

CARDIOVASCULAR ADAPTATIONS TO EXERCISE

Department of Kinesiology
University of Texas at Tyler

Course Syllabus

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- Course:** KINE 5306 - Topics in Motor Performance (Cardiovascular Adaptations to Exercise)
- Meets:** Online (Canvas)
- Instructor:** Scott Spier, Ph.D. (last name rhymes with *fire*)
- Office:** Herrington Patriot Center (HPC) 2186 (Inside the Exercise Physiology Lab)
Office phone: 903-566-7427
Email: sspier@uttyler.edu (do NOT include “patriots” in email address)
- Office hours:** Mon/Wed 1:30 - 2:30 p.m.; Also by appointment or via Zoom (call or email to schedule)
- Canvas:** All course materials and announcements will be provided in **Canvas**
- Contact:** The best method of contact is through email (sspier@uttyler.edu) or during office hours. You can send me email from either your Patriots account or through Canvas. Any email you send should have your first and last name, your course and section number (e.g., KINE 5320), and proper punctuation. Failure to do so may delay the response time. I will try to respond to appropriately addressed emails within 1-2 business days.
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COURSE DESCRIPTION

The purpose of this course is to provide students with an advanced study of cardiovascular physiology and its responses to acute and chronic exercise. This course will review the physiological mechanisms responsible for the cardiovascular adjustments to orthostasis and will describe in detail the central and peripheral cardiovascular adjustments to acute exercise and adaptations to chronic exercise training. The course will also review the cardiovascular adaptations to detraining and aging.

COURSE PREREQUISITES

There are no prerequisites for this course. However, it is assumed that each student has successfully completed a course in Exercise Physiology and/or Anatomy & Physiology at either the undergraduate or graduate level.

COURSE MATERIALS

Textbook: There is **no required textbook** for this course. A good exercise physiology textbook may be helpful, particularly if you need a refresher on the basics of cardiovascular physiology. You have **free** electronic access to the textbook, *Exercise Physiology: Theory and Application to Fitness and Performance* (11th ed.) by Powers, Howley, & Quindry, through the UT Tyler library. The link to access the textbook will be available in Canvas.

Additional resources: Additional course materials and resources will be made available in Canvas, including the syllabus, assigned readings, additional videos, and a detailed schedule.

Sharing of course materials: Handouts used in this course, including those delivered via Canvas, may **NOT** be shared online or with anyone outside of the class, without me granting express written permission. The term handouts refers to all materials generated for this class, which include but are not limited to syllabi, quizzes, exams, assignment sheets, recorded lectures, outlines, lab problems, in-class materials, review sheets, and additional problem sets. The unauthorized sharing of class materials outside of the class constitutes academic dishonesty and disciplinary action may be taken (see Policy on Academic Dishonesty below).

COURSE OBJECTIVES

The course has several general objectives, listed below. More specific objectives are listed with each lesson of the course. Upon successful completion of this course, the student shall be able to:

1. Describe the cardiovascular regulatory mechanisms responsible for adjustments in cardiac output and systemic blood pressure at rest and in response to exercise;
2. Describe the mechanisms responsible for the redistribution of cardiac output during dynamic exercise;
3. Analyze the cardiovascular responses to acute exercise with respect to potential limitations in exercise performance;
4. Explain the mechanisms of cardiovascular adaptations to chronic bouts of exercise and inactivity;
5. Analyze the cardiovascular responses to chronic exercise in terms of optimization of health and performance;
6. Critically read and discuss research literature related to cardiovascular exercise physiology.

This course addresses these objective through the following:

1. Study of basic facts, concepts, and theories of various ergogenic aids;
2. Critically reading and discussing research related to various ergogenic aids;
3. Discussing in writing questions and viewpoints related to ergogenic aids;
4. Applying theoretical concepts in the discussion of ergogenic aids.

