



## **Applied Physiology and Sport Management**

### **APSM 3311: Exercise Physiology**

### **Course Syllabus May 2019**

**Instructor: Dr. Megan Murphy**

**Office: Annette Simmons Hall 118B**

**Email: [mnmurphy@smu.edu](mailto:mnmurphy@smu.edu)**

**Office hours: by appointment**

#### **GENERAL COURSE INFORMATION**

**Prerequisites:** None  
**Credit:** 3 semester hours  
**Days, time, place:** M-F May 16th-31st, TBD

#### **REQUIRED TEXTBOOK**

Kenney WL, Wilmore J, Costill J. *Physiology of Sport and Exercise*. 6<sup>th</sup> Edition, Human Kinetics.  
ISBN: 978-1-4504-77673

Additional required material will be provided in class and on canvas to accompany specific lectures. Students are responsible for obtaining this information. This information will be found on the examinations.

#### **STUDENT LEARNING OUTCOMES**

- Students will be able to explain how the concepts and findings of science and technology shape our world and how they affect human health and fitness.
- Students will be able to select and apply appropriate techniques, skills, and modern tools to science or technology activities.

#### **COURSE DESCRIPTION**

This course examines the human body's responses and adaptations to acute exercise and chronic exercise training. A systemic approach is employed to identify the adaptations of specific organ systems to exercise. Additional topics include the how adaptations to exercise are altered under various conditions including: the environment, fluid balance, and the use of ergogenic aids. This course will also examine the testing procedures commonly used to measure exercise performance and training status.

#### **LEARNING OBJECTIVES**

After completing this course, the successful student should be able to

1. Describe the physiological adaptations to exercise observed in the following systems: skeletal muscle, nervous system, cardiovascular system, and respiratory system.
2. Identify the effects of the following on exercise training: nutritional status, fluid balance, environment, ergogenic aids
3. Understand the exercise fitness tests used to determine exercise performance and training status.

<b>GRADING:</b>	Participation	20%
	Daily Quizzes	25%
	Assignments	25%
	Exams (3 @ 10% each)	30%

94-100% = A	84-86% = B	67-69% = D+	64-66% = D
90-93% = A-	80-83% = B-	74-76% = C	60-63% = D-
87-89% = B+	77-79% = C+	70-73% = C-	< 60% = F

## **PARTICIPATION / ATTENDANCE POLICY (20%)**

Participation credit will be awarded to each student for attending and participating in each scheduled class. **Students are expected to arrive on time and remain for the entire session. Attendance is mandatory.** Each class session is equivalent to 4 regular semester class sessions. As such, if you miss more than one class I reserve the right to drop you from the course. Attendance will be monitored by each student turning in an index card at the end of class. On the card, you will write a) the date b) the most interesting thing you learned in class that day and c) one thing you still do not understand or have questions about d) did you participate.

Students are expected to participate in class. Students will receive participation points for each time they meaningfully contribute to a class discussion over assigned readings or case studies. **Each student must participate 5 times over the semester to receive full credit for participation.** You will record your participation on your note card.

**Article Notes:** As part of your participation grade, each time an article is assigned for reading, you must submit article notes summarizing the content of the reading. These notes will be uploaded into canvas. Each Article Notes assignment will have a corresponding submission assignment with the article link on Canvas. You can find it in the Module section and in the Participation Section. The due dates for each article will be provided in the assignment on Canvas.

If you are absent to a class keep the following in mind: lectures will be coordinated with the assigned readings. The text readings will provide students with a supplementary approach and perspective to the material. However, lectures often include information that is not covered within the text. Lecture packets will be available on Canvas following each lecture. Students attending a university-sponsored activity remain fully responsible for obtaining and learning the material.

## **QUIZZES (25%)**

Quizzes will be administered throughout the semester at the beginning of class. All students will be required to download LockDown Browser onto their computer. Quizzes will cover material from the previous class session. Quizzes are daily on non-exam days. Quizzes will be administered online through Canvas. All students are required to bring a laptop or tablet to the quiz. **If you are late to class, you will only receive the remaining time allotted to complete the quiz.** There are NO MAKE-UPS for quiz grades. If you have an unexcused absence, you will receive a zero for the quiz grade. Excused absences are those accompanied by a **signed** doctors note, or a university sponsored or sanctioned activity. In the event of an excused absence it is **your** responsibility to schedule a make-up time.

## **ASSIGNMENTS (25%)**

Assignments may consist of case studies, article reviews, group discussions on canvas, lab experiences, a food diary, and oral presentations in class. All assignments must be turned in by the beginning of class on the date listed on canvas. Most assignments can be uploaded directly into canvas. If it cannot be uploaded please submit the assignment in class. The score of a late assignment will be reduced by 10% per business day.

**Discussion groups on canvas:** When an article review or case study is assigned, progress will be monitored via a discussion group. Your discussion group will change throughout the semester. You are required to **make a minimum of 2** contributing posts for each discussion. These are well thought out posts, not one or two lines of comment. An example of an acceptable post is provided in the Resource Module on canvas. Discussion board posts will be due at midnight the day before the article will be discussed in class. You can find your discussion group in the "Discussions" tab on canvas. The rubric for grading these posts is on Canvas under the Resource Module as well.

