

**George Mason University**  
**College of Education and Human Development**  
**Exercise, Fitness and Health Promotion**

EFHP 610.001 – Advanced Exercise Physiology  
3 Credits, Fall 2018

Thursday/10:30-11:45am Colgan Hall 203- Science and Technology Campus

**Faculty**

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**Prerequisites/Corequisites**

Graduate standing or permission of the instructor

**University Catalog Course Description**

Lecture, demonstration, and seminar experiences in applying research findings to understanding physiological function and effects of exercise on people.

**Course Overview**

Not Applicable

**Course Delivery Method**

This course will be delivered using a hybrid (75% online) asynchronous format via the Blackboard learning management system (LMS) housed in the MyMason portal. You will log in to the Blackboard course site using your Mason email name (everything before @masonlive.gmu.edu) and email password. The course site will be available on Sunday, August 26<sup>th</sup>. In-person meetings will occur on **Thursdays from 10:30-11:45am** on the following dates: **9/6, 9/20, 10/11, 10/18, 10/25, 11/8, 11/29.**

**Under no circumstances, may candidates/students participate in online class sessions (either by phone or Internet) while operating motor vehicles. Further, as expected in a face-to-face class meeting, such online participation requires undivided attention to course content and communication.**

*Technical Requirements*

To participate in this course, students will need to satisfy the following technical requirements:

- High-speed Internet access with a standard up-to-date browser, either Internet Explorer or Mozilla Firefox is required (note: Opera and Safari are not compatible with Blackboard).
- Students must maintain consistent and reliable access to their GMU email and Blackboard, as these are the official methods of communication for this course.
- Students may be asked to create logins and passwords on supplemental websites and/or to download trial software to their computer or tablet as part of course requirements.
- The following software plug-ins for PCs and Macs, respectively, are available for free download:
  - [Adobe Acrobat Reader](#)
  - [Window Media Player](#)
  - [Apple Quick Time Player](#)

### *Expectations*

- Course Week:  
Because asynchronous courses do not have a “fixed” meeting day, our week will start on Wednesday, and finish on Tuesday.
- Log-in Frequency:  
Students must actively check the course Blackboard site and their GMU email for communications from the instructor, class discussions, and/or access to course materials at least 3 times per week.
- Participation:  
Students are expected to actively engage in all course activities throughout the semester, which includes viewing all course materials, completing course activities and assignments, and participating in course discussions and group interactions.
- Technical Competence:  
Students are expected to demonstrate competence in the use of all course technology. Students who are struggling with technical components of the course are expected to seek assistance from the instructor and/or College or University technical services.
- Technical Issues:  
Students should anticipate some technical difficulties during the semester and should, therefore, budget their time accordingly. Late work will not be accepted based on individual technical issues.
- Workload:  
Please be aware that this course is **not** self-paced. Students are expected to meet *specific deadlines* and *due dates* listed in the **Class Schedule** section of this syllabus. It is the student’s responsibility to keep track of the weekly course schedule of topics, readings, activities and assignments due.
- Instructor Support:

Students may schedule a one-on-one meeting to discuss course requirements, content or other course-related issues. Those unable to come to a Mason campus can meet with the instructor via telephone or web conference. Students should email the instructor to schedule a one-on-one session, including their preferred meeting method and suggested dates/times.

- **Netiquette:**  
The course environment is a collaborative space. Experience shows that even an innocent remark typed in the online environment can be misconstrued. Students must always re-read their responses carefully before posting them, so as others do not consider them as personal offenses. *Be positive in your approach with others and diplomatic in selecting your words.* Remember that you are not competing with classmates, but sharing information and learning from others. All faculty are similarly expected to be respectful in all communications.
- **Accommodations:**  
Online learners who require effective accommodations to insure accessibility must be registered with George Mason University Disability Services.

### **Learner Outcomes or Objectives**

This course is designed to enable students to do the following:

1. Describe the responses that occur during exercise in the body's various physiological systems.
2. Describe the physiological changes that occur as a result of aging and explain how these changes affect performance.
3. Explain how gender differences affect performance.
4. Prepare and present research findings on a topic related to a specific area of exercise physiology.
5. Demonstrate the ability to critically review current research and connect findings to topics discussed in class.

### **Required Texts**

McArdle, W.D., Katch, F.I, and Katch, V.L. (2014). *Exercise Physiology: Nutrition, Energy, and Human Performance*, 8<sup>th</sup> edition. Lippincott, Williams & Wilkins.

