

**SOUTHEASTERN OKLAHOMA STATE UNIVERSITY  
SCHOOL OF EDUCATION AND BEHAVIORAL SCIENCE  
DEPARTMENT OF HEALTH, PHYSICAL EDUCATION, AND RECREATION**

**SYLLABUS  
HPER 5973 Foundations of Sports Science**

**INSTRUCTOR:**

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**COURSE DESCRIPTION:** This is a cross-disciplinary study that provides students with a broad foundation of the various sub-disciplines of exercise science including the anatomical, biomechanical, physiological, and nutritional bases of human movement.

**COURSE OBJECTIVES:** The students will be able to:

1. Describe both the macrostructure and microstructure of muscle.
2. Describe the sliding-filament theory of muscular contraction.
3. Describe the specific morphological and physiological characteristics of different muscle fiber types and predict their relative involvement in different sport events.
4. Describe the anatomical and physiological characteristics of the cardiovascular and respiratory systems.
5. Identify the major components of skeletal musculature.
6. Differentiate the various types of levers of the musculoskeletal system.
7. Identify primary anatomical movements during sport activities and exercises.
8. Describe the factors contributing to human strength and power.
9. Evaluate resistive force and power patterns of exercise devices.
10. Identify factors of importance for joint biomechanics with exercise.
11. Explain the basic energy systems available to supply ATP during exercise.

12. Understand lactate accumulation, metabolic acidosis, and cellular manifestations of fatigue.
13. Identify patterns of substrate depletion and repletion during various exercise intensities.
14. Describe the bioenergetics factors that limit exercise performance.
15. Develop training programs that demonstrate the metabolic specificity of training.
16. Explain the metabolic demands and recovery from interval training, high-intensity interval training, and combination training to optimize work-to-rest ratios.
17. Explain the basic energy systems available to supply ATP during exercise and describe the bioenergetics factors that limit exercise performance.
18. Understand basic concepts of endocrinology, including what hormones are and how they interact with each other and target tissues.
19. Explain the physiological roles of anabolic hormones.
20. Describe hormonal responses to resistance exercise.
21. Develop training programs that demonstrate an understanding of human endocrine responses.
22. Differentiate between aerobic training adaptations and the anatomical, physiological, and performance adaptations following anaerobic training.
23. Discuss the central and peripheral neural adaptations to anaerobic training.
24. Understand how manipulating the acute training variables of a periodized program can alter bone, muscle, and connective tissue.
25. Explain the acute and chronic effects of anaerobic training on the endocrine system.
26. Elucidate the acute and chronic effects of anaerobic training on the cardiovascular system.
27. Recognize the causes, signs, symptoms, and effects of anaerobic overtraining and detraining.
28. Discuss how anaerobic training programs have the potential to enhance muscular strength, muscular endurance, power, flexibility, and motor performance.
29. Identify and describe the acute responses of the cardiovascular and respiratory systems to aerobic exercise.
30. Identify and describe the impact of chronic aerobic endurance training on the physiological characteristics of the cardiovascular, respiratory, nervous, muscular, bone and connective tissue, and endocrine systems.

31. Recognize the interaction between aerobic endurance training and optimizing physiological responses of all body systems.
32. Identify and describe external factors that influence adaptations to acute and chronic aerobic exercise including altitude, sex, blood doping, and detraining.
33. Recognize the causes, signs, symptoms, and effects of overtraining.
34. Know when to refer an athlete to the appropriate resource, a medical doctor, or a sport dietitian.
35. Identify the protein, carbohydrate, and fat recommendations for athletes.
36. List the dietary recommendations for disease prevention and overall health.
37. List hydration and electrolyte guidelines for different age groups and scenarios and help athletes develop an individualized hydration plan.
38. Describe hormonal responses to resistance exercise.

**PREPREGUISITE:** No prerequisites

**REQUIRED TEXTBOOK:** Haff, G.G., and N.T. Triplett, eds. *Essentials of Strength Training and Conditioning*, 4th ed. Champaign, IL: Human Kinetics. 2016.

