

Course Information for KINE 682-601, Fall 2025

Course Number: KINE 682-601
Course Title: GRADUATE SEMINAR IN EXERCISE PHYSIOLOGY - **SKELETAL MUSCLE RESPONSES TO ACUTE & CHRONIC EXERCISE**
Semester: Fall 2025
Dates: 8/25/25 – 12/16/25
Section: 601
Time: Tuesday 2:20 – 3:35 pm
Location: Gilchrist Building (GGB), Room 103
Credit Hours: 01

Instructor Details

Instructor: Dr. James Carson
Office: Player Development Center - West Campus, Room 121
Phone: 979-845-8744 (office)
Email: jamescarson@tamu.edu
Office Hours: 3:30 pm – 4:30 pm, Wednesday, or arranged

Course Description

This course will introduce students to classic concepts and current research on topics pertinent to skeletal muscle responses to acute and chronic exercise, focusing on changes to muscle metabolism, structure, and function. The course will examine human and preclinical skeletal muscle responses to acute and chronic endurance and resistance exercise through a review of recently published literature and summary lectures. This course will also teach the scientific research process. The student completing this course satisfactorily will present and take part in discussions of current research in these exercise physiology areas. The student will learn skills for designing, conducting, and analyzing research.

Course Prerequisites

None

Course Learning Outcomes

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

- Critique scientific findings through the evaluation of presented results and conclusions.
- Understand current research methodological techniques and issues involved in kinesiology-related research

- Evaluate ongoing Kinesiology-related research related to the purpose, hypothesis, methodology, results, and interpretation.
- Understand components for planning a successful presentation from an ongoing project or proposed research in Kinesiology
- Identify current gaps in knowledge and limitations in kinesiology and highlight the scientific breakthroughs needed to advance this profession
- Demonstrate proficient oral and written communication skills through discussions and written summaries related to seminar presentations.

Textbook and/or Resource Materials

Assigned readings of published research articles

Course Structure

The course format will encompass instructor-led lecture discussions for each topic area, coupled with student presentations of recently published research. The format will allow the student to understand skeletal muscle responses to acute and chronic exercise. There will be four specialized topic areas. Each topic will have three dedicated classes consisting of an instructor-led lecture discussion, student-led research paper presentations, and student-led translational research papers.

Topic Areas

1. Acute Muscle Responses to Endurance Exercise
2. Acute muscle responses to Resistance Exercise
3. Muscle Responses to chronic Endurance Exercise
4. Muscle responses to chronic Resistance Exercise

Three classes will be associated with each topic area.

Class 1: Dr. Carson's lecture and class discussion

Class 2: Students will present two preclinical and two clinical research papers on the topic.

Class 3: Students will present up to 4 translational pathway research paper presentations on the topic involving either: Aging, Chronic Disease, Sex, Human Performance

Grading Policy

The course is graded as S/U only. Student attendance and two research paper presentations rated as satisfactory are required to satisfy the course requirements.

- Students are required to achieve **13 class attendance credits** to satisfy the course attendance requirements. Attendance at regularly scheduled seminars is a critical factor in passing the course.
- Each student will satisfactorily **present two research papers** during the semester. The presentations will consist of 1 research paper and one translational paper to complete the course successfully.
- Process for article selection: The students will select article topics after the organizational class meeting on August 26, 2025. The instructor will provide research articles for each topic and sub-area.
- Class participation in discussions with the speakers is encouraged but not graded.

Presentation guidelines: Presentations will follow a PowerPoint template structure provided by the instructor. The presentations are planned to be approximately 15 minutes in length

Slide Presentation – *14 slides recommended, and a template will be provided*

- 1) Title Slide
- 2) Journal Information Slide
- 3) Corresponding Author Information slide
- 4) Big Question Slide
- 5) Purpose slide
- 6) Working model slide
- 7) Subjects
- 8) Methodology: Independent variable
- 9) Methodology Dependent Variable
- 10) Primary Result 1
- 11) Primary Result 2
- 12) Primary Result 3
- 13) Author's Discussion Point
- 14) Presenters Take Home Application

Missed class: With instructor approval, the students may have the option to take a make-up class for class attendance during the fall semester. To ensure an accurate record, the instructor must be contacted at least two days in advance of the missed class. With prior instructor seminar approval, the student can then orally present an additional research article in class, if time allows. Option 2 will be a written summary and evaluation of an instructor-approved research article related to a course topic area, following the format in the syllabus and submitted through Canvas. The written evaluations are submitted online and are due by December 16, 2025.

