

George Mason University
College of Education and Human Development
Kinesiology

KINE 310 – DL3 Exercise Physiology I
[3] Credits, Fall 2016
MyMasonPortal.gmu.edu

Faculty

Name: Peter Melanson, MS, CSCS,*D, RSCC,*D
Office hours: By Appointment
Office location: Online - Email
Office phone: 919-753-6654
Email address: pmelanso@gmu.edu

Prerequisites/Corequisites

BIOL 124, BIOL 125, ATEP 300, Coreq. Kine 200

University Catalog Course Description

Introduces students to the physiologic, neuroendocrine, and biochemical changes of the human body that are associated with exercise and work.

Course Delivery Method

This course will be delivered online (76% or more) using **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 Monday August 29th at 12:01am

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 will need a headset microphone for use with the Blackboard Collaborate web conferencing tool.
- 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: <https://get.adobe.com/reader/>
 - Windows Media Player: <https://windows.microsoft.com/en-us/windows/downloads/windows-media-player/>

- Apple Quick Time Player: www.apple.com/quicktime/download/
- Download Respondus Lockdown Browser (make sure it the latest version)

Expectations

- **Course Week:** Because asynchronous courses do not have a "fixed" meeting day, our week will start on Monday, and finish on Sunday.
Our classes will **start on Monday August 29th at 12:01am EST and finish on Saturday December 10th at 11:59pm EST.** (Finals will be announced for the following week)
- **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 **6 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 College or University technical services and/or instructor.
- **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. For exams you should try to make sure you have a hard line connection if possible vs wifi.
- **Workload:** Expect to log in to this course **at least SIX times a week** to read announcements, participate in the discussions, and work on course materials. 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. Have a theoretical knowledge regarding the physiological responses and capacity for

- exercise by the human body.
2. Be able to differentiate the physiological metabolic processes that govern human movement and apply each of these processes to physical performance.
 3. Be able to compare and contrast the physiological principles of the support systems of the body and appraise how each system is affected by and adapts to exercise.
 4. Demonstrate the ability to make recommendations regarding exercise programs based on basic exercise physiology knowledge.
 5. Attain knowledge of current issues in exercise physiology research and be able to critically evaluate published literature

Professional Standards

This course meets the Commission on Accreditation of Allied Health Education Programs (CAAHEP) requirements and covers the following American College of Sports Medicine's Knowledge-Skills-Abilities (KSA's):

KSA	Description	Lecture, Lab or Both
	GENERAL POPULATION/CORE: EXERCISE PHYSIOLOGY AND RELATED EXERCISE SCIENCE	
1.1.9	Ability to describe the systems for the production of energy.	Lecture
1.1.13	Knowledge of the heart rate, stroke volume, cardiac output, blood pressure, and oxygen consumption responses to exercise.	Lecture
1.1.17	Knowledge of the physiological adaptations that occur at rest and during submaximal and maximal exercise following chronic aerobic and anaerobic exercise training.	Lecture
1.1.19	Knowledge of the structure and function of the skeletal muscle fiber.	Lecture
1.1.20	Knowledge of the characteristics of fast and slow twitch muscle fibers.	Lecture
1.1.21	Knowledge of the sliding filament theory of muscle contraction.	Lecture
1.1.22	Knowledge of twitch, summation, and tetanus with respect to muscle contraction.	Lecture
1.1.26	Knowledge of the response of the following variables to acute static and dynamic exercise: heart rate, stroke volume, cardiac output, pulmonary ventilation, tidal volume, respiratory rate, and arteriovenous oxygen difference.	Lecture
1.1.27	Knowledge of blood pressure responses associated with acute exercise, including changes in body position.	Lecture
1.1.31	Knowledge of how the principles of specificity and progressive overload relate to the components of exercise programming.	Lecture
	GENERAL POPULATION/CORE: NUTRITION AND WEIGHT MANAGEMENT	Lecture
1.8.1	Knowledge of the role of carbohydrates, fats, and proteins as fuels for aerobic and anaerobic metabolism.	Lecture
	GENERAL POPULATION/CORE: PATIENT MANAGEMENT AND MEDICATIONS	

1.5.2	Knowledge of the effects of the following substances on the exercise response such as antihistamines, tranquilizers, alcohol, diet pills, cold tablets, caffeine, and nicotine.	Lecture
1.8.4	Knowledge of the effects of diet, exercise and behavior modification as methods for modifying body composition.	Lecture
1.8.7	Knowledge of the importance of maintaining normal hydration before, during, and after exercise.	Lecture
1.8.14	Knowledge of common nutritional ergogenic aids, the purported mechanism of action, and any risk and/or benefits (e.g., carbohydrates, protein/amino acids, vitamins, minerals, herbal products, creatine, steroids, caffeine).	Lecture
	GENERAL POPULATION/CORE: SAFETY, INJURY PREVENTION, AND EMERGENCY PROCEDURES	Lecture
1.10.6	Knowledge of the effects of temperature, humidity, altitude, and pollution on the physiological response to exercise and the ability to modify the exercise prescription to accommodate for these environmental conditions.	Lecture

Required Texts

Kenney, W.L., Wilmore, J.H., Costill, D.L. (2015) Physiology of Sport and Exercise (6th edition). Human Kinetics. ISBN-13: 9781450477673.

