

KINE 3311 PHYSIOLOGY OF EXERCISE

Course Syllabus

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**Course:** KINE 3311 - Physiology of Exercise

**Meets:** Tu/Th 11:00 a.m. - 12:20 p.m. in HPC 2255

**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](mailto:sspier@uttyler.edu) (do NOT include “patriots” in email address)

**Office hours:** Tue/Wed 12:30 - 1:30 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](mailto: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 3311.001), 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.

## COURSE DESCRIPTION

This course is designed to examine the physiological adjustments to a single bout of exercise (i.e., the transition from rest to exercise) and the physiological adaptations to repeated exercise (i.e., exercise training). Particular attention will be given to the neuromuscular, metabolic, cardiovascular, and respiratory responses to exercise.

## COURSE PREREQUISITES

Prerequisites: BIOL 2301/2101, BIOL 2302/2102, KINE 3306

Corequisite: KINE 3112 Physiology of Exercise Lab

## COURSE MATERIALS

**Textbook (recommended):** *Exercise Physiology: Theory and Application to Fitness and Performance* (11<sup>th</sup> ed.) by Powers, Howley, & Quindry. You may use the previous edition (10<sup>th</sup>); however, the reading assignments listed in the course schedule pertain to the 11<sup>th</sup> edition.

**iClicker subscription:** You will need a student app subscription from [iclicker.com](http://iclicker.com) (\$16 for 6 months or \$25/year)

**Additional resources:** Additional course materials and resources will be made available in Canvas, including the syllabus, Tips for Success in this Class, How Knowledge and Skills Relate to Final Grades (or How to Get an A), 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).

## STUDENT LEARNING OUTCOMES

Upon successful completion of this course, students should be able to:

- Describe the separate and integrated responses of the neuromuscular, metabolic, cardiovascular, and respiratory systems to acute and chronic exercise
- Discuss the effect of exercise intensity and duration on the physiological responses to acute exercise
- Explain the mechanisms of physiological adaptations in response to exercise training
- Analyze physiological responses to exercise with respect to potential limitations in exercise performance
- Describe the health and performance implications of the physiological adaptations to exercise training

## COURSE GRADING

Your final grade will be determined by your performance on exams and quizzes.

|                       |       |                  |
|-----------------------|-------|------------------|
| Exam 1.....           | 25%   | A: 89.5 - 100%   |
| Exam 2.....           | 25%   | B: 79.5 - 89.49% |
| Exam 3.....           | 25%   | C: 69.5 - 79.49% |
| Canvas Quizzes.....   | 12.5% | D: 59.5 - 69.49% |
| In-Class Quizzes..... | 12.5% | F: below 59.5%   |

**Exams:** There will be 3 non-cumulative midterm exams during the semester. All exams will consist of multiple-choice, true-false, matching, short answer, and/or short essay questions over material from lectures, discussions, and assigned readings. See the **EXAM POLICY** below. Graded exams may be viewed during office hours or arrangements may be made for another time.

**Optional Final Exam:** If you miss an exam or are unhappy with one of your exam scores, you may take an optional cumulative final exam (given during finals week) to replace the missed/poor exam.

**Canvas Quizzes:** There will be several graded Check for Understanding quizzes. These quizzes are not proctored and there are *unlimited* attempts, with only the highest score counting. You may use your notes to complete these. Students are encouraged to take these until a perfect score is achieved. The Canvas quizzes will remain open until the day of the test.

**In-Class Quizzes (iClicker Cloud):** There will be several quizzes that will be given *in class*. These quizzes may be given at the beginning, middle, or end of class and will be taken by iClicker Cloud. You are required to purchase an app subscription (see Course Materials on the first page) and to register it on Canvas to receive credit. If you miss an in-class quiz without an officially excused absence or if you forget your phone/tablet/laptop (i.e., your ability to take the quiz), you will receive a 0. Your 5 lowest scores, however, will be dropped.

**Extra Credit Opportunity (optional):** There will be one opportunity for extra credit during the semester. It will be a written assignment and the nature of that assignment will vary by semester. You can earn up to 2 points on your final grade with this opportunity. Please do not ask for additional opportunities.

## EXAM POLICY

- **All students are expected to take the exams in the classroom, on the assigned test dates.** The only exceptions to this are for those with (a) approved alternative testing accommodations, (b) University-approved absences, or (c) documented illness or personal/family emergencies. Documentation for an excused absence will not be considered if provided more than 48 hours after the date/time of the exam.
- Students are expected to be on time for exams. You may not start an exam after the first one is submitted.
- Once the exam starts, you may not leave the room. If you do, your exam will be considered completed. Take care of your business before the exam.
- You may only have a pen or pencil at your seat during an exam. All other items, including hats, sunglasses, earbuds/headphones, smart watches, phones, and notes must be secured in a backpack or purse and placed at the front of the room. Make sure your phone is turned to silent or on airplane mode.
- Any act of cheating will result in a 0 on the exam and the student will be reported for disciplinary action.
- I reserve the right to assign seats during exams.

## 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 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.

## HOW DO I SUCCEED IN THIS CLASS?

- Come to class and take notes. My lecture slides, by themselves, won't help you.
- Don't fall behind. Start studying on day 1. Repetition is the key to understanding physiology.
- Form study groups. Teach the material to each other. If you can't explain it simply, you don't understand it.
- Complete and review the study guides that are provided in Canvas. These are provided at the beginning of each major section so you can complete them as you learn the material.
- Come see me if you are having difficulties with the material.
- Review the “How to get an A (or other grade) in this Class” handout in Canvas.

