



蘇州大學  
Soochow University

## SPS 215 Exercise Physiology

Summer 2024

**Course Credits:** 4

**Contact Hours:** 56 hours

**Instructor:** TBA

**Email:** TBA

### COURSE OBJECTIVES

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Exercise Physiology entails the assessment of both immediate reactions and long-term adjustments of the human body to the demands of physical activity. It delves into the physiological fundamentals of muscular exertion and training. This course thoroughly investigates the metabolic, cardiorespiratory, and muscular adaptations occurring in response to both acute and chronic exercise. Positioned within applied human physiology, the course emphasizes the development of a conceptual framework to elucidate the interconnected functions of the nervous, muscular, metabolic, and cardiorespiratory systems facilitating human movement. Through this course, students explore the cellular and systemic transformations unfolding within the body during various modes, intensities, and durations of physical exertion, including an examination of cardiovascular and muscle functions during exercise.

Upon Completion of this Course, students will be able to:

1. Understand the acute physiological responses of the human body to exercise;
2. Analyze the chronic adaptations of the human body to various types of physical activity;
3. Explain the physiological mechanisms underlying muscular exertion and training;
4. Evaluate the metabolic, cardiorespiratory, and muscular adaptations to acute and chronic exercise;
5. Develop a conceptual model to integrate the nervous, muscular, metabolic, and cardiorespiratory systems in facilitating human movement.



## **PREREQUISITES**

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BIO 338 Human Physiology

## **GRADING**

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Grades will be determined by accumulating points, with 100 points being the maximum, as follows:

<b>ITEM</b>	<b>POINTS</b>
4 Assignments	20 Points
4 Labs	20 Points
Midterm Exam	25 Points
Final Exam	35 Points
Total	100 Points

Late submissions will be graded at the end of the course. Grades will be assigned according to the following rule:

$A \geq 90 > B \geq 80 > C \geq 70 > D \geq 60 > F$ .

We reserve the right to make adjustments to the overall grading policy.

## **COURSE MATERIALS**

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### **Required Texts:**

Jack H. Wilmore, David L. Costill, *Physiology of Sport and Exercise*(3rd ed), 2004, Human Kinetics.

### **Recommended (Optional) Texts or Other Materials:**

None

## **COURSE TOPICS**

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<b>MODULE</b>	<b>TASKS</b>
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Module 1	<p><b>Topics:</b>          Topic 1: Acute physiological responses to exercise          Topic 2: Long-term adaptations to physical activity          Topic 3: Physiological fundamentals of muscular exertion          Topic 4: Mechanisms of muscular training</p> <p><b>Assessments:</b>          Assignment #1</p>
Module 2	<p><b>Topics:</b>          Topic 5: Metabolic pathways and energy systems          Topic 6: Cardiovascular control during exercise          Topic 7: Hormonal regulation in exercise          Topic 8: Neural control of movement</p> <p><b>Assessments:</b>          Lab #1: Metabolic Pathways and Energy Systems: Comparative Analysis of Aerobic and Anaerobic Exercise          Assignment #2</p>
Module 3	<p><b>Topics:</b>          Topic 9: Neuromuscular adaptations to resistance training          Topic 10: Skeletal muscle metabolism          Topic 11: Oxygen consumption and energy expenditure          Topic 12: Anaerobic metabolism and lactate threshold</p> <p><b>Assessments:</b>          Lab 2: Exploring Skeletal Muscle Metabolism: Effects of Exercise Intensity on Metabolic Pathways          Midterm Exam</p>
Module 4	<p><b>Topics:</b>          Topic 13: Aerobic capacity and endurance training          Topic 14: Cardiorespiratory fitness assessment          Topic 15: Factors influencing exercise performance          Topic 16: Exercise-induced muscle fatigue</p> <p><b>Assessments:</b>          Lab 3: Assessment of Exercise-induced Muscle Fatigue: Impact of Repetition Range and Rest Interval Duration          Assignment #3</p>
Module 5	<p><b>Topics:</b>          Topic 17: Recovery physiology after exercise          Topic 18: Hormonal responses to exercise stress          Topic 19: Thermoregulation during exercise          Topic 20: Effects of aging on exercise physiology</p> <p><b>Assessments:</b>          Lab 4: Thermoregulation during Exercise: Impact of Environmental Temperature on Body Heat Dissipation</p>



	Assignment #4
Module 6	<b>Topics:</b> Topic 21: Gender differences in exercise responses Topic 22: Environmental considerations in exercise physiology Topic 23: Nutritional strategies for exercise performance Topic 24: Psychological aspects of exercise adherence <b>Assessments:</b> Final Exam

## ATTENDANCE

1) Class attendance is required. Missing classes without permission will lead to decrease in overall grade.

Missing less than two classes: no penalty.

Missing more than two classes: 7% will be taken off from the overall grade.

If the instructor reports a student's frequent missing of class to the Soochow University Academic Administration Office, the student might get a written warning and might be prohibited from attending final exam.

2) Participants in this course are expected to arrive in class promptly and adequately prepared. The primary objective of this course is to critically engage with the readings and the subject matter. Therefore, course participants are expected to have completed the reading prior to class and prepare thoughtful reflections/commentaries to share with fellow colleagues.

## LEARNING REQUIREMENTS

- 1) Late assignments are not acceptable and are subjected to grade deductions.
- 2) Assignments submitted in the wrong format will be counted as not submitted.
- 3) Failure to submit or fulfill any required course component results in failure of the class.
- 4) Make-up for midterm and final exams only with valid excuses, as defined by the University.
- 5) In order to earn a Certificate of Completion, participants must thoughtfully complete all assignments by stated deadlines and earn an average quiz score of 50% or greater.



## **TECHNOLOGY POLICY**

The use of electronic devices in class is distracting, both for the user and for the rest of the class. Only non-programmable calculators can be used in the tests and exam. Any attempts to use cell phones and other electronic communication devices will be seemed as cheating. Laptops are discouraged, unless you use them for activities DIRECTLY related to the course (eg., note taking, reading course documents).

## **ACADEMIC INTEGRITY POLICY**

Soochow University highly values the academic integrity and aims to promote the academic fairness, honesty and responsibility. Any academic dishonesty behaviors and any attempts to cheats and plagiarism will be reported to the university administration office. A written warning and the relevant penalties will be imposed. The record might be shown on the official university transcript.

## **DISABILITY ACCOMMODATION**

Soochow University is committed to maintaining a barrier-free environment so that students with disabilities can fully access programs, courses, services, and activities at Soochow University. Students with disabilities who require accommodations for access to and/or participation in this course are welcome.

Note:

Please contact the University Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material.