GEORGE MASON UNIVERSITY
School of Recreation, Health, and Tourism

KINES 310-DL1: Exercise Physiology I (3)
Spring 2015

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:	Wednesday 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
	GENERAL POPULATION/CORE: EXERCISE PHYSIOLOGY AND RELATED EXERCISE SCIENCE	
1.1.9	Ability to describe the systems for the production of energy.	Week 4
1.1.13	Knowledge of the heart rate, stroke volume, cardiac output, blood pressure, and oxygen consumption responses to exercise.	Week 5, 6 & 7
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.	Week 8,10,11
1.1.19	Knowledge of the structure and function of the skeletal muscle fiber.	Week 9
1.1.20	Knowledge of the characteristics of fast and slow twitch muscle fibers.	Week 4 & 9
1.1.21	Knowledge of the sliding filament theory of muscle contraction.	Week 9
1.1.22	Knowledge of twitch, summation, and tetanus with respect to muscle contraction.	Week 1,9
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.	Week 6,7,8
1.1.27	Knowledge of blood pressure responses associated with acute exercise, including changes in body position.	Week 6,7,8
1.1.31	Knowledge of how the principles of specificity and progressive overload relate to the components of exercise programming.	Week 9,11,12,13
	GENERAL POPULATION/CORE: NUTRITION AND WEIGHT	
1.8.1	Knowledge of the role of carbohydrates, fats, and proteins as fuels for aerobic and anaerobic metabolism.	Week 1,2,3,4, 10,11,12
1.8.4	Knowledge of the effects of diet, exercise and behavior modification as methods for modifying body composition.	Week 11,12,13 & 14
1.8.7	Knowledge of the importance of maintaining normal hydration before, during, and after exercise.	Week 1, 2,3,11

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).	Week 1 & 2
	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.	Week 1,2 &11

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

Kennedy, W.L., Wilmore, J.H., Costill, D.L. (2012) *Physiology of Sport and Exercise (5th edition)*. Human Kinetics.

EVALUATION

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

Assignment	Percentage
Exam 1	10%
Exam 2	10%
Exam 3	10%
Exam 4	10%
Final Exam	20%
Homework Assignments	10%
Research Paper and Presentation	15%
Quizzes	10%
Professionalism	5%

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** 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 *(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	20-21	***Read:*** Syllabus ***Study PowerPoint slides:*** Introduction to Exercise Physiology, Macronutrients and Micronutrients	Read Chapter 15 pp 367-391
Week 1	January	22-25	Study for Quiz; Start HW #1; Continue reviewing materials (Readings, PPT, & supplemental materials) for Exam #1	Complete **Quiz 1** by 5 pm on Sunday, January 25th
Week 2	January	26 – 28	***Read/Listen/Watch:*** Supplement Materials on Blackboard for Exam #1; Read Book; Work on HW #1	
Week 2	January / February	29 - 1	***Study PowerPoint slides:*** Optimum Nutrition for Exercise; Ergogenic Aids to Performance	1) Read Chapter 16 2) **HW #1** Due by 5 pm on Sunday, February 1st.
Week 3	February	2 - 4	Review for Exam #1, Work on HW #2	
Week 3	February	5 - 8	**Exam #1**	1) **Exam 1** completed by 5 pm on Sunday, February 8th 2) **HW #2** Due by 5 pm on Sunday, February 8th
Week 4	February	9 - 11	***Study PowerPoint slides:*** Fundamentals of Human Energy Transfer During Exercise;	Read Chapter 2
Week 4	February	12 - 15	***Read/Listen/Watch:*** Supplement Materials on Blackboard for Exam #2; Read Book; Work on HW #3	Complete **Quiz 2** by 5 pm on Sunday, February 15th
Week 5	February	16 - 18	***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, February 18th
Week 5	February	19 - 22	Review for Exam #2, Work on HW #4	**HW #4** Due by 5 pm on Sunday, February 22nd
Week 6	February	23 - 25	**Exam #2**	**Exam 2** completed by 5 pm on Sunday, February 25th

Week 6	February / March	26 – 1	Research paper/PowerPoint project topic selection; Work on HW #5	**Research paper/PowerPoint topics Selections** due by 5 pm on Sunday, March 1st
Week 7	March	2 - 4	***Study PowerPoint slides:*** The Cardiovascular System and Exercise	1) Read Chapter 6 2) Read Chapter 8 pp 181-196 3) **HW #5** Due by 5 pm on Wednesday, March 4th
Week 7	March	5 - 8	***Read/Listen/Watch:*** Supplement Materials on Blackboard for Exam #3; Read Book; Work on HW #6	
Week 8	March	9 - 15	**SPRING BREAK**	
Week 9	March	16 - 18	***Study PowerPoint slides:*** The Respiratory System and Exercise	1) Read Chapter 7 2) Read Chapter 8 pp 196-203 **3) HW #6** Due by 5 pm on Wednesday, March 18th
Week 9	March	19 - 22	***Read/Listen/Watch:*** Supplement Materials on Blackboard for Exam #3; Read Book; Work on HW #7	
Week 10	March	23 - 25	***Study PowerPoint slides:*** The Neuromuscular System	Read Chapters 1 & 3
Week 10	March	26 - 29	***Read/Listen/Watch:*** Supplement Materials on Blackboard for Exam #3; Read Book;	Complete **Quiz 3** by 5 pm on Sunday, March 29th
Week 11	March / April	30 - 1	***Study PowerPoint slides:*** The Endocrine System - Hormones, Exercise and Training	1) Read Chapter 4 2) **HW #7** Due by 5 pm on Wednesday, April 1st
Week 11	April	2 - 5	Review for Exam #3	
Week 12	April	6 - 8	**Exam #3**	**Exam #3** completed by 5 pm on Wednesday, April 8th
Week 12	April	9 – 12	***Study PowerPoint slides:*** Exercise Training and Adaptations	Read Chapters 9, 10, 11, 12, & 13

Week 13	April	13 - 15	***Read/Listen/Watch:*** Supplement Materials on Blackboard for Exam #4; Read Book; Work on HW #8	
Week 13	April	16 - 19	***Study PowerPoint slides:*** Body Composition, Obesity, Children, Aging and Obesity	1) Read Chapters15 pp 355-366 2) Read Chapters 17, 18, & 22
Week 14	April	20 - 22	***Study PowerPoint slides:*** Sex Differences; Prescription of Exercise for Health & Fitness; CV Disease Prevention	Read Chapters 19, 20, & 21
Week 14	April	27 - 29	Turn in Research Paper and PowerPoint Presentation; Study for Exam #4	**Research/ PowerPoint Project** due by 5 pm on Wednesday, April 29th
Week 15	April / May	30 - 3	**Exam #4**	**Exam #4** completed by 5 pm on Sunday, May 3rd
Week 15	May	4 - 5	Reading Days – Study for **FINAL EXAM** – 100 Questions on ALL PowerPoint slides, Readings, Supplemental Materials, and HW	
Week 16	May	6 – 10	**Final Exam** – Will be available at 5 am on Wednesday, May 6th.	**Final Exam** completed by 5 pm on Sunday May 10th.

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/the-mason-honor-code-2

- 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.

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