## COURSE EXPECTATIONS

***Attendance:*** Although class attendance is not mandatory, students are strongly encouraged to attend every lecture. Missing class will likely have a negative impact on learning and performance in the class and will affect your in-class quiz grade. Students are responsible for any missed information or announcements given in class.

***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.

***Electronic Devices:*** Please turn cell phones to silent and put them away (out of sight). You may use your laptop or iPad to take notes; however, you are not permitted to make audio or video recordings of lectures and/or discussion under any circumstances. If you are using your laptop or iPad for anything other than note-taking, you will be asked to put it away and/or leave the classroom.

***Quality of Work:*** ALL assignments will be graded with rigor appropriate for upper-level undergraduate 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.

***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.

## TENTATIVE COURSE SCHEDULE

Note: The following schedule is *tentative*. It may be adjusted, as needed, to better serve the educational needs of those enrolled in the class. Any modifications to the schedule will be posted in the Canvas Announcements. Chapters in parentheses are from the *11th ed.* of the Powers, Howley, & Quindry textbook.

| Week                             | Date         | Lecture Topic (Reading)                                                                                                  | Lab Topic - Must be enrolled in KINE 3112                                          |
|----------------------------------|--------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 1                                | 1/16<br>1/18 | Introduction to Exercise Physiol (Ch 0)<br>Common Measurements / Homeostasis (Ch 1, 2)                                   | <b>Complete Pre-Lab Module in Canvas (No lab meeting)</b>                          |
| 2                                | 1/23<br>1/25 | Bioenergetics (Ch 3)<br>Energy Systems (Ch 3)                                                                            | <b>Lab 1</b> Ergometry                                                             |
| 3                                | 1/30<br>2/1  | Skeletal Muscle Structure & Function (Ch 8)<br>Skeletal Muscle Contraction / Force Generation (Ch 8)                     | <b>Lab 2</b> Anaerobic Power & Capacity                                            |
| 4                                | 2/6<br>2/8   | Exercise Metabolism / VO <sub>2</sub> Response to Exercise (Ch 4)<br>Exercise Metabolism/Substrate Utilization (Ch 4, 5) | <b>Lab 3</b> VO <sub>2</sub> and Energy Expenditure/ACSM eq                        |
| 5                                | 2/13<br>2/15 | Factors Affecting Performance (Ch 19) / Review<br><b>EXAM 1</b>                                                          | <b>Lab 4</b> Skeletal Muscle Function                                              |
| 6                                | 2/20<br>2/22 | Hormonal Response to Exercise (Ch 5)<br>The Nervous System (Ch 7) - <b>Online</b>                                        | <b>Lab 5</b> Elite Endurance Performance / Nike Breaking 2 video ( <b>Online</b> ) |
| 7                                | 2/27<br>2/29 | Cardiac Physiology (Ch 9)<br>Vascular Physiology (Ch 9)                                                                  | <b>Lab 6</b> Measurement of VO <sub>2</sub> max                                    |
| 8                                | 3/5<br>3/7   | Cardiovascular Response to Exercise (Ch 9)<br>Respiratory Physiology (Ch 10)                                             | <b>LAB MIDTERM EXAM</b>                                                            |
| <b>SPRING BREAK - NO CLASSES</b> |              |                                                                                                                          |                                                                                    |
| 9                                | 3/19<br>3/21 | Respiratory Response to Exercise (Ch 10) / Review<br><b>EXAM 2</b>                                                       | <b>Lab 7</b> Estimation of VO <sub>2</sub> max                                     |
| 10                               | 3/26<br>3/28 | Adaptation to Training: Aerobic Training (Ch 13)<br>Adaptation to Training: Resistance Training (Ch 14)                  | <b>Lab 8</b> Aerobic/Anaerobic Field Tests                                         |
| 11                               | 4/2<br>4/4   | Training for Health (Ch 16) / Body Composition (Ch 18)<br>Training for Performance (Ch 20)                               | <b>Lab 9</b> Lactate Threshold                                                     |
| 12                               | 4/9<br>4/11  | Training Considerations: Women, Children, Aged (Ch 21)<br>Environmental Adaptations: Temperature (Ch 12, 23)             | <b>Lab 10</b> Cardiovascular Response to Exercise                                  |
| 13                               | 4/16<br>4/18 | Environmental Adaptations: Altitude (Ch 23)<br>Environmental Adaptations: Spaceflight (Canvas article)                   | <b>LAB FINAL EXAM</b>                                                              |
| 14                               | 4/23<br>4/25 | Ergogenic Aids (Ch 24) / Review<br><b>EXAM 3</b>                                                                         | <i>No lab meeting</i><br><b>LAB WRITTEN ASSIGNMENT DUE (Apr 28)</b>                |
| Finals week                      | TBD          | Cumulative Final Exam (optional; replaces lowest exam)                                                                   | No lab                                                                             |

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

### **RECORDING OF CLASS SESSIONS**

Class sessions may be recorded by the instructor for use by students enrolled in this course. Recordings that contain personally identifiable information or other information subject to FERPA shall not be shared with individuals not enrolled in this course unless appropriate consent is obtained from all relevant students. Class recordings are reserved only for the use of students enrolled in the course and only for educational purposes. Course recording should not be shared outside of the course in any form without express permission.