Course Performance Evaluation

Students are expected to submit all assignments on time in the manner outlined by the instructor and will be graded on a percentage system.(e.g., Blackboard, Tk20, hard copy).

· Assignments and Examinations

Assignment	Percentages
Exam #1	10%
Exam #2	10%
Exam #3	10%
Exam #4	10%
Final Exam	20%
Homework Assignments	15%
Research Paper and Presentation	15%
Professionalism	10%
Total	100%

Grading Policies

A	= 94 - 100	B+	= 88 - 89	C+	= 78 - 79	D	= 60 - 69
A-	= 90 - 93	B	= 84 - 87	C	= 74 - 77	F	= 0 - 59
		B-	= 80 - 83	C-	= 70 - 73		

Exams and Final Exam (Objectives 1, 2, 3 & 4)

There will be 4 exams and a final exam (5 total exams). The final exam will be cumulative. The format for all exams will be multiple choice, true/false, and fill in the blank questions. **IMPORTANT** – the exams will be timed. Once you start the exam you must complete within a set amount of time (90 minutes for mid-term exams; 120 minutes for the final exam).

Homework Assignments (Objectives 1, 4 & 5)

Regular homework will be assigned. There will be 8 total HW assignments. No late homework assignments will be accepted. All homework assignments must be submitted on Blackboard.

Research Paper and Presentation (Objective 5)

Students will be required to submit a research paper. The research paper will be a literature review of a specific topic in the field of exercise physiology. The literature review must summarize the major papers related to the topic chosen. The literature review should be 4-6 pages (typed, double-spaced, 12 pt font). A minimum of 10 references must be used. The paper should be formatted using APA guidelines. A more detailed description of the research paper requirements will be made available on Blackboard. Additionally, students must create a 8-10 minute PowerPoint presentation of their research paper. Students will be required to record audio of them presenting the presentation using the built in audio recording in the PowerPoint software. Directions as to how to perform this will be given if needed. The research paper and presentation must be submitted on Blackboard.

Professionalism Dispositions (Course objectives 1, 2, 3, 4, & 5)

Kinesiology students are expected to behave in a professional manner. Depending upon the setting professionalism may appear different, but typically consists of similar components. For undergraduate Kinesiology students in a classroom or online setting

Attendance – As an online course you still need to demonstrate that you are paying attention. If you cannot complete an assignment for a legitimate reason please notify the instructor ahead of time. If you have to unexpectedly miss an assignment due to something out of your control, contact the instructor within 24 hours to notify them what happened and to see if there is anything you need to do to make up your absence.

Communication – When communicating with the instructor and classmates, either face-to-face or via the assigned George Mason University email address, students should address the other person appropriately, use appropriate language and maintain a pleasant demeanor.

Participation – Participate in class discussions and activities. Demonstrate that you have an interest in the subject matter.

Responsibility/Accountability – Professionals take responsibility for their actions and are accountable. This can occur at multiple levels but generally consists of completing assignments on time, submitting work that is of the appropriate quality, honoring commitments and owning up to mistakes.

Honesty/Integrity – Students are expected to be honest with the instructor, classmates and themselves. Professionals keep their word when committing to something and act in an ethical manner.

Self-Improvement/Self-awareness – One should be aware of their strengths/weaknesses and

constantly seek to improve. Professionals regularly seek out opportunities to increase their knowledge and improve their current skill set.

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 University 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 or <https://cehd.gmu.edu/api/tk20>. Questions or concerns regarding use of Blackboard should be directed to <http://coursessupport.gmu.edu/>.
- The George Mason University Writing Center staff provides a variety of resources and services (e.g., tutoring, workshops, writing guides, handbooks) intended to support students as they work to construct and share knowledge through writing (see <http://writingcenter.gmu.edu/>).
- The George Mason University Counseling and Psychological Services (CAPS) staff consists of professional counseling and clinical psychologists, social workers, and counselors who offer a wide range of services (e.g., individual and group counseling, workshops and outreach programs) to enhance students' personal experience and academic performance (see <http://caps.gmu.edu/>).
- The George Mason University Office of Student Support staff helps students negotiate life situations by connecting them with appropriate campus and off-campus resources. Students in need of these services may contact the office by phone (703-993-5376). Concerned students, faculty and staff may also make a referral to express concern for the safety or well-being of a Mason student or the community by going to <http://studentsupport.gmu.edu/>, and the OSS

staff will follow up with the student.