COURSE REQUIREMENTS AND EVALUATION

Module Quizzes: There will be a quiz at the end of each module. These untimed quizzes are objective in format, consisting of multiple-choice, true-false, and matching questions over material from lectures and assigned readings.

Module Essay Questions: For each module, you will be required to answer questions related to the reading assignments, lectures, research articles, and/or current topics in cardiovascular exercise physiology.. Some may require you to do additional review of the literature. These assignments allow you to demonstrate your comprehension of the course material and your ability to communicate that comprehension through writing. Your responses will be graded on the basis of the quality of your responses.

CV Adaptations Paper: This assignment will require you to assess the research literature on an assigned topic related to cardiovascular adaptations to exercise. Please pay attention to the instructions for this assignment to receive full credit. Details of this assignment will be provided in Canvas.

Evaluation: Grading for the above assignments will be weighted as follows:

Module Quizzes.....	40%
Module Essay Questions.....	40%
CV Adaptations Paper.....	20%

Grading will be based on a 10-point scale as detailed below:

A = 90-100

B = 80-89.99

C = 70-79.99

D = 60-69.99

F = < 60

POLICY ON ACADEMIC DISHONESTY

At the University of Texas at Tyler, students and faculty are responsible for maintaining an environment that encourages academic integrity. Students and faculty members are required to report an observed or suspected case of academic dishonesty immediately to the faculty member in charge of an examination, classroom, or laboratory research project, or other academic exercise.

Since the value of of an academic degree depends on the absolute integrity of the work done by the student for the degree, it is imperative that students maintain a high standard of individual honor in scholastic work. Scholastic dishonesty includes but is not limited to cheating, plagiarism, and collusion.

This class will be conducted in full compliance with the UT Tyler “no tolerance” policies concerning documented cases of plagiarism and/or academic dishonesty. Any act of cheating or plagiarized work submitted will result in

a grade of zero for that assignment and further disciplinary action may be taken. Extreme cases or repeated violations may result in an F in the course and/or exclusion from the university. Please make use of the [UT Tyler Writing Center](#) if you have concerns about plagiarism.

Chat GPT OR OTHER AI SOURCES

Under no circumstances is a student allowed to use any AI-based writing program to generate answers to exams, quizzes, assignments, homework, or any other graded assignment in this course. Any use of AI will be considered cheating according to the Academic Dishonesty policy above.

TENTATIVE COURSE SCHEDULE

Note: The following schedule may be adjusted, as needed, during the semester to better serve the educational needs of the class. Any modifications to the schedule will be posted in the Canvas Announcements.

Weeks	Topic	Assignments
1-3	Module 1: Introduction to Cardiovascular Physiology <ul style="list-style-type: none"> Intro to the Class and the Cardiovascular System Cellular Structure and Function Electrical Activity of the Heart Cardiac Function Vascular Structure and Function Hemodynamics 	<ul style="list-style-type: none"> Student Introductions Module 1 Quiz Module 1 Essay Questions <p><i>*Due Date: Monday, June 1</i></p>
3-5	Module 2: Cardiovascular Adjustments to Orthostasis <ul style="list-style-type: none"> Effects of Gravity on the Cardiovascular System Circulatory Adjustments to Orthostasis Reflex Adjustments to Orthostasis Neurohumoral Adjustments to Orthostasis Orthostatic Intolerance 	<ul style="list-style-type: none"> Module 2 Quiz Module 2 Essay Questions <p><i>*Due Date: Monday, June 15</i></p>
6-7	Module 3: Cardiovascular Adaptations to Acute Exercise <ul style="list-style-type: none"> Central Cardiovascular Adjustments to Acute Aerobic Exercise Control of Regional Blood Flow During Rest & Exercise Control of Blood Flow to Dynamically Active Muscle Cardiovascular Responses to Acute Resistance Exercise 	<ul style="list-style-type: none"> Module 3 Quiz Module 3 Essay Questions <p><i>*Due Date: Monday, June 29</i></p>
8-9	Module 4: Cardiovascular Adaptations to Exercise Training <ul style="list-style-type: none"> Central Cardiovascular Adaptations to Exercise Training Peripheral Cardiovascular Adaptations to Exercise Training Factors Limiting VO_{2max} 	<ul style="list-style-type: none"> Module 4 Quiz Module 4 Essay Questions <p><i>*Due Date: Monday, July 13</i></p>
10-11	Module 5: Cardiovascular Adaptations to Detraining and Aging <ul style="list-style-type: none"> Cardiovascular Adaptations to Detraining Cardiovascular Adaptations to Aging 	<ul style="list-style-type: none"> Module 5 Quiz Module 5 Essay Questions <p><i>*Due Date: Monday, July 27</i></p>
12	Module 6: Exercise and Cardiovascular Health: Is Too Much Exercise Bad for the Heart? <ul style="list-style-type: none"> Introduction to Exercise and Cardiac Health Extreme Exercise and Cardiac Health 	<ul style="list-style-type: none"> Module 6 Quiz Module 6 Essay Questions <p><i>*Due Date: Monday, August 3</i></p>
13	Finish up Cardiovascular Adaptations to Exercise paper	<ul style="list-style-type: none"> Cardiovascular Adjustment During Exercise Paper <p><i>*Due Date: Sunday, August 9</i></p>

