GEORGE MASON UNIVERSITY
School of Recreation, Health, and Tourism

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

DAY/TIME:	N/A	LOCATION:	online
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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 31 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/

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 are 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. (2012) *Physiology of Sport and Exercise (5th edition)*. Human Kinetics. ISBN-13: 978-0736094092.

EVALUATION
This course will be graded on a point system, with a total of 500 possible points.

Assignment	Points/ Percentage
Exam 1	50 / 10%
Exam 2	50 / 10%
Exam 3	50 / 10%
Final Exam – Cumulative	100 /20%
Discussion Boards – Research Analysis	125 / 25%
Research Paper	100 / 20%
Professionalism	25 / 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 **3** mid-term exams and a final exam (**4** 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).

Discussion Boards & Research Article
There will be 10 discussion boards (10pts each) throughout semester and one research article analysis (25pts) for at total of 125 points.

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 topic should be related to

one of the major topic areas: cardiorespiratory response/training, resistance response/training, energy substrates/systems or fueling of exercise. The literature review should be 4-6 pages (typed, double-spaced, 12 pt font no more than 1 inch margins). A **minimum of 5** 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.

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	Aug -Sep	31-6th	Review Course Syllabus Structure and Function Skeletal Muscle	Syllabus Chapters 1
Week 2	Sep	7-13	Neural Control Muscles Endocrine System and Exercise	Chapter 3 & 4
Week 3	Sep	14-20	Energy Substrates & Systems Energy Expenditure	Chapter 2 & 5
Week 4	Sep	21-27	***Exam # 1 Chapter 1-5***	Complete Exam between: 12:00am Sep 21-Sep 24 11:59pm
Week 5	Sep-Oct	28-4	Cardiovascular System and Respiratory System	Chapter 6 & 7
Week 6	Oct	5 - 11	Cardiorespiratory Response to Exercise Principles of Exercise Training	Chapter 8 &9
Week 7	Oct	12-18	Adaptations to Aerobic/Anaerobic, & Resistance Training	Chapter 10&11
Week 8	Oct	19-25	***Exam #2 Chapter 6-11***	Complete Exam 2 between 12:00am Oct 19 –Oct 22 11:59pm
Week 9	Oct-Nov	26-1	Environmental Influences on Exercise	Chapter 12 & 13
Week 10	Nov	2-8	Training for Sport	Chapter 14
Week 11	Nov	9-15	Fueling for Exercise and Body Composition Ergogenic Aids	Chapter 15 & 16

Week 12	Nov	16 – 22	***Exam #3 Chapter 12-16***	Exam 3 Complete between 12:00am Nov 16th and 11:59pm Nov 19th
Week 13	Nov	23-29	***Thanksgiving Break-*** ***Enjoy holiday with families/friends and utilize time to complete research paper due upon return.***	**Turn Research Paper by 8:00am Nov 30 (Blackboard Only)**
Week 14	Nov-Dec	30-6	Children And Aging	Chapter 17 & 18
Week 15	Dec	7-13	Exercise Prescription for Healthy Population Sex Differences Final Exam Review	Chapter 19 & 20
Week 16	Dec	14-17	***Final Exam:*** ***Timed Exam and have to open and complete within hours. The exam is due Dec 17th 11:59pm and will automatically close at this time finished or not.***	

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.