

# EXERCISE PHYSIOLOGY II

Department of Kinesiology  
University of Texas at Tyler

## Course Syllabus

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<b>Course:</b>	<b>KINE 5315 – Exercise Physiology II</b>
<b>Classroom:</b>	Section 001: T 10:00 – 11:20 a.m. in HPC 2185 Section 060: Online via <i>Canvas</i> ( <a href="http://www.uttyler.edu/canvas">www.uttyler.edu/canvas</a> )
<b>Instructor:</b>	Scott A. Spier, Ph.D. Associate Professor Department of Kinesiology
<b>Office:</b>	Herrington Patriot Center (HPC) 2186 Office phone: (903) 566-7427 Email: <a href="mailto:sspier@uttyler.edu">sspier@uttyler.edu</a>
<b>Office hours:</b>	W 2:00 – 5:00 p.m., or by appointment (Zoom available)

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## COURSE DESCRIPTION

The purpose of this course is to provide students with an advanced study of cardiovascular and respiratory 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 respiratory system and the ventilatory response to exercise.

## REQUIRED MATERIALS

***Textbook:*** There is no required textbook for this course. A good exercise physiology text, though not required, may be helpful, particularly if you need a refresher on the basics of cardiovascular and respiratory physiology. For a more specific study, I recommend West's *Respiratory Physiology: The Essentials* (9<sup>th</sup> edition or later) and Klabunde's *Cardiovascular Physiology Concepts* (2<sup>nd</sup> edition or later). Both are reasonably priced (<\$50).

***Assigned readings:*** Readings from review articles and/or original research papers will be assigned in each weekly module. Some of the assigned readings may be difficult to understand if you do not have the appropriate scientific background. An exercise physiology text or the recommended monographs should provide the appropriate background for a better understanding of the assigned articles. If not, you will need to consult additional resources.

***Technical requirements:*** There are minimum technological requirements that must be met in order to complete this course. You can access an explanation of these technological requirements in the Student Resources for Hybrid and Online Courses link in the **Getting Started** section in Canvas. If you have technical problems, please review the Technical Support Information section in **Getting Started**. (I cannot help you with technical issues in the course)

## COURSE PREREQUISITES

Although there is no official prerequisite for this course, it is assumed that every student has successfully completed courses in *Anatomy & Physiology* and in *Exercise Physiology* at the undergraduate level. Though not required, ideal preparation for this class would also include other undergraduate science courses such as physics, chemistry, and/or biochemistry.

Exercise Physiology I (KINE 5313) is NOT required for this course.

## COURSE STRUCTURE AND DELIVERY

Section 060 of this class meets online on **Canvas**. You will find that this class is very similar to a traditional on-campus class in that it will consist of recorded lectures, readings, review of research literature, discussions, written assignments, quizzes, and/or exams. In contrast to a traditional on-campus class, assignments in this course can be completed **asynchronously**. In other words, there will be no scheduled meeting times. You may access course content and complete assignments at your convenience, though you still must meet assignment and testing deadlines.

Section 001 will meet face-to-face in the classroom. However, this section will be delivered in a hybrid format with all content provided online in Canvas and the F2F meeting times reserved for questions and/or discussion. All assignments, quizzes, and exams will be given in Canvas.

The content of this course is organized into weekly modules and will be accessed in the **Modules** tab in Canvas. Within each *module*, you will find learning objectives, assigned readings, recorded lectures and/or videos associated with the reading assignments, a Discussion topic, and a quiz over the assigned content. The first module, **Getting Started**, will explain the different Canvas functions you will use in this class.

## GENERAL STUDENT LEARNING OUTCOMES\*

Students who successfully complete this course will 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 and respiratory responses to acute exercise with respect to potential limitations in exercise performance;
4. Explain the mechanisms of cardiovascular and respiratory adaptations to chronic bouts of exercise and inactivity;
5. Analyze the cardiovascular and respiratory responses to chronic exercise in terms of optimization of health and performance;
6. Critically read and discuss research literature related to cardiovascular and respiratory exercise physiology.

\*More specific learning outcomes will be provided in each learning module.

This course addresses these objectives through the following:

1. study of basic facts, concepts and theories of cardiovascular and respiratory exercise physiology;
2. critically reading and discussing research related to cardiovascular and respiratory exercise physiology;
3. discussing in writing questions and viewpoints related to cardiovascular and respiratory exercise physiology, analyzing and supporting viewpoints based on research evidence;
4. applying theoretical concepts in cardiovascular and respiratory exercise physiology.

## COURSE REQUIREMENTS AND EVALUATION

**Exams:** There will be 2 major exams in this class – the midterm and the final. Exams may consist of *multiple choice, true-false, short answer* (one-word answers), and/or *essay questions* over material assigned in lectures, assigned readings, research articles, and discussions. Although the exams mostly focus on the content covered up to that time, they are cumulative in the sense that understanding of content presented earlier in the semester is necessary for comprehending content later in the semester. The midterm exam will be given during the regular semester and will consist of material covered up to that time. The final exam will be held during the scheduled final examination period and will primarily cover material presented since the midterm exam.

