George Mason University
College of Education and Human Development
Kinesiology
KINE 310 DL— Exercise Physiology I
3 Credits, Summer 2019

Faculty
Name: Dr. Debra Stroiney
Office hours: T/TH 12:00 – 2:00
Office location: Bull Run Hall
Office phone: 703-993-7075
Email address: dstroine@gmu.edu

PREREQUISITES
Undergraduate level BIOL 124 minimum grade of C and undergraduate level BIOL 125 minimum grade of C. Co-requisite of 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 OVERVIEW
This course provides a theoretical basis for understanding the body's physiological responses to exercise. Specifically, the course investigates how the support systems of the body (respiratory, cardiovascular, muscular, etc.) function, in cooperation with human energy production to insure that energy is provided for exercise. Emphasis will be placed upon the practical application of exercise physiology principles to coaching, teaching, and other physical training practices.

COURSE DELIVERY
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 May XX, 2018.

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: [Add or delete options, as desire.]
    - 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/ Expectations

• Course Week: Because asynchronous courses do not have a "fixed" meeting day, our week will start on Monday, and finish on Sunday.

• 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 office of disability services.

LEARNING OBJECTIVES

At the completion of the course, students should be able to:

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/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	Lecture
1.1.20	Knowledge of the characteristics of fast and slow twitch muscle	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.	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.	
	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

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

SUPPLEMENTARY MATERIAL
Supplementary materials will be used in class and posted on Blackboard.

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).

Evaluation

	Quantity	Points	Total
Assignments	6	30	180
Quizzes	10	30	300
Presentation	1	100	100
Final Exam	1	100	100
			680

Description of Evaluation

Assignments: Six assignments will be given throughout the semester which will pertain to subject matter being covered. Details will be provided and posted on Blackboard.

Chapter Quizzes: Will be multiple choice, true/false, and fill in the blank. They will be given throughout the semester and cover information lecture and book. **The quizzes will be timed, you must each quiz within 30 minutes.**

Final Exam: The final exam will be cumulative. The format will be multiple choice, true/false, and fill in the blank questions. The final exam will be timed, and you will have 120 minutes to complete it.

Group Project/Presentation & Follow Up Comments: In groups of two you will be responsible for putting together a presentation on a topic which will be assigned. I will also be assigning your partners. The presentation will be posted at the start of the last week of class on Blackboard. You will then be required to review 2 other presentations of your choosing, and write a comment to the presenters. Details will be outlined on Blackboard.

Grading Scale

A	**4.0**	**=**	**93.0 & above**
A-	**3.7**	**=**	**90.0 – 92.9%**
B+	**3.3**	**=**	**87.0 – 89.9%**
B	**3.0**	**=**	**83.0 – 86.9%**
B-	**2.7**	**=**	**80.0 – 82.9%**
C+	**2.3**	**=**	**77.0 – 79.9%**
C	**2.0**	**=**	**73.0 – 76.9%**
C-	**1.7**	**=**	**70.0 – 72.9%**
D	**1.0**	**=**	**60.0 – 69.9%**
F	**0.0**	**=**	**0.0 – 59.9%**

Do I round up? I only round up if your grade is over the xx.9%. Please do not email me at the end of the semester asking if I will found up your grade or if I will offer an opportunities to improve it to the next letter grade. Put your best effort into the assignments and quizzes during the semester.

Make-up Policy

- For every day an assignment is late a drop in one letter grade will be applied. (Ex: An assignment that is one day late will start at a grade of a B+, 2 days late a C+, etc….)
- Exams which are due to unexcused absences will not be allowed a make-up exam.
- Make-up exams and assignments will only be offered for those who possess a University sanctioned excuse or doctor's note.

PROFESSIONAL DISPOSITIONS

See https://cehd.gmu.edu/students/polices-procedures/
Students are held to the standards of the George Mason University Honor Code. You are expected to attend all class sections, actively participate in class discussions, complete in-class exercises and fulfill all assignments. Make-up tests, quizzes, assignments, or other grades will be granted for excused absences only. Excused absences include: serious illness, official university excused absences and extenuating circumstances. It is the student's responsibility to contact the instructor in order to obtain the make-up work.