**Review Questions:** Review Questions will be provided after the completion of every chapter covered during lecture. Please answer each question thoroughly as this serves as a review for the upcoming exam.

Absence from class does not constitute notification of a late assignment. If an absence is unavoidable, the student is still responsible for providing the assignment to the instructor on time. Computer/printer failures are not acceptable reasons for late assignments.

## **EXAMINATIONS (10% each)**

Exams will only cover material presented after the previous exam. Lecture exams are multiple choice. The final examination (10%) will be issued during the university scheduled exam period. The final exam will be cumulative and multiple choice only. The final will contain information provided throughout the semester.

## **EXAM ADMINISTRATION**

Exams will be administered online through Canvas. All students are required to bring a laptop or tablet to the exam. All students will be required to download LockDown Browser onto their computer. This ensures the student does not have access to other files on their computer while taking the exam. A practice quiz will be available on Canvas before the first exam for the students to test out the testing system. If the student has a computer issue, they are required to speak to the instructor at least 24 hours before taking the exam, to make sure another computer/tablet is available.

## **MAKE-UP EXAMS**

Make-up exams may be scheduled if notice of an absence is given prior to the examination time. The instructor reserves the right to require documentation verifying the reason for an absence (ex: doctors note). **Make-up exams must be scheduled prior to the next lecture time**. There are no make-up quizzes.

## **RE-GRADE POLICY**

If the student believes a grade has been given in error, it is the student's responsibility to ask for a re-grade of the work within 2 days of receiving the grade. The professor will re-grade the work and the student must accept either a higher or lower grade. After 2 day's time the grade that is entered will be the final grade.

## **COURSE POLICIES**

### **PROFESSIONALISM**

Students are **expected to arrive on time**. Students are expected to be respectful and attentive during lectures offered by the instructor, guest lecturers, students, or whoever is leading a session. At all times, students are expected to act in a manner that does not interfere with the ability of the instructor to teach or fellow students to learn. A disruptive student will be asked to leave, and if the problem is continuous the instructor reserves the right to withdraw the student from the class.

**Cell phones, PDAs, laptops and other communication devices are to remain off if the professor is lecturing**. Notes can be taken with pen and paper. However, on test days, or when working on in-class assignments, students may use technology. Texting, emailing, or chatting is not permitted.

**Students are responsible for checking SMU e-mail and Canvas announcements on a daily basis for messages from the university or from instructor or teaching assistant.**

### **QUALITY OF WORK**

All written work must be printed legibly or typed. All problem-solving steps must be shown for full credit.

## **VALUING DIVERSITY**

The diversity students bring into this classroom is a valuable resource because varied backgrounds and opinions enhance discussion. Research suggests that learning is improved by exposure to diversity in the classroom. It is the professor's intent to present materials and activities that utilize and are respectful of diversity: gender, sexual orientation, disability, age, socio-economic status, ethnicity, race, culture, perspective and other background characteristics. The professor welcomes and appreciates students' suggestions about how to improve the value of diversity in this course. Students should feel free to let the professor know of ways to improve the effectiveness of the course for them or for other students or student groups.

### **ACCOMMODATIONS**

**Disability Accommodations:** Students needing academic accommodations for a disability must first register with Disability Accommodations & Success Strategies (DASS). Students can call 214-768-1470 or visit <http://www.smu.edu/Provost/ALEC/DASS> to begin the process. Once registered, students should then schedule an appointment with the professor as early in the semester as possible, present a DASS

Accommodation Letter, and make appropriate arrangements. Please note that accommodations are not retroactive and require advance notice to implement.

**Religious Observance:** Religiously observant students wishing to be absent on holidays that require missing class should notify their professors in writing at the beginning of the semester, and should discuss with them, in advance, acceptable ways of making up any work missed because of the absence. (See University Policy No. 1.9.)

**Excused Absences for University Extracurricular Activities:** Students participating in an officially sanctioned, scheduled University extracurricular activity should be given the opportunity to make up class assignments or other graded assignments missed as a result of their participation. It is the responsibility of the student to make arrangements with the instructor prior to any missed scheduled examination or other missed assignment for making up the work. (University Undergraduate Catalogue)

***Concealed handguns prohibited***

Pursuant to Section 30.06, Penal Code (Trespass by License Holder With a Concealed Handgun), a person licensed under Subchapter H, Chapter 411, Government Code (Handgun Licensing Law), may not enter this property with a concealed handgun.