**Online quizzes:** Each weekly lesson will contain a short online quiz to assess your understanding of the material. You may use your textbook and reading assignments to complete the quizzes; however, I ask that you take these quizzes by yourself. You may take each quiz twice during the time they are available and only your highest score will be recorded. Each weekly quiz will be available through the end of that week's module. Do not wait until the last minute to complete these (in case of computer problems, power outages, etc.).

**Practice Questions:** These assignments allow you to demonstrate your comprehension of the course material and your ability to communicate that comprehension through writing. Periodically throughout the semester, you will be required to respond to questions about the reading assignments, lectures, research articles, and/or current topics in exercise physiology. Your responses will be graded on the basis of the quality of your responses. The purposes of these assignments are to promote a deeper understanding of cardiorespiratory exercise physiology, to provide students with practice critically reviewing and summarizing research, and to provide students with practice communicating scientific knowledge. Details will be provided in Canvas.

**Written Assignment:** The written assignment will require you to assess the research literature on an assigned topic related to cardiorespiratory adaptations to exercise. Please pay attention to the instructions for this assignment in order to receive full credit. Details of this assignment will be provided in Canvas.

**Evaluation:** Points for assignments will be allocated as follows:

Quizzes (10 highest scores)	10%
Practice Questions (10 highest scores)	15%
Midterm Exam	30%
Final Exam	30%
Written Assignment	15%

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

A = 89.5 – 100
B = 79.5 – 89.49
C = 69.5 – 79.49
D = 59.5 – 69.49
F = < 59.5

## **COURSE POLICIES**

**Professionalism:** Students are expected to display a professional attitude in all aspects of the course, including online discussions, in communication with the instructor and classmates, email correspondence, being attentive during lectures, and being respectful to the instructor and classmates.

**Quality of work:** All assignments, including exams, presentations, participation, and projects, 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. I have even less tolerance for not using punctuation. Please use the Spelling and Grammar tool in your word processing software.

**Policy regarding late submission of an assignment:** Assignment instructions and due dates will be clearly posted and you will be given adequate time to complete your work. No assignments or discussion posts will be accepted past their deadlines, unless a valid University-approved excuse is provided.

**Make-up work:** Make-up exams and assignments will be given only according to University policy. On rare occasions (and for a valid reason), make-up exams can be scheduled by pre-arrangement with the instructor *before* the date of the exam. If any exam is missed due to illness, injury, or family emergency, the instructor should be notified prior to or within 24 hours of the missed exam.

**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 exams 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 my office hours or by appointment. I also have an open door policy.

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

## 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.

Although this is an asynchronous course, this is not an individually paced course. Access to course materials, assigned discussions, assignments, exams, and the like will follow a schedule spread out over the semester (similar to a class in the traditional format). There will be set dates for exams and deadlines by which you must complete all unit assignments. Deadlines for assignments are listed in the **Course Schedule** and in the Modules.

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.

## COURSE COMMUNICATION

Course Announcements: Announcements will be posted periodically during the semester. You will be able to see these announcements on your course portal page and in your Patriots email account. Please check these frequently so you do not miss any important information.

E-mail communication: Instructors are required to use your Patriots account e-mail address for e-mail correspondence. Therefore, any e-mail message originating from me will be sent to your Patriots account. However, if you send me e-mail from another personal account, I will reply back to that address. You may want to set up your personal e-mail account so that it pushes your Patriots account e-mail to your personal inbox. Due to teaching and research loads, it may take 1 to 2 business days to respond to e-mail; however, I'll make every effort to respond to e-mail on the same day. Please note that e-mails received on the weekends (late Friday through early Monday) will generally be responded to on the following Monday.

In all e-mail correspondence, please include the course number or title in the subject line (e.g., "KINE 5315 question" or "EPII assignment"). Failure to do so reduces the likelihood of me reading the e-mail. Please use correct grammar and punctuation. If your e-mail address doesn't contain your name, please sign your e-mail with your name at the end of the correspondence.

## 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 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:

"Cheating" includes:

1. Copying from the paper of another student, engaging in written, oral or any other means of communication with another student, or giving aid to or seeking aid from another student when not permitted by the instructor;
2. Using material during an examination or when completing an assignment that is not

- authorized by the person giving the examination or making the work assignment;
3. Taking or attempting to take an examination for another student, or allowing another student to take an examination for oneself;
  4. Using, obtaining, or attempting to obtain by any means, the whole or any part of, an unadministered examination or work assignment.

"Collusion" includes the unauthorized collaboration with another person in preparing written work that a student offers for credit.

