The following table describes the grade scale and GPA impact of each letter grade.

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	60.00-66.99	1.00
E	<60.00	0.00

COURSE SCHEDULE:

Week	Date	Topic
1	Jan 6	Homeostasis/ Bioenergetics
2	Jan 13	Bioenergetics
3	Jan 20	Bioenergetics
4	Jan 27	Exam 1 – Thursday Jan 27th Cell Signaling
5	Feb 3	Nervous System
6	Feb 10	Nervous System
7	Feb 17	Skeletal Muscle
8	Feb 24	Skeletal Muscle
9	Mar 3	Exam 2 – Thursday Mar 3rd Autonomic Nervous System
10	Mar 10	Spring Break
11	Mar 17	Cardiovascular Respiratory
12	Mar 24	Respiratory
13	Mar 31	Exam 3 – Thursday Mar 31st Acid-Base and Temperature Regulation
14	Apr 7	Endocrine
15	Apr 14	Training and Adaptations
16	Apr 21	Reading Day
17	Apr 27	Exam 4 – Apr 27th 7:30 AM

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.

STUDY TIPS:

- Read the book before watching the lectures.
- Physiology is highly conceptual. Trying to memorize everything does not work (plus that approach is boring anyways). 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 exercise physiology is a huge mistake that almost never ends well.
- Repetition is key to learning complex concepts. Go over the material again and again.