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 or https://cehd.gmu.edu/aero/tk20. Questions or concerns regarding use of Blackboard should be directed to http://coursessupport.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/ **.**

Academic Integrity

GMU is an Honor Code University; please see the University Catalog for a full description of the code and the honor committee process. The principle of academic integrity is taken very seriously and violations are treated gravely. What does academic integrity mean in this course? First, it means that when you are responsible for a task, you will be the one to perform that task. When you rely on someone else's work in an aspect of the performance of that task, you will give full credit in the proper, accepted form. Another aspect of academic integrity is the free play of ideas. Vigorous discussion and debate are encouraged in this course, the firm expectation that all aspects of the class will be conducted with civility and respect for differing ideas, perspectives and traditions. When in doubt, please ask for guidance and clarification.

TENTATIVE SCHEDULE

		Suggested Activity for the Day	**Assignment Due**
Week 1	**5/20**	Read the syllabus, introduction to course video	
Week 1	**5/21**	Read Chapters 1 & 2	
Week 1	**5/22**	Lecture Slides – Chapter 1: Muscle	**Chapter 1 Quiz**
Week 1	**5/23**	Lecture Slides – Chapter 2: Energy Systems	
Week 1	**5/24**	Complete Assignment 1 & Ch. 2 Quiz	**Chapter 2 Quiz** **Assignment 1**
Week 1	**5/25**	Read Chapter 3	
Week 1	**5/26**	Lecture Slides – Chapter 3: Nervous System	
Week 2	**5/27**	Complete Assignment 2 & Ch. 3 Quiz	**Chapter 3 Quiz** **Assignment 2**
Week 2	**5/28**	Read Chapter 5	
Week 2	**5/29**	Lecture Slide – Chapter 5: Energy Expenditure & Fatigue	
Week 2	**5/30**	Complete Chapter 5 Quiz	**Chapter 5 Quiz**
Week 2	**5/31**	Read Chapter 6	
Week 2	**6/1**	Lecture Slide – Chapter 6: The Cardiovascular System	
Week 3	**6/2**	Complete Assignment 3 & Ch. 6 Quiz	**Ch. 6 Quiz** **Assignment 3**
Week 3	**6/3**	Read Chapter 7	
Week 3	**6/4**	Lecture Slides – Chapter 7: The Respiratory System	
Week 3	**6/5**	Complete Assignment 4 & Ch. 7 Quiz	**Ch. 7 quiz** **Assignment 4**
Week 3	**6/6**	Read Chapter 8	
Week 3	**6/7**	Lecture Slides – Chapter 8: Cardiorespiratory Responses to Acute Exercise	
Week 3	**6/8**	Complete Assignment 5 & Ch. 8 quiz	**Ch. 8 Quiz** **Assignment 5**

Week 3	**6/9**	Read Chapter 10	
Week 4	**6/10**	Lecture Slides – Chapter 10: Adaptations to Resistance Training	
Week 4	**6/11**	Complete Ch. 10 quiz	**Ch. 10 Quiz**
Week 4	**6/12**	Read Chapter 11	
Week 4	**6/13**	Lecture Slides – Chapter 11: Adaptations to Aerobic & Anaerobic Training	
Week 4	**6/14**	Complete Assignment 6 & Chapter 11 Quiz	**Ch. 11 Quiz** **Assignment 6**
Week 4	**6/15**	Read Chapters 12 & 13	
Week 4	**6/16**	Presentations Due Lecture Slides – Chapter 12: Exercise in Hot & Cold Environment	**Presentations Due**
Week 5	**6/17**	Lecture Slides – Chapter 13: Altitude	
Week 5	**6/18**	Complete Ch. 12 & 13 Chapter Quiz	**Ch. 12 & 13 Quiz**
Week 5	**6/19**	Study	
Week 5	**6/20**	Study	
Week 5	**6/21**	Study/ Presentation Responses Due	Responses Due
Week 5	**6/22**	**Final Exam**	

Note: The instructor reserves the right to make changes to the course syllabus and/or schedule at any time. Students will always be informed of any changes made

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