"Plagiarism" includes the unacknowledged incorporation of the work of another person in work that a student offers for credit.

If you have any questions regarding plagiarism, please consult [Chapter 8 of the Student Affairs Manual of Policy and Procedures](#).

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. Please make use of the UT Tyler Writing Center if you have concerns about plagiarism.

## **COPYRIGHT**

All handouts used in this course, including those delivered via Canvas, are copyrighted. 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. Because these materials are copyrighted, you do not have the right to copy the handouts, unless I expressly grant permission.

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

### 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>

### 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.

#### 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.

#### **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](http://www.uttyler.edu/tobacco-free).

#### UT TYLER RESOURCES FOR STUDENTS

- [UT Tyler Writing Center](http://www.uttyler.edu/writingcenter) (903.565.5995), [writingcenter@uttyler.edu](mailto:writingcenter@uttyler.edu)
- [UT Tyler Tutoring Center](http://www.uttyler.edu/tutoring) (903.565.5964), [tutoring@uttyler.edu](mailto: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](http://www.uttyler.edu/counseling) (903.566.7254)

## Tentative Course Schedule

Week	Date	Topic	Assignments
1	8/21 – 8/27	<b>Course Introduction</b> <i>Introduction videos, pretest</i>	<b>Introductions</b> <i>Due 8/27</i>
2	8/28 – 9/3	<b>Module 1 – Respiratory System Part 1</b> (Structure & Function, Ventilation, Diffusion, Ventilation-Perfusion) <i>West Chapters 1 – 5, 7</i>	<b>Quiz 1, Practice Questions</b> <i>Due 9/3</i>
3	9/4 – 9/10	<b>Module 2 – Respiratory System Part 2</b> (Gas transport, Control of ventilation, Respiratory system under stress) <i>West Chapters 6-9; Dempsey article</i>	<b>Quiz 2, Practice Questions</b> <i>Due 9/10</i>
4	9/11 – 9/17	<b>Module 3 – The Heart: Structure and Electrical Activity</b> <i>Klabunde Chapters 1 – 3</i>	<b>Quiz 3, Practice Questions</b> <i>Due 9/17</i>
5	9/18 – 9/24	<b>Module 4 – The Heart: Cardiac Function</b> <i>Klabunde Chapter 4</i>	<b>Quiz 4, Practice Questions</b> <i>Due 9/24</i>
6	9/25 – 10/1	<b>Module 5 – Vascular Function &amp; Hemodynamics</b> <i>Klabunde Chapter 5, 8; Laughlin article</i>	<b>Quiz 5, Practice Questions</b> <i>Due 10/1</i>
7	10/2 – 10/8	<b>Module 6 – Cardiovascular Adjustments to Orthostasis</b> <i>Klabunde Chapter 6, handouts</i>	<b>Quiz 6, Practice Questions</b> <i>Due 10/8</i>
8	10/9 – 10/15	<b>Midterm Exam</b>	<b>Midterm Exam (due 10/15)</b>
9	10/16 – 10/22	<b>Module 7 – Cardiovascular Response to Exercise Part 1</b> (Central CV adjustments) <i>Klabunde Chapters 7, 9, handouts</i>	<b>Quiz 7, Practice Questions</b> <i>Due 10/22</i>
10	10/23 – 10/29	<b>Module 8 – Cardiovascular Response to Exercise Part 2</b> (Control of blood flow to regional circulations during exercise) <i>Klabunde Chapters 7, 9, handouts</i>	<b>Quiz 8, Practice Questions</b> <i>Due 10/29</i>
11	10/30 – 11/5	<b>Module 9 – Cardiovascular Response to Exercise Part 3</b> (Control of skeletal muscle blood flow during exercise) <i>Klabunde Chapters 7, 9, handouts</i>	<b>Quiz 9, Practice Questions</b> <i>Due 11/5</i>
12	11/6 – 11/12	<b>Module 10 – Cardiorespiratory Adaptations to Training</b> <i>Laughlin article; Bassett &amp; Howley article; other handouts</i>	<b>Quiz 10, Practice Questions</b> <i>Due 11/12</i>
13	11/13 – 11/19	<b>Module 11 – Exercise and Cardiac Health</b> <i>Handouts</i>	<b>Quiz 11, Practice Questions</b> <i>Due 11/19</i>
	11/20 – 11/26	<b>THANKSGIVING BREAK – NO CLASSES</b>	
14	11/27 – 12/3	<b>Module 12 – Cardiovascular Adaptations to Detraining</b> <i>Handouts; Dallas Bed Rest Study; Aging; Spaceflight articles</i>	<b>Quiz 12, Practice Questions</b> <i>Due 12/3</i>
15	12/4 – 12/8	<b>Written Assignment (due 12/4) and Final Exam (due 12/8)</b>	<b>Final Assignment (due 12/4)</b> <b>Final Exam (due 12/8)</b>