COURSE EXPECTATIONS

Professionalism: Students are expected to display a professional attitude in all aspects of the course, including discussions, communication with the instructor and classmates, being attentive during lectures, and being respectful to the instructor and classmates. Do not participate in any activity that may be a distraction to others.

Quality of Work: ALL assignments will be graded with rigor appropriate for graduate course work. All written assignments should incorporate correct grammar, spelling, and a logical flow of ideas. I have little tolerance for bad grammar and spelling mistakes. Please use the Spelling & Grammar tool on your word processor.

Writing Center: If you have trouble with writing assignments, please contact the Writing Center at UT Tyler at 903-565-5995. They have tutors and other resources available to assist you with your written assignments.

Late Work: Assignment instructions and due dates will be clearly posted and students will be given adequate time to complete work. No assignments will be accepted past their deadlines.

Feedback on exams/assignments: I will strive to give timely feedback on all assignments. You should expect feedback on discussion posts within a couple of days and feedback on papers and written assignments within 1 week (I will notify you if I expect feedback to take a little longer for a particular assessment).

Getting help: If you find yourself struggling in the class (especially if you fail an exam), you should meet with me as soon as possible so that we can determine what steps you need to take to succeed in the class. I'm available during office hours or by appointment.

TIME REQUIREMENTS

Successful on-line learning is highly student-initiated. Because of the format of the course, the student will be required to exercise initiative and diligence in completing the course. In general, you should expect to spend a similar amount of time completing the requirements of this online course as you would spend on the same course taught in the traditional classroom format. An advantage of the online format is that the lecture material is there for you to review whenever you want. In an online course, more time must be devoted to participation in discussions than is traditionally spent in classroom discussions. Time for completion of assignments, readings and other materials, reviewing for comprehension, and preparing for exams should be similar in this online course as in any other course. As a rough guide, you should plan to spend approximately 10 – 15 hours per week on this course. The actual amount of time required will, of course, vary from one person to another. It is absolutely essential that you do not fall behind.

If you encounter any unforeseen circumstances (family emergency, jury duty, etc.) that greatly compromise your coursework, contact the instructor immediately. Alternatives for missed time may be arranged at the discretion of the instructor. Note: Vacation time does not count as an excused "absence". Please plan your vacations around assignment due dates or submit your assignments early.

COMMUNICATION

The best method of contacting Dr. Spier is through email (sspier@uttyler.edu) or during office hours. You can send me email from either your Patriots account or through Canvas. Any email you send should have your first and last name, your course and section number (e.g., KINE 5320), and proper punctuation. Failure to do so may delay the response time. I will try to respond to appropriately addressed emails within 1-2 business days.

