

# KIN/BIO 300: Physiology of Exercise

University of Rhode Island  
Summer 2023 – Online Asynchronous

<b>Professor</b>	<b>Dr. Allison Harper</b>
<b>Email</b>	allisonharper@uri.edu
<b>Phone</b>	401-874-5450
<b>Office Location</b>	Room 211, Independence Square, Suite P
<b>Office Hours</b>	In person and virtual meetings available by appointment. Schedule via email.

## Course Description and Overview

LEC: (3 crs.) Cross-listed as KIN/BIO 300. Applied human physiology, with applications to physical activity, exercise, and sport. Particular attention to acute and chronic adjustments of the circulatory, respiratory, metabolic, and muscular systems with exercise. Pre: BIO 220, 221, 222, and 223. Open to Kinesiology and Biology majors only.

Overview: Students will study the responses that occur in the metabolic, neuro-muscular, cardiovascular, and respiratory systems during acute bouts of exercise. Students will further study the chronic adaptations in these systems when repeated exercise sessions are intentionally conducted for the purpose of improving physical function.

## Student Learning Outcomes

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

1. Describe the scientific research process.
2. Identify and explain physiological responses in the metabolic, neuro-muscular, cardiovascular, and respiratory systems during acute bouts of exercise.
3. Identify and explain physiological adaptations in the metabolic, neuro-muscular, cardiovascular, and respiratory systems resulting from chronic exercise training.
4. Compare physiological responses to exercise in trained vs. untrained persons.
5. Explain factors that affect exercise training and factors that may improve human performance.

## Required Textbook

**Kraemer, Fleck and Deschenes. Exercise Physiology: Integrating Theory and Application, 3<sup>rd</sup> Edition.**  
Wolters Kluwer. ISBN-13: 978-1975117429

\*The second edition is an acceptable alternative, though page and chapter numbers may differ from those referenced in course materials. Online access codes are not necessary.

## Other Course Materials

Lecture videos, assignments, and other course information will be posted on Brightspace.

- **You are required to check Brightspace and your URI email account several times per week** to keep up with the course material.
- **Time sensitive announcements will be posted on the Brightspace site, should they be necessary. Check your Brightspace account settings to make sure you get email alerts for announcements.**
- In addition to required course materials, additional optional materials including suggestions for study guides and supplemental videos and readings will be posted for those who need additional assistance or are interested in a more in depth look at certain topics.

## Course Requirements

**Standards of Behavior:** Students are expected to treat faculty and fellow classmates with dignity and respect in all written and oral communications. Students are responsible for being familiar with and adhering to the published “Student Code of Conduct” which can be accessed in the [University Student Handbook](http://web.uri.edu/studentconduct/student-handbook/) (<http://web.uri.edu/studentconduct/student-handbook/>).

**Course Engagement:** Both the readings and videos (a combination of short lectures from Dr. Harper and videos from other sources) present relevant material and will contribute to the student’s understanding of the subject. Students are responsible for spending enough time with all course materials to feel comfortable discussing and applying the information they present.

**Assignments:** A series of 5 assignments will allow you to demonstrate your mastery of the concepts presented in each module. All assignments will be submitted through Brightspace in PDF format.

**Discussions:** Each module will include a discussion in which you will interact with classmates and apply concepts from the course. An initial post addressing the discussion prompt (due Thursday) and several replies to classmates (due Sunday) will be required. Reply posts should be made on different days throughout the week to facilitate a back-and-forth discussion.

**Quizzes and Exams:** Four module quizzes and a two-part cumulative final exam will be administered. Quizzes and the written portion of the final exam will consist of multiple choice, fill in the blank, and true/false questions. The final exam will also include a 15-30 minute oral portion administered via Zoom by appointment during the last week of class. A working camera and microphone are required for this portion of the exam, and a medium to large sized screen (full sized tablet or larger, phones will not work well) is strongly recommended. During the oral portion of the exam you will be asked open ended questions that may require you to explain graphs or equations, describe mechanisms of adaptations, and apply concepts from class, among other types of questions. You also have the option to take the oral portion of the final exam in person.

**Late Work:** No late assignments, quizzes, or exams will be accepted for credit. Exceptions due to medical emergencies and University sponsored activities may be made only if arranged a minimum of 24 hours before the original due date of the assignment, quiz, or exam.