**May 2019 Course Schedule**

Day	Topic	Reading Material	Assignment / Lab
<b>Module 1: Skeletal Muscle and Nervous System Adaptations to Exercise</b>			
<b>1 Thursday May 16th</b>	Review Syllabus	Surgeon Generals Call to Action	Article Notes: Surgeon General's Report
	Introduction to Exercise and Sport Physiology	Kenney: pg 2-3, 14-18, 20, 22	Case Study: Research Methods
	Surgeon General Call to Action		
	Research Methods and Case Study		
<b>2 Friday May 17th</b>	<b>Skeletal Muscle</b>	Kenney: Ch1 pgs 28-46	Quiz
	Skeletal muscle Structure	<b>Stronger By Science:</b> Training Based on Muscle Fiber Type - are you missing out?	Chicken Lab Dissection
	Skeletal muscle contraction	<b>Popular Science Article:</b> "Everything you've ever wanted to know about muscles"	Microscope Identification of skeletal muscle fibers
	Skeletal muscle fiber type and athletic success		<b>Article Notes:</b> Training Based on Muscle Fiber Type
	Skeletal Muscle Adaptation to Training		Chapter 1 Review Questions
<b>3 Monday May 20th</b>	<b>Nervous System</b>	Kenney: Ch3 pgs 78-82, 85-87	Quiz
	Neural Control of Muscle: The Nervous System	<b>The Science of Stretching:</b> "Stretching and Speed, Strength and Muscle Growth"	<b>Article Notes:</b> Does Stretching Improve Performance?
	Neural Control of Muscle: Reflex Activity	<b>Clinical J Sport Med:</b> "Does Stretching Improve Performance?"	Stretch Shortening Cycle Lab
	Stretch Shortening Cycle		Chapter 3 Review Questions
<b>Module 2: Bioenergetics and Nutrition For Exercise</b>			
<b>4 Tuesday May 21st</b>	<b>Exam 1</b>		Exam
	<b>Macronutrients</b>	Kenney: Ch2 pgs 50-52 & Ch15 pgs 367-375	Hand out Food Diary
	Fuel for Exercise: Carbohydrates	<b>Examine Article:</b> "The top 18 nutrition myths of 2018"	
	Fuel for Exercise: Fats	<b>Popular Science Article:</b> "The world's strongest athletes aren't shredded and for good reason"	
<b>5 Wednesday May 22nd</b>	Fuel for Exercise: Protein	<b>Popular Science Article:</b> "Here's how much protein you really need"	Quiz
	<b>Bioenergetics</b>	Kenney: Ch2 pgs 52-65 Ch16 pgs 418-419	Chapter 2 Review Questions
	Bioenergetics: Phosphocreatine	<b>Popular Science Article:</b> "There are only two supplements proven to help you build muscle"	
<b>6 Thursday May 23rd</b>	Bioenergetics: Carbohydrate Metabolism		
	Bioenergetics: Fat Metabolism		Quiz
	Interaction Among Energy Systems	Kenney: Ch15 pgs 386-391	Food Diary Due
	<b>Nutrition and Sport</b>	<b>Popular Science Article:</b> "Why chocolate milk is a great post workout snack (but maybe not the best)"	Chapter 15 Review Questions
<b>7 Friday May 24th</b>	Nutrition to Fuel Exercise and Recovery	<b>Fueling For Peak Performance</b>	
	<b>Exam 2</b>		Exam
	<b>Body Assessment and Sport</b>	Kenney: Ch15 pgs 356-366	
	Body Composition Assessment and Performance	<b>Popular Science Article:</b> "Can eating mostly fat help you loose weight?"	<b>Article Notes:</b> Low-fat vs Low-carb
<b>8 Tuesday May 28th</b>	Fatigue and Female Athlete Triad	<b>Examine Article:</b> "Low-fat vs low-carb? Major study concludes it doesn't matter for weight loss"	Paleo Diet Case Study
<b>Module 3: Endocrine and Cardiovascular System</b>			
<b>8 Tuesday May 28th</b>	<b>Endocrine</b>	Kenney: Ch4 pgs 92-104	
	Epinephrine and Norepinephrine	<b>Live Science:</b> "The Endocrine System: Facts, Functions and Diseases"	<b>Article Notes:</b> The Endocrine System
	Cortisol, Growth Hormone and Testosterone	<b>Popular Science Article:</b> "How do performance-enhancing drugs work?"	Chapter 4 Review Questions
	Endorphins, Erythropoietin and Insulin	<b>Runner's World:</b> "How to Achieve a Runner's High"	
<b>9 Wednesday May 29th</b>	<b>Cardiovascular System Structure</b>	Kenney: Ch6 pgs 140-152	Quiz
	Structure of the cardiovascular system		
	Cardiac Conduction and Intrinsic Control		
	Extrinsic Control ECG and HR during Exercise		
<b>10 Thursday May 30th</b>	<b>Cardiovascular System and Exercise</b>	Kenney: Ch8 pgs 182-189	Quiz
	Cardiac Function During Exercise	<b>Journal of Family Practice:</b> "Hypertrophic cardiomyopathy: Ask athletes these 9 questions"	ECG Lab
	Physiologic Hypertrophy & "I Heart Running" A Case Study on Tachycardia		
<b>11 Friday May 31st</b>	Blood Pressure and Blood Flow	Ch6 159, Ch15 381-386	<b>Article Notes:</b> The truth about sports drinks
	Dehydration and Cardiovascular Effects	<b>British Medical Journal:</b> "The truth about sports drinks"	
	<b>Exam 3</b>		Exam