TECHNICAL SUPPORT

For technical problems with Canvas, contact **UT Tyler 24/7 Canvas Support**, which can be accessed by clicking **Help** at the bottom of the Global Navigation menu on the far left side of the browser window. For login/password problems or support for other technical issues, contact Campus Computing Services at 903-565-5555 or itsupport@uttyler.edu.

UNIVERSITY POLICIES

(From the *Handbook of Operating Procedures* and the UT Tyler Website)

UT TYLER HONOR CODE

Every member of the UT Tyler community joins together to embrace: Honor and integrity that will not allow me to lie, cheat, or steal, nor to accept the actions of those who do.

STUDENT RIGHTS AND RESPONSIBILITIES

To know and understand the policies that affect your rights and responsibilities as a student at UT Tyler, please follow this link: <http://www.uttyler.edu/wellness/rightsresponsibilities.php>

CAMPUS CARRY

We respect the right and privacy of students 21 and over who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at <http://www.uttyler.edu/about/campus-carry/index.php>

UT TYLER A TOBACCO-FREE UNIVERSITY

All forms of tobacco will not be permitted on the UT Tyler main campus, branch campuses, and any property owned by UT Tyler. This applies to all members of the University community, including students, faculty, staff, University affiliates, contractors, and visitors.

Forms of tobacco not permitted include cigarettes, cigars, pipes, water pipes (hookah), bidis, kreteks, electronic cigarettes, smokeless tobacco, snuff, chewing tobacco, and all other tobacco products.

There are several cessation programs available to students looking to quit smoking, including counseling, quitlines, and group support. For more information on cessation programs please visit www.uttyler.edu/tobacco-free.

GRADE REPLACEMENT/FORGIVENESS

Students repeating a course for grade forgiveness (grade replacement) must file a Grade Replacement Contract with the Enrollment Services Center (ADM 230) on or before the Census Date of the semester in which the course will be repeated. Grade Replacement Contracts are available in the Enrollment Services Center or at <http://www.uttyler.edu/registrar>. Each semester's Census Date can be found on the Contract itself, on the Academic Calendar, or in the information pamphlets published each semester by the Office of the Registrar.

Failure to file a Grade Replacement Contract will result in both the original and repeated grade being used to calculate your overall grade point average. Undergraduates are eligible to exercise grade replacement for only three course repeats during their career at UT Tyler; graduates are eligible for two grade replacements. Full policy details are printed on each Grade Replacement Contract.

The Census Date is the deadline for many forms and enrollment actions that students need to be aware of. These include:

- Submitting Grade Replacement Contracts, Transient Forms, requests to withhold directory information, approvals for taking courses as Audit, Pass/Fail or Credit/No Credit.
- Receiving 100% refunds for partial withdrawals. (There is no refund for these after the Census Date)
- Schedule adjustments (section changes, adding a new class, dropping without a "W" grade)
- Being reinstated or re-enrolled in classes after being dropped for non-payment
- Completing the process for tuition exemptions or waivers through Financial Aid

STATE-MANDATED COURSE DROP POLICY

Texas law prohibits a student who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at another 2-year or 4-year Texas public college or university. For purposes of this rule, a dropped course is any course that is dropped after the census date (See Academic Calendar for the specific date).

Exceptions to the 6-drop rule may be found in the catalog. Petitions for exemptions must be submitted to the Enrollment Services Center and must be accompanied by documentation of the extenuating circumstance. Please contact the Enrollment Services Center if you have any questions.

DISABILITY SERVICES

In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA) the University of Tyler at Texas offers accommodations to students with learning, physical and/or psychological disabilities. If you have a disability, including non-visible diagnosis such as a learning disorder, chronic illness, TBI, PTSD, ADHD, or you have a history of modifications or accommodations in a previous educational environment, you are encouraged to visit <https://hood.accessiblelearning.com/UTTyler> and fill out the *New Student* application. The **Student Accessibility and Resources (SAR)** office will contact you when your application has been submitted and an appointment with Cynthia Lowery, Assistant Director Student Services/ADA Coordinator. For more information, including filling out an application for services, please visit the SAR webpage at <http://www.uttyler.edu/disabilityservices>, the SAR office located in the University Center, # 3150 or call 903.566.7079.