Research article written summary guidelines. These guidelines must be followed to achieve a grade of satisfactory for a written article summary submission.

- No more than five pages in length, double-spaced, 0.5 margins around the page, and Arial 12 font.
- Needs to contain the article title, the name of the corresponding author, and the Journal citation
- Address all eight areas below using several sentences or a paragraph for each area. Write in a narrative form, not an annotated list.

Area 1: Describe the Journal Information and Corresponding Author overview

Area 2: Summarize the article's big question, and state the purpose

Area 3: Provide details on the independent and dependent variables and working model.

Area 4: Describe the participants/subjects/animals' characteristics

Area 5: Explain the methodology for the primary Independent and dependent variables.

Area 6: Summarize the primary results of the study

Area 7: Explain the author's main discussion points related to the findings

Area 8: Provide your take-home message for the research study.

Course Schedule

| GRADUATE SEMINAR IN EXERCISE PHYSIOLOGY – SKELETAL MUSCLE RESPONSES TO ACUTE & CHRONIC EXERCISE KINE 682, Fall 2025 Regular classes are held on Tuesdays from 2:20 to 3:35 pm in Gilchrist Building Room 103. | | |
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| Date | Topic | Presenter |
| 08/26/25 | 1) Class Organizational Meeting, Syllabus Review 2) Reading a research paper and class presentations | Dr. James Carson |
| 09/02/25 | Topic 1. <u>Acute</u> Muscle Responses to Endurance Exercise <i>Lecture and discussion</i> | Dr. James Carson |
| 09/9/25 | Topic 1. <u>Acute</u> Muscle Responses to Endurance Exercise <i>Research presentations</i> | <u>Topic 1 Student Presentations</u> Preclinical 1.1: Preclinical 1.2: Clinical 1.3: Clinical 1.4: |
| 09/16/25 | Topic 1. <u>Acute</u> Muscle Responses to Endurance Exercise <i>Translational Path Research Presentations</i> | <u>Student Translational Pathway Presentations – limit 4</u> Aging 1.5: Disease 1.6: Sex 1.7: Nutrition 1.8: Performance 1.9: |
| 09/23/25 | Topic 2. <u>Acute</u> Muscle Responses to Resistance Exercise <i>Lecture and discussion</i> | Dr. James Carson |
| 9/30/25 | Topic 2. <u>Acute</u> Muscle Responses to Resistance Exercise <i>Research presentations</i> | <u>Topic 2 Student Presentations</u> Preclinical 2.1: Preclinical 2.2: Clinical 2.3: |

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| | | Clinical 2.4: |
| 10/07/25 | Topic 2. Acute Muscle Responses to Resistance Exercise <i>Translational Path Research Presentations</i> | <u>Student Translational Pathway Presentations – limit 4</u> Aging 2.5: Disease 2.6: Sex 2.7: Nutrition 2.8: Performance 2.9: |
| 10/14/25 | Fall Break | |
| 10/21/25 | Topic 3. Muscle Responses to Chronic Endurance Exercise <i>Lecture and discussion</i> | Dr. James Carson |
| 10/28/25 | Topic 3. Muscle Responses to Chronic Endurance Exercise <i>Research presentations</i> | <u>Topic 3 Student Presentations</u> Preclinical 3.1: Preclinical 3.2: Clinical 3.3: Clinical 3.4: |
| 11/4/25 | Topic 3. Muscle Responses to Chronic Endurance Exercise <i>Translational Path Research Presentations</i> | <u>Student Translational Pathway Presentations – limit 4</u> Aging 3.5: Disease 3.6: Sex 3.7: Nutrition 3.8: Performance 3.9 |
| 11/11/25 | Topic 4. Muscle Responses to Chronic Resistance Exercise <i>Lecture and discussion</i> | Dr. James Carson |
| 11/18/25 | Topic 4. Muscle Responses to Chronic Resistance Exercise <i>Research presentations</i> | <u>Topic 4 Student Presentations</u> Preclinical 4.1: Preclinical 4.2: Clinical 4.3: Clinical 4.4: |
| 11/25/25 | Outside of class reading | |