## Course Evaluation

4 Quizzes (30 pts each)	120 points
Final Exam (140 pts written + 60 pts oral)	200 points
5 Assignments (20 pts each)	100 points
5 Discussions (20 pts each)	100 points
<b>Total</b>	<b>520 points</b>

## Grading Scale

93-100% = A	80-82.99% = B-	67-69.99% = D+
90-92.99% = A-	77-79.99% = C+	60-66.99% = D
87-89.99% = B+	73-76.99% = C	0-59.99% = F
83-86.99% = B	70-72.99% = C-	

## University Policies and Resources

**URI Honor System:** Students are responsible for being familiar with and adhering to University Honor System. URI's Student Handbook (<http://web.uri.edu/studentconduct/student-handbook/>) provides guidelines concerning academic honesty. Students are expected to be honest in all academic work. A student's name on any written work, quiz or exam shall be regarded as assurance that the work is the result of the student's own independent thought and study. Work should be stated in the student's own words, properly attributed to its source. Students have an obligation to know how to quote, paraphrase, summarize, cite and reference the work of others with integrity. ***The name of any student who cheats on an assignment or exam will be turned into the Vice President of Student Affairs.***

**Disability Services for Students Statement:** Your access in this course is important. Please send me your Disability Services for Students (DSS) accommodation letter early in the semester so that we have adequate time to discuss and arrange your approved academic accommodations. If you have not yet established services through DSS, please contact them to engage in a confidential conversation about the process for requesting reasonable accommodations in the classroom. DSS can be reached by calling: 401-874-2098, visiting: [web.uri.edu/disability](http://web.uri.edu/disability), or emailing: [dss@etal.uri.edu](mailto:dss@etal.uri.edu). We are available to meet with students enrolled in Kingston as well as Providence courses.

**Religious Holy Days:** Sections 8.51.11-12 of the University Manual (<http://web.uri.edu/manual/chapter-8/chapter-8-4/>): 8.51.11 Students who plan to be absent from classes or examinations for religious holy days that traditionally preclude secular activity (see 6.20.11 for how such information is made available) shall discuss this with the appropriate instructor(s) in advance of the holy day. The instructor(s) shall then make one of the following options available: a. the same quiz, test, or examination to be administered either before or after the normally scheduled time; b. a comparable alternative quiz, test, or examination to be administered either before or after the scheduled time; c. an alternative weighting of the remaining evaluative components of the course which is mutually acceptable to the student and instructor(s).

**University Sanctioned Events:** Students who expect to be absent from classes or examinations for University sanctioned events shall discuss this with the instructor **at least one week in advance** of the sanctioned event(s). The instructor concerned shall then offer the student an alternative listed in section 8.51.11 of the University Manual (<http://www.uri.edu/facsen/8.50-8.57.html>). For these purposes University sanctioned events shall be those events approved for class excuses by the Provost and Vice President for Academic Affairs, a Vice President, a Dean, or the Director of Intercollegiate Athletics. No event shall be regarded as University sanctioned until the Provost and Vice President for Academic Affairs has been notified. Disagreements over the validity of an event being categorized as University sanctioned shall be mediated by the Provost and Vice President for Academic Affairs. If agreement cannot be reached, the Provost and Vice President for Academic Affairs shall decide the matter and that decision shall be final.

- *Students are expected to make arrangements to complete any exams/assignments/other projects prior to the absence.*
- *It is the student's responsibility to make the instructor aware of all absences during the semester in a timely fashion.*

**Technology Proficiency:** The Department of Kinesiology expects its students and graduates to be proficient in the use of technology to retrieve and process information, and to communicate professionally using a variety of media. The specific tools and skills required varies with individual courses, but in general, students should be proficient in web navigation and search engines, word processing, spreadsheet manipulation, and basic graphing tasks.

Technology requirements of this course include:

- Using the Internet to conduct research and complete online assignments, quizzes and exams.
- Using word processing and PowerPoint for completion of course assignments.
- Communicating with the instructor and other students in the class via email.
- Use of the Brightspace learning management system.

**Academic Enhancement Center:** Located in Roosevelt Hall, the AEC offers free face-to-face and web-based services to undergraduate students seeking academic support. Peer tutoring is available for STEM-related courses by appointment online and in-person. The Writing Center offers peer tutoring focused on supporting undergraduate writers at any stage of a writing assignment. The UCS160 course and academic skills consultations offer students strategies and activities aimed at improving their studying and test-taking skills. Complete details about each of these programs, up-to-date schedules, contact information and self-service study resources are all available on the AEC website, [uri.edu/aec](http://uri.edu/aec).

**Anti-Bias Syllabus Statement:** We respect the rights and dignity of each individual and group. We reject prejudice and intolerance, and we work to understand differences. We believe that equity and inclusion are critical components for campus community members to thrive. If you are a target or a witness of a bias incident, you are encouraged to submit a report to the URI Bias Response Team at [www.uri.edu/brt](http://www.uri.edu/brt). There you will also find people and resources to help.

**Other Assistance:** Are you or someone you know experiencing a hardship, such as at risk for going hungry or no place to live? If so, URI has resources to provide confidential help. [Rhody Outpost](#) provides URI students who are food insecure with emergency food services and resources. Rhody Outpost is housed at St. Augustine's Episcopal Church on 15 Lower College Road. Contact them at [rhodyoutpost@gmail.com](mailto:rhodyoutpost@gmail.com), or [401-874-2568](tel:401-874-2568). Please contact the Office of Vice President for Student Affairs at [401-874-2427](tel:401-874-2427) for help with emergency housing.