### **Course Performance Evaluation**

Students are expected to submit all assignments on time in the manner outlined by the instructor (e.g., Blackboard, Tk20, hard copy).

- **Assignments and/or Examinations**

Written Examinations (3) (50%)

*Exams will be essay and short answer. Each exam will cover approximately one third of the semester's material.*

Quizzes and Assignments (20%)

*Periodic quizzes and assignments will be assigned throughout the modules*

Research Paper (15%)

Students will research a self-selected exercise physiology topic and prepare a 5-6 page paper.

Article Discussions (10%)

Students will attend in-class meetings to discuss assigned research articles.

Laboratory Activities (5%)

On-campus laboratory activities will demonstrate and emphasize theoretical content. Attendance and participation in laboratory activities is required.

- **Grading**

Grading Scale	
A	= 94 – 100
A-	= 90 – 93
B+	= 87 – 89
B	= 84 – 86
B-	= 80 – 83
C	= 70 – 79
F	= 0 – 69

Note: \* Although a B- is a satisfactory grade for a course, students must maintain a 3.00 average in their degree program and present a 3.00 GPA on the courses listed on the graduation application.

### Professional Dispositions

See <https://cehd.gmu.edu/students/policies-procedures/>

Students are expected to exhibit professional behaviors and dispositions at all times.

### Class Schedule

Week	Topic	Reading
1	Introduction, Energy	Chapter 5 Chapter 6
2	ATP, Phosphagen System, Carbohydrate Metabolism <i>Lab Activity- 9/6, 10:30-11:45am Freedom Center SMART Lab</i>	Chapter 6
3	Fat and Protein Metabolism, How Exercise Training Impacts the Anaerobic and Aerobic Systems	Chapters 6 & 21
4	<i>Journal Article Discussions- 9/20, 10:30-11:45am Colgan Hall 203</i>	Readings on Blackboard
5	<b>Exam 1</b>	
6	The Cardiovascular System	Chapter 15

7	Functional Capacity of the Cardiovascular System <i>Lab Activity- 10/11, 10:30-11:45am Freedom Center SMART Lab</i>	Chapter 17
8	Cardiovascular Regulation and Integration, Cardiovascular Adaptations <i>Lab Activity- 10/18, 10:30-11:45am Freedom Center SMART Lab</i>	Chapters 16 & 21
9	<i>Journal Article Discussions- 10/25, 10:30-11:45am Colgan Hall 203</i>	Readings on Blackboard
10	<b>Exam 2</b>	
11	Skeletal Muscle: Structure and Function <i>Lab Activity- 11/8, 10:30-11:45am Freedom Center SMART Lab</i>	Chapter 18
12	Neural Control of Human Movement	Chapter 19
13	Muscular Strength: Training Muscles to Become Stronger Part 2: Structural and Functional Adaptations to Resistance Training	Chapter 22
14	Exercise and Thermal Stress <i>Journal Article Discussions- 11/29, 10:30-11:45am Colgan Hall 203</i>	Chapter 25 Readings on Blackboard
15	<b>Exam 3</b>	

Note: Faculty reserves the right to alter the schedule as necessary, with notification to students.

### Core Values Commitment

The College of Education and Human Development is committed to collaboration, ethical leadership, innovation, research-based practice, and social justice. Students are expected to adhere to these principles: <http://cehd.gmu.edu/values/>.

### GMU Policies and Resources for Students

#### *Policies*

- Students must adhere to the guidelines of the Mason Honor Code (see <http://oai.gmu.edu/the-mason-honor-code/>).
- Students must follow the university policy for Responsible Use of Computing (see <http://universitypolicy.gmu.edu/policies/responsible-use-of-computing/>).
- Students are responsible for the content of university communications sent to their Mason email account and are required to activate their account and check it regularly. All communication from

the university, college, school, and program will be sent to students **solely** through their Mason email account.

- Students with disabilities who seek accommodations in a course must be registered with George Mason University Disability Services. Approved accommodations will begin at the time the written letter from Disability Services is received by the instructor (see <http://ods.gmu.edu/>).
- Students must follow the university policy stating that all sound emitting devices shall be silenced during class unless otherwise authorized by the instructor.