**OPTIONAL MATERIALS:** None.

**ETHICS: Academic integrity is a paramount concern to Southeastern Oklahoma State University and to this instructor.** Subsequently, this course is governed in accordance with the Academic Integrity Policy of SOSU. Students should familiarize themselves with this policy in the SOSU Student Code of Conduct, which can be accessed on the Office of Student Life Website or by contacting the office of Academic Affairs. In keeping, all written or oral assignments must be the original work of the student and may not be submitted concurrently in any other class without the specific written permission of both instructors. The policies regarding academic misconduct are set forth in the institution's Student Code of Responsibilities and Conduct. Academic dishonesty includes but is not limited to:

Plagiarism – taking credit for someone else's work; presenting another's work as your own. Credit the whole of the work that is someone else's effort. Also, even when you paraphrase someone else's words, ideas, and efforts, you must give credit to said person.

Collaborating on Out-of-Class Assignments without Permission – submitting work as though you are solely responsible when in actuality the work was a result of a joint effort. Collaborating with another student is not permitted unless otherwise noted.

Assisting Another Person in an Academically Dishonest Endeavor – failing to prevent another from misusing your work. Efforts must be made to prevent the copying of your work or plagiarizing of your words.

**COURSE SCHEDULE:** Tentative Schedule and Description of Major Assignments:

Week	Topic	Textbook Chapter	Project or Assignment	Literature Review/Quiz
1	Structure and Function of Body Systems	1		Muscle hypertrophy paper Muscle damage paper
2	Biomechanics	2	Assignment: Joint Actions	
3	Bioenergetics	3		Lactate paper EPOC paper
4	Endocrine Response to Exercise	4	Hormone Chart	Hormone response to RT paper
5	Adaptations to Anaerobic Training	5		High-intensity interval training paper
6	Adaptations to Aerobic Training	6		Training distance runners paper Limits on cardiovascular function paper
7	Basic Nutrition in Health	9		Protein portion paper Strength athlete supplementation paper

**SEMESTER CALENDAR FALL 2017:**

[http://www.se.edu/dept/registrar/files/2018/01/SE\\_Dates\\_Y1819-Fall-18.pdf](http://www.se.edu/dept/registrar/files/2018/01/SE_Dates_Y1819-Fall-18.pdf)

Date	Event
Aug. 20	Course is made available
Aug. 27	Class begins
Aug 31	Last day to drop class w/ no grade or charges
Oct 2	Last day to drop
Oct. 14	7-week semester ends

## **COURSE POLICIES:**

### **Extra Assignment Policy:**

Each semester, usually during finals week, several students request extra credit assignments to avoid a failing grade. **No extra assignments will be given at any time during the semester to “bring up your grade!”** Work diligently from the beginning and complete every assignment as if it is worth extra points that will raise your grade! There are several reasons that I cannot accommodate this request. First, my philosophy is that extra assignments cannot substitute for mastering the material covered in the readings. Second, it would be unethical for me to offer extra credit to some students and would violate the principle of equal opportunity.

### **Student Expectations of Instructor:**

Students should expect a timely response to email questions and prompt grading and posting of assignments. Unless an announcement was posted indicating my lack of availability, you should receive a response to your email within 24 hours. If you haven't received a response within 24 hours, please email again just in case I overlooked it. Grading of and posting of scores for all assignments will be completed before the next assignment is due.

### **Instructor Expectations of Students:**

Evidence of cheating on a test will result in at least a zero for that test. Students are expected to take exams on the scheduled date, turn in assignments on the scheduled date, and when difficulties arise, contact the instructor.

The instructor reserves the right to make adjustments to the syllabus and/or grading policy as needed in order to meet the instructional needs and goals of the class. Students will be notified of any adjustments to the syllabus.

### **Expectations for Communications:**

Check the course website every day, at least five days a week! I make announcements with information that is important for you to know. You should also check your grades regularly and stay in touch with me concerning submitted assignments that are not reflected in your grades.

Email Address – You are required to use your SOSU student email address when using Blackboard. In addition, you are required to REGULARLY check your SOSU student email account. All email correspondence will be sent to your SOSU student email address. Refer to the Blackboard login page for details about your SOSU student email address. Be sure to include your name in the body of every email you send to me.

## **COURSE REQUIREMENTS:**

**Each week will begin at 12:00am Monday morning and will end the following Sunday at 11:59pm. This will be the time frame for which students will be expected to work within a given week's folder. Assignments may be due on various days within the week, but will be consistently due at 11:59pm of the selected day. The assignments associated within a week**

**along with the day (not date) they will be due will typically be provided on the front of the weekly folder. All times will be based on the time zone of the institution: Central Standard Time.**

### **Work Load**

It is roughly estimated that students in this course will spend an average of 10-15 hours per week for reading and studying the textbook, completing assignments, and taking exams and quizzes.

