GEORGE MASON UNIVERSITY
School of Recreation, Health, and Tourism

KINE 310-DL1: Exercise Physiology I (3)
Spring 2016

DAY/TIME:	N/A	LOCATION:	online
PROFESSOR:	Dr. Joel Martin	EMAIL ADDRESS:	jmarti38@gmu.edu
OFFICE LOCATION:	207 Bull Run Hall	PHONE NUMBER:	703-993-9257
OFFICE HOURS:	M & W 1-3 pm or by appointment	FAX NUMBER:	703-993-2025

PREREQUISITES/COREQUISITES
BIOL 124, BIOL 125, ATEP 300, Coreq. KINE 200

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

DELIVERY METHOD:
This course will be delivered online using an "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 25 at 12:01am EST.

TECHNICAL REQUIREMENTS
To participate in this course, students will need the following resources:

- High-speed Internet access with a standard up-to-date browser, either Internet Explorer or Mozilla Firefox. Opera and Safari are **not** compatible with Blackboard;
- 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 the course requirements.
- The following software plug-ins for Pcs and Macs respectively, available for free downloading by clicking on the link next to each plug-
    - Adobe Acrobat Reader: http://get.adobe.com/reader/
    - Windows Media Player: http://windows.microsoft.com/en-US/windows/downloads/windows-media-player
    - Apple QuickTime Player: www.apple.com/quicktime/download/
- A headset microphone for use with the Blackboard Collaborate web conferencing tool

COURSE OBJECTIVES

Upon successful completion of this course students will:

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

ACCREDITATION 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	
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	
1.8.1	Knowledge of the role of carbohydrates, fats, and proteins as fuels for aerobic and anaerobic metabolism.	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	
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

CORRESPONDANCE

The preferred method of communication is email. Emails should originate from a George Mason email account and be in a professional format (i.e. emails should not look like a text message!). Emails with no text in the body will not be acknowledged.

REQUIRED READINGS

Kenney, W.L., Wilmore, J.H., Costill, D.L. (2015) *Physiology of Sport and Exercise (6th edition)*. Human Kinetics. ISBN-13: 978-0736094092.

EVALUATION

This course will be graded on a point system, with a total of 1000 possible points.

Assignment	Percentage / Points
Exam 1	10% / 100
Exam 2	10% / 100
Exam 3	10% / 100
Exam 4	10% / 100
Final Exam	20% / 200
Homework Assignments	10% / 100
Research Paper and Presentation	15% / 150
Quizzes	10% / 100
Professionalism	5% / 50

Grading Scale

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** mid-term 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.

Quizzes *(Objectives 1, 2, 3, & 4)*
There will be **4** quizzes during the semester. The format of the quizzes will be multiple choice, true/false, and fill in the blank questions. The quizzes will provide an indication of well you are prepared for the upcoming exam. **IMPORTANT** – the quizzes will be timed. Once you start a quiz you must complete within a set amount of time. The amount of time you have to complete each quiz will be provided in the quiz instructions.

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 *(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 setting professionalism generally comprises the following components:
Attendance – Show up on time to class and pay attention. If you cannot attend a class for a legitimate reason please notify the instructor ahead of time. If you have to unexpectedly miss a class 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.

TENTATIVE COURSE SCHEDULE

DATE			TOPIC	READINGS/ASSIGNMENT DUE
Week 1	January	19 - 20	***Read:*** Syllabus ***Study PowerPoint slides:*** Introduction to Exercise Physiology, Macronutrients and Micronutrients	Read Chapter 15 pp 380-406
Week 1	January	21 - 24	Study for Quiz; Start HW #1; Continue reviewing materials (Readings, PPT, & supplemental materials) for Exam #1	Complete **Quiz 1** by 8 pm on Sunday, January 24th
Week 2	January	25 – 27	***Read/Listen/Watch:*** Supplemental Materials on Blackboard for Exam #1; Read Book; Work on HW #1	
Week 2	January	28 - 31	***Study PowerPoint slides:*** Optimum Nutrition for Exercise; Ergogenic Aids to Performance	1) Read Chapter 16 2) **HW #1** Due by 8 pm on Sunday, January 31st
Week 3	February	1 - 3	Review for Exam #1, Work on HW #2	
Week 3	February	4 - 7	**Exam #1**	1) **Exam 1** completed by 8 pm on Sunday, February 7th 2) **HW #2** Due by 8 pm on Sunday, February 7th
Week 4	February	8 - 10	***Study PowerPoint slides:*** Fundamentals of Human Energy Transfer During Exercise;	Read Chapter 2
Week 4	February	11 - 14	***Read/Listen/Watch:*** Supplemental Materials on Blackboard for Exam #2; Read Book; Work on HW #3	Complete **Quiz 2** by 8 pm on Sunday, February 14th
Week 5	February	15 - 17	***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 8 pm on Wednesday, February 17th