STUDENT ABSENCE DUE TO RELIGIOUS OBSERVANCE

Students who anticipate being absent from class due to a religious observance are requested to inform the instructor of such absences by the second class meeting of the semester.

STUDENT ABSENCE FOR UNIVERSITY-SPONSORED EVENTS AND ACTIVITIES

If you intend to be absent for a university-sponsored event or activity, you (or the event sponsor) must notify the instructor at least two weeks prior to the date of the planned absence. At that time the instructor will set a date and time when make-up assignments will be completed.

SOCIAL SECURITY AND FERPA STATEMENT

It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students have an identification number. The electronic transmission of grades (e.g., via e-mail) risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically.

EMERGENCY EXITS AND EVACUATION

Everyone is required to exit the building when a fire alarm goes off. Follow your instructor's directions regarding the appropriate exit. If you require assistance during an evacuation, inform your instructor in the first week of class. Do not re-enter the building unless given permission by University Police, Fire department, or Fire Prevention Services.

STUDENT STANDARDS OF ACADEMIC CONDUCT

Disciplinary proceedings may be initiated against any student who engages in scholarly dishonesty, including but not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or part to another person, taking an examination for another person, any act designed to give an unfair advantage to a student or the attempt to commit such acts.

- i. "Cheating" includes, but is not limited to:
 - a. Copying from another student's test paper;
 - b. using, during a test, materials not authorized by the person giving the test;
 - c. Failure to comply with instructions given by the person administering the test;
 - d. Possession during a test of materials which are not authorized by the person giving the test, such as class notes or specifically designed "crib notes". The presence of textbooks constitutes a violation if they have specifically been prohibited by the person administering the test;
 - e. Using, buying, stealing, transporting, or soliciting in whole or part the contents of an unadministered test, test key, homework solution, or computer program;
 - f. Discussing the contents of an examination with another student who will take the examination;
 - g. Divulging the contents of an examination, for the purpose of preserving questions for use by another, when the instructor has designated that the examination is not to be removed from the examination room or not to be returned or to be kept by the student;
 - h. Substituting for another person, or permitting another person to substitute for oneself to take a course, test, or any course-related assignment;
 - i. Paying or offering money or other valuable thing to, or coercing another person to obtain an unadministered test, test key, homework solution, or computer program or information about an unadministered test, test key, homework solution, or computer program;
 - j. Falsifying research data, laboratory reports, and/or other academic work offered for credit;
 - k. Taking, keeping, misplacing, or damaging the property of The University of Texas at Tyler, or of another, if the student knows or reasonable should know that an unfair academic advantage would be gained by such conduct; and
 - l. Misrepresenting facts, including providing false grades or resumes, for the purpose of obtaining an academic or financial benefit or injuring another student academically or financially.
- ii. "Plagiarism" includes, but is not limited to, the appropriation, buying, receiving as a gift, or obtaining by any means another's work and the submission of it as one's own academic work offered for credit.
- iii. "Collusion" includes, but is not limited to, the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any section of the rules on academic dishonesty.
- iv. All written work that is submitted will be subject to review by plagiarism software.

UT TYLER RESOURCES FOR STUDENTS

- [UT Tyler Writing Center](https://www.uttyler.edu/writingcenter) (903.565.5995), writingcenter@uttyler.edu
- [UT Tyler Tutoring Center](https://www.uttyler.edu/tutoring) (903.565.5964), tutoring@uttyler.edu
- The Mathematics Learning Center, RBN 4021, this is the open access computer lab for math students, with tutors on duty to assist students who are enrolled in early-career courses.
- [UT Tyler Counseling Center](https://www.uttyler.edu/counseling) (903.566.7254)