### **Exams and Quizzes:**

There will be regular unit exams given each week over the 7-week period. The regular exams are primarily true/false, multiple choice, and short essay questions. Due dates are in “COURSE WORK” on Blackboard.

### **Assignments:**

Students will be required to submit weekly assignments related to readings provided in addition to the textbook. I have provided articles most weeks that reinforce a major concept from that week’s content (these articles will be available on “COURSE WORK” in Blackboard). These assignments range from (a) outlining an article, (b) taking a quiz over an article or online research related to the material in the chapter, or (c) creating a chart summarizing the key information from the article.

Southeastern provides a course on Blackboard that all students have access to the Basics of Language Training (BOLT) where you may find self-paced, competency-based modules to assist you in acquiring any needed writing skills. The BOLT course will remain available to you throughout the program, so you can return whenever you need to. For additional support, Southeastern also recommends the Purdue OWL website (<https://owl.english.purdue.edu/owl/>) to assist with formatting questions. The program will have the link to this resource provided in each course.

### **Final Exam:**

There will be no final exam during the seventh week. However, each week you will be given essay questions that correlate to the material covered that week. These essay questions will essentially comprise a final exam. You will be given usually 24 hours to answer each of these questions. Therefore, spend time researching and composing your answers. No late submissions will be accepted since you have the questions in advance. Don’t wait until the last minute to start to work answering these questions.

### **Late Work:**

Late work will generally not be accepted. Arrangements/exceptions on an individual basis for extenuating circumstances may be made at my discretion however such exceptions may still be accompanied by significant penalty. If a student knows in advance that he or she will be traveling or unable to access the course for any reason, it is his or her responsibility to contact

the instructor in advance and make arrangements to work ahead. If a student contacts the instructor after the due date, the instructor should expect documentation. This includes documentation from IT in the case of technical difficulties. (If students submit a Bb Student Support Request form, they automatically receive an email confirmation, which will be time stamped evidence of their due diligence in resolving the issue).

**Other Course Requirements:** None

**GRADING SCALE:**

90-100% = A  
80- 89.99% = B  
70-79.99% = C  
60- 69.99% = D  
< 60% = F

Each course will be based on a percentage scale, and each individual assignment will make up a portion of that total. The individual point totals for each course may vary, but students will be able to see both their total points and total percentage in their grades.

The final grade will be based on the accumulated point total for all tests, assignments, and quizzes with the scale based on points earned divided by total points possible.

**There will be no rounding up grades at the end of the semester. I don't do this so PLEASE don't ask me! A final average of 79.99 is a grade of a C. You were very close to a grade of a B but you fell short.**

**UNIVERSITY AND SCHOOL POLICIES:**

Privacy: Available through the Southeastern Online Learning website or <http://www.se.edu/academics/general-information/students-rights/>

Academic Integrity: Available through the Southeastern Online Learning website or <http://www.se.edu/student-life/documents/student-handbook.pdf#page=6>

Counseling Center: Any student experiencing mental or emotional issues who desires free, confidential, clinical counseling is encouraged to contact the SE Counseling Center at (580) 745-2988 to schedule an appointment during normal working hours Monday-Friday, 8:00AM to 5:00PM. For after-hours mental health emergencies, please call SE Campus Police at (580) 745-2911 or the Mental Health Crisis Hotline at 1- (800) 522-1090.

Disability Accommodations: Any student needing special accommodations due to a disability should contact the Office of Compliance and Safety, Administration Building, Suite 311 or call (580) 745-3090 (TDD# 745-2704). It is the responsibility of each student who anticipates or experiences barriers to their academic experience to make an official request for disability related accommodations in a timely manner.

Equity and Non-Discrimination Statement: Southeastern Oklahoma State University, in compliance with all applicable federal and state laws and regulations, does not discriminate on the basis of race, color, religion, national origin, sex, age, disability, sexual orientation, gender identity, or status as a veteran in any of its policies, practices, procedures, or programs. This includes, but is not limited to: admissions, employment, financial aid, and educational services. Inquiries regarding non-discrimination and equity policies may be directed to: Michael Davis, Director of Compliance and Safety & Title IX Coordinator, (580) 745-3090, or mdavis@se.edu.