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

Class Schedule

TENTATIVE COURSE SCHEDULE

DATE			TOPIC	READINGS/ASSIGNMENT DUE
Week 1	August/ September	29-31	Read: Syllabus Study PowerPoint slides: Introduction to Exercise Physiology, Macronutrients and Micronutrients	Read Chapter 15 pp 367-391
Week 1	September	1-3	Study for Quiz; Start HW #1; Continue reviewing materials (Readings, PPT, & supplemental materials) for Exam #1	Complete Quiz on Respondus Lockdown Browser Due by 5 pm on Saturday, September 3 rd
Week 2	September	5 – 7	Read/Listen/Watch: Supplement Materials on Blackboard for Exam #1; Read Book; Work on HW #1	
Week 2	September	8-10	Study PowerPoint slides: Optimum Nutrition for Exercise; Ergogenic Aids to Performance	1) Read Chapter 16 2) HW #1 Due by 5 pm on Saturday, September 10th
Week 3	September	12-14	Review for Exam #1, Work on HW #2	
Week 3	September	15-17	Exam #1	1) Exam 1 completed by 5 pm on Saturday, September 17th 2) HW #2 Due by 5 pm on Saturday, September 17th
Week 4	September	19-21	Study PowerPoint slides: Fundamentals of Human Energy Transfer During Exercise;	Read Chapter 2
Week 4	September	22-24	Read/Listen/Watch: Supplement Materials on Blackboard for Exam #2; Read Book; Work on HW #3	
Week 5	September	26-28	Study PowerPoint slides: Measuring and Evaluating Human Energy – Generating Capacities During Exercise; Energy Expenditure During Rest and Physical Activity	1) Read Chapter 5 2) HW#3 Due by 5 pm on Wednesday, September 28th
Week 5	September/ October	29-1	Review for Exam #2, Work on HW #4	

DATE			TOPIC	READINGS/ASSIGNMENT DUE
Week 6	October	3-5	Exam #2 completed by 5 pm on Wednesday October 7 th	Exam #2 completed by 5pm Wednesday October 5 th HW #4 D Due by 5 pm on Wednesday, October 5th
Week 6	October	6 –8	Research paper/PowerPoint project topic selection; Work on HW #5	Research paper/PowerPoint topics Selections due by 5PM on Saturday, October 8th
Week 7	October	10–12	Study PowerPoint slides: The Cardiovascular System and Exercise	Read Chapter 6 Read Chapter 8 pp 181-196 HW #5 due by 5PM on Wednesday, October 12th
Week 7	October	13-15	Read/Listen/Watch: Supplement Materials on Blackboard for Exam #3; Read Book; Work on HW #6	
Week 8	October	17-19	Study PowerPoint slides: The Respiratory System and Exercise	Read Chapter 7 Read Chapter 8 pp 196-203 HW #6 due by 5PM on Wednesday, October 19th
Week 8	October	20-22	Read/Listen/Watch: Supplement Materials on Blackboard for Exam #3; Read Book; Work on HW #7	
Week 9	October	24-26	Study PowerPoint slides: The Neuromuscular System	Read Chapter 1 Read Chapter 3
Week 9	October	27-29	Read/Listen/Watch: Supplement Materials on Blackboard for Exam #3; Read Book;	
Week 10	October/ November	31 - 2	Study PowerPoint slides: The Endocrine System - Hormones, Exercise and Training	Read Chapter 4 HW #7 Due by 5 pm on Wednesday, November 2nd
Week 10	November	3 - 5	Review for Exam #3	
Week 11	November	7 –9	Exam #3	Exam #3 completed by 5 pm on Wednesday, November 9th
Week 11	November	10–12	Study PowerPoint slides: Exercise Training and Adaptations	Read Chapters 9,10,11,12,13
Week 12	November	14-16	Read/Listen/Watch: Supplement Materials on Blackboard for Exam #4; Read Book; Work on HW #8	HW #8 Due Due by 5 pm on Wednesday, November 16 th
Week 12	November	17-19	Study PowerPoint slides: Body Composition, Obesity, Children, Aging and Obesity	Read Chapters 15 pp355-366 Read Chapters 17, 18, 22

DATE			TOPIC	READINGS/ASSIGNMENT DUE
Week 13	November	21-23	Study PowerPoint slides: Sex Differences; Prescription of Exercise for Health&Fitness; CV Disease Prevention	Read Chapters 19, 20, 21
Week 13	November	24-26	Thanks giving Break Finish Research paper and PowerPoint	
Week 14	November	28-30	Turn in Research paper and PowerPoint presentation; Study for Exam #4	Research/PowerPoint project is due by 5PM on Wednesday, November 30th
Week 14	December	1 - 3	Study for Exam #4	
Week 15	December	5 – 7	Exam #4	Exam #4 completed by 5 pm on Wednesday, December 7th
Week 15	December	8-10	Study for Final	
Week 16	December	12-14	Finals Week – Study for FINAL EXAM – 100 Questions on ALL PowerPoint slides, Readings, Supplemental Materials, and HW	
Week 16	December	15-17	Study for Final	
Week 17	December	19-20	FINAL EXAM ----- th – 100 Questions on ALL PowerPoint slides, Readings, Supplemental Materials, and HW	Final Exam completed by 5 pm on Monday, December --

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

Assessment Rubric(s)

Not Applicable.