Week 5	February	18 - 21	Review for Exam #2, Work on HW #4	**HW #4** Due by 8 pm on Sunday, February 21st
Week 6	February	22 - 24	**Exam #2**	**Exam 2** completed by 8 pm on Wednesday, February 24th
Week 6	February	25 – 28	Research paper/PowerPoint project topic selection; Work on HW #5	**Research paper/PowerPoint topics Selections** due by 8 pm on Sunday, February 28th
Week 7	February / March	29 - 2	***Study PowerPoint slides:*** The Cardiovascular System and Exercise	1) Read Chapter 6 2) Read Chapter 8 pp 195-210 3) **HW #5** Due by 8 pm on Wednesday, March 2nd
Week 7	March	3 - 6	***Read/Listen/Watch:*** Supplemental Materials on Blackboard for Exam #3; Read Book; Work on HW #6	
Week 8	March	7 - 9	***Study PowerPoint slides:*** The Respiratory System and Exercise	1) Read Chapter 7 2) Read Chapter 8 pp 211-219 **3) HW #6** Due by 8 pm on Wednesday, March 9th
Week 8	March	10 - 13	***Read/Listen/Watch:*** Supplemental Materials on Blackboard for Exam #3; Read Book; Work on HW #7	
Week 9	March	14 - 16	***Study PowerPoint slides:*** The Neuromuscular System	Read Chapter 3
Week 9	March	17 - 20	***Read/Listen/Watch:*** Supplemental Materials on Blackboard for Exam #3; Read Book;	
Week 10	March	21 - 23	***Study PowerPoint slides:*** The Endocrine System - Hormones, Exercise and Training	1) Read Chapter 4 2) Complete **Quiz 3** by 8 pm on Wednesday, March 23rd
Week 10	March	24 - 27	Review for Exam #3	
Week 11	March	28 - 30	**Exam #3**	**Exam #3** completed by 8 pm on Wednesday, March 30th

Week 11	March / April	31 - 3	***Study PowerPoint slides:*** Exercise Training and Adaptations	Read Chapters 9, 10, & 11
Week 12	April	4 – 6	***Read/Listen/Watch:*** Supplemental Materials on Blackboard for Exam #4; Read Book; Work on HW #8	Read Chapters 12, 13, & 14
Week 12	April	7 - 10	***Study PowerPoint slides:*** Body Composition, Children, Aging and Obesity	1) Read Chapters 15 pp 369 – 380, 17, 18, 19, & 22 2) **HW #7** Due by 8 pm on Sunday, April 10th
Week 13	April	11 - 13	***Study PowerPoint slides:*** Sex Differences; Prescription of Exercise for Health & Fitness; CV Disease Prevention	1) Read Chapters 19, 20, & 21 2) Complete **Quiz 4** by 8 pm on Wednesday, April 13th
Week 13	April	14 - 17	Work on Research Paper and PowerPoint Presentation	**HW #8** Due by 8 pm on Sunday, April 17th
Week 14	April	18 - 20	Turn in Research Paper and PowerPoint Presentation; Study for Exam #4	**Research/ PowerPoint Project** due by 8 pm on Wednesday, April 20th
Week 14	April	21 - 24	**Exam #4**	**Exam #4** completed by 8 pm on Sunday, April 24th
Week 15	April	25 - 27	Reading Days – Study for **FINAL EXAM** – 100 Questions on ALL PowerPoint slides, Readings, Supplemental Materials, and HW	
Week 15	April / May	28 - 1	Reading Days – Study for **FINAL EXAM** – 100 Questions on ALL PowerPoint slides, Readings, Supplemental Materials, and HW	
Week 16	May	2 - 8	**Final Exam** – Will be available at 5 am on Monday, May 2nd	**Final Exam** completed by 8 pm on Sunday, May 8th

Note: Faculty reserves the right to alter the schedule as necessary.

Student Expectations

- Students must adhere to the guidelines of the George Mason University Honor Code [See http://oai.gmu.edu/honor-code/].
- Students with disabilities who seek accommodations in a course must be registered with the George Mason University Office of Disability Services (ODS) and inform their instructor, in writing, at the beginning of the semester [See http://ods.gmu.edu/].
- Students must follow the university policy for Responsible Use of Computing [See http://universitypolicy.gmu.edu/policies/responible-use-of-computing/].
- Students are responsible for the content of university communications sent to their George Mason University 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 must follow the university policy stating that all sound emitting devices shall be turned off during class unless otherwise authorized by the instructor.

Campus Resources

- 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 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/].
- For additional information on the College of Education and Human Development, School of Recreation, Health, and Tourism, please visit our website [See http://rht.gmu.edu].

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

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.