### ***Campus Resources***

- Support for submission of assignments to Tk20 should be directed to [tk20help@gmu.edu](mailto:tk20help@gmu.edu) or <https://cehd.gmu.edu/aero/tk20>. Questions or concerns regarding use of Blackboard should be directed to <http://coursesupport.gmu.edu/>.
- For information on student support resources on campus, see <https://ctfe.gmu.edu/teaching/student-support-resources-on-campus>

**For additional information on the College of Education and Human Development, please visit our website <https://cehd.gmu.edu/students/>.**

### **Assessment Rubric(s)**

EFHP 610  
Advanced Exercise Physiology

#### Research Paper Guidelines and Grading Rubric

This assignment will address the following Course Objectives for EFHP 610 Advanced Exercise Physiology

1. Prepare and present research findings on a topic related to a specific area of exercise physiology
2. Demonstrate the ability to critically review current research and connect findings to topics discussed in class.

Each of you will choose a topic area in exercise physiology that interests you. Choose your topic carefully and keep it focused. You will complete a 5-6 page paper regarding the selected topic. The paper should be typed and double spaced. A minimum of 10 references (AMA format) should be used for the paper. A textbook may count as one reference. The remaining references should come from academic sources (i.e., research studies, including meta-analyses and reviews). Website may also be used but, as always, use your good judgment when assessing information from the internet.

Your topic must be approved by the instructor. The biggest mistake most of you will make is trying to cover too much material. Please make sure your topic is focused. As examples, if you are interested in supplements and exercise performance, chose one, like caffeine and only investigate that information. If you are interested in obesity and exercise, focus on a specific population, like children. I hope this helps give you some ideas about the specificity of the paper. Here are some topics that could give you some ideas:

Blood doping

What is a beta-blocker?

Aerobic exercise during pregnancy

The effects of blood flow restriction and resistance training

Physiological effects of overtraining

Exercise at altitude

The effects of cold on exercise

Please see the next page for the Grading Rubric of this assignment.

Name \_\_\_\_\_

Topic \_\_\_\_\_

Score \_\_\_\_\_/32

Category	Exceeds Standard (4 points)	Meets Standard (3 points)	Nearly Meets Standard (2 points)	Does Not Meet Standard (1 point)	No evidence (0 points)	Score
<b>Thesis Statement</b>	Clearly and concisely states the paper's purpose in a single sentence, which is engaging, and thought provoking	Clearly states the paper's purpose in a single sentence.	States the paper's purpose in a single sentence.	Incomplete and/or unfocused.	Absent	
<b>Introduction</b>	The introduction is engaging, states the main topic and previews the structure of the paper	The introduction states the main topic and previews the structure of the paper.	The introduction states the main topic but does not adequately preview the structure of the paper	There is no clear introduction or main topic and the structure of the paper is missing.	Absent	
<b>Body</b>	Each paragraph has thoughtful supporting detail sentences that develop the main idea.	Each paragraph has sufficient supporting detail sentences that develop the main idea.	Each paragraph lacks supporting detail sentences.	Each paragraph fails to develop the main idea.	Not applicable	
<b>Organization-Structural Development of the Idea</b>	Writer demonstrates logical and subtle sequencing of ideas through well-developed paragraphs; transitions are used to enhance organization.	Paragraph development present but not perfected.	Logical organization; organization of ideas not fully developed.	No evidence of structure or organization.	Not applicable	
<b>Conclusion</b>	The conclusion is engaging and restates the thesis.	The conclusion restates the thesis	The conclusion does not adequately restate the thesis.	Incomplete and/or unfocused.	Absent	
<b>Mechanics &amp; Usage</b>	No errors in punctuation, capitalization and spelling. No errors in sentence structure and word usage.	Almost no errors in punctuation, capitalization and spelling. Almost no errors in sentence structure and word usage.	Many errors in punctuation, capitalization and spelling. Many errors in sentence structure and word usage	Numerous and distracting errors in punctuation, capitalization and spelling. Numerous and distracting errors in sentence structure and word usage	Not applicable	
<b>Citations</b>	All cited works, both text and references, are done in the correct format with no errors	Some cited works, both text and references, are done in the correct format. Inconsistencies evident	Few cited works, both text and references, are done in the correct format	Absent	Not applicable	
<b>Length</b>	5-6 pages (not including title and reference list)	1 page outside range	2 pages outside range	3 pages outside range	Not applicable	