## KIN/BIO 300: Physiology of Exercise

Tentative Schedule – Summer 2023

\*Initial discussion posts are due 11:59 p.m. on Thursdays. Discussion replies and all other assignments and quizzes are due 11:59 p.m. on Sundays. The exception to this is the final week of class, when the assignment and written final exam are due by 11:59 p.m. Friday, 7/28.

Week	Topic(s)	Check List of Learning Activities & Assessments* <i>Use this to make sure you don't miss anything!</i>
1 (5/22-5/28) Module 1	Course Introduction  Bioenergetics & Anaerobic Pathways	<input type="checkbox"/> Watch Intro video <input type="checkbox"/> Read Syllabus <input type="checkbox"/> Read Start Here section <input type="checkbox"/> Read Chapter 1 <input type="checkbox"/> Watch 2 Review Videos <input type="checkbox"/> Read Chapter 2 <input type="checkbox"/> Watch Intro to Bioenergetics Videos <input type="checkbox"/> Watch Glycolysis Videos <input type="checkbox"/> Complete Discussion 1 – Introductions
2 (5/29-6/4) Module 1	Aerobic Metabolism	<input type="checkbox"/> Read Chapter 3 <input type="checkbox"/> Watch Krebs Cycle Video <input type="checkbox"/> Watch Electron Transport Chain Video <input type="checkbox"/> Watch Metabolism Review Videos (optional) <input type="checkbox"/> Watch Protein & Fatty Acids Video <input type="checkbox"/> Watch Substrates at Rest & Exercise Video <input type="checkbox"/> Watch Metabolic Recovery Video <input type="checkbox"/> Complete Assignment 1 – Energy Systems <input type="checkbox"/> Submit Module 1 Quiz
3 (6/5-6/11) Module 2	Cardiovascular System	<input type="checkbox"/> Read Chapter 6 <input type="checkbox"/> Watch Cardiac Cycle and ECG Video <input type="checkbox"/> Watch Cardiac Output Video <input type="checkbox"/> Watch Blood Flow Video <input type="checkbox"/> Complete Discussion 2
4 (6/12-6/18) Module 2	Cardiovascular System	<input type="checkbox"/> Read Chapter 6 <input type="checkbox"/> Watch Resting Adaptations to the CV System Video <input type="checkbox"/> Watch Changes in CV System During Exercise Video <input type="checkbox"/> Watch Exercise Transitions Video <input type="checkbox"/> Complete Assignment 2 <input type="checkbox"/> Submit Module 2 Quiz

5 (6/19-6/25) Module 3	Respiratory System	<input type="checkbox"/> Read Chapter 7 <input type="checkbox"/> Watch Air Flow & Pulmonary Ventilation Video <input type="checkbox"/> Watch Lung Capacities & Volumes Video <input type="checkbox"/> Complete Discussion 3
6 (6/26-7/2) Module 3	Respiratory System	<input type="checkbox"/> Read Chapter 7 <input type="checkbox"/> Watch Gas Exchange Video <input type="checkbox"/> Watch Gas Transport Video <input type="checkbox"/> Complete Assignment 3 <input type="checkbox"/> Submit Module 3 Quiz
7 (7/3-7/9) Module 4	Nervous System	<input type="checkbox"/> Read Chapter 4 <input type="checkbox"/> Watch Physiology of Nervous System Video <input type="checkbox"/> Watch Nervous System During Exercise Video <input type="checkbox"/> Watch Nervous System Adaptations to Training Video <input type="checkbox"/> Complete Discussion 4
8 (7/10-7/16) Module 4	Skeletal Muscle System	<input type="checkbox"/> Read Chapter 5 <input type="checkbox"/> Watch Fiber Types Video <input type="checkbox"/> Watch Sliding Filament Theory Video <input type="checkbox"/> Watch Force Production Video <input type="checkbox"/> Watch Skeletal Muscle Adaptations to Training Video <input type="checkbox"/> Complete Assignment 4 <input type="checkbox"/> Submit Module 4 Quiz
9 (7/17-7/23) Module 5	Endocrine System & Environmental Challenges	<input type="checkbox"/> Read Chapter 8 <input type="checkbox"/> Watch Hormone Release & Interactions Video <input type="checkbox"/> Watch Hormones & Exercise Video <input type="checkbox"/> Read Chapter 12 <input type="checkbox"/> Watch Altitude Video <input type="checkbox"/> Complete Discussion 5
10 (7/24-7/28) Module 5	Training Adaptations  Final Exam	<input type="checkbox"/> Watch Training Adaptations Video <input type="checkbox"/> Complete Assignment 5 <input type="checkbox"/> <b>Take Oral Final Exam (by appointment)</b> <input type="checkbox"/> <b>Take Written Final Exam (DUE 11:59 p.m. FRIDAY 7/28)</b>