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| 12/2/25 | Topic 4. Muscle Responses to Chronic Resistance Exercise <i>Translational Path Research Presentations</i> | <u><i>Student Translational Pathway Presentations – limit 4</i></u> Aging 4.5: Disease 4.6: Sex 4.7: Nutrition 4.8: Performance 4.9: |
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KINE 682 Reading List: Fall 2025

Topic 1. **Acute Muscle Responses to Endurance Exercise**

Lecture Reviews:(Egan & Sharples, 2023; Hawley et al., 2018)

Day 1 Topic 1 Articles

Preclinical 1.1: (Kalenta et al., 2025; Philp et al., 2015)

Preclinical 1.2: (Ahn et al., 2025; Martin et al., 2025)

Clinical 1.3: (Reitzner et al., 2024)

Clinical 1.4: (Popov et al., 2019)

Day 2 Translational Pathway Articles - limit 4

Aging 1.5:(Rubenstein et al., 2022)

Disease 1.6: (McCue et al., 2025)

Sex 1.7: (Skelly et al., 2017)

Nutrition 1.8:(Rowlands et al., 2016)

Performance 1.9:(Neubauer et al., 2014)

Topic 2. **Acute Muscle Responses to Resistance Exercise**

Lecture Review Article: (Lim et al., 2022; Schiaffino et al., 2021; Thomas et al., 2024)

Day 1 Topic 2 Articles

Preclinical 2.1: (Boykin et al., 2025)

Preclinical 2.2: (Kusano et al., 2024)

Clinical 2.3: (Marshall et al., 2022)

Clinical 2.4: (Schweitzer et al., 2025)

Day 2 Translational Pathway Articles - limit 4

Aging 2.5: (Smeuninx et al., 2025)

Disease 2.6: (Sontam et al., 2025)

Sex 2.7: (Apicella et al., 2025)

Nutrition 2.8: (Markworth et al., 2018; Mitchell et al., 2018)

Performance 2.9: (Minuzzi et al., 2024)

Topic 3. **Muscle Responses to Chronic Endurance Exercise**

Lecture Article: (Booth et al., 2015; Hawley et al., 2018)

Day 1 Topic 3 Articles

Preclinical 3.1: (Ju et al., 2016)

Preclinical 3.2: (Guan et al., 2024; Viggars et al., 2024)

Clinical 3.3: (Hendlinger et al., 2025)

Clinical 3.4: (Pataky et al., 2023)

Day 2 Translational Pathway Articles – limit 4

Aging 3.5: (Grevendonk et al., 2021; Hinkley et al., 2023; Khemraj et al., 2025)

Disease 3.6: (Bruss et al., 2025)

Sex 3.7: (Rasica et al., 2025)

Nutrition 3.8: (Wyckelsma et al., 2025)

Performance 3.9: (Sieck et al., 2025)

Topic 4. **Muscle Responses to Chronic Resistance Exercise**

Lecture Review Article: (Lim et al., 2022; Schiaffino et al., 2021; Thomas et al., 2024)

Day 1 Topic 4 Articles

Preclinical 4.1: (Elliehausen et al., 2025)

Preclinical 4.2: (Cui et al., 2020)

Clinical 4.3: (Pataky et al., 2025; Stokes et al., 2020)

Clinical 4.4: (Hammarstrom et al., 2022)

Day 2 Translational Pathway Articles – limit 4

Aging 4.5: (Wang et al., 2023)

Disease 4.6: (Gharahdaghi et al., 2022)

Sex 4.7: (Pataky et al., 2023)

Nutrition 4.8: (Brook et al., 2021)

Performance 4.9: (Jacobs et al., 2025)

KINE 682 Reference List

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University Policies

This section outlines the university-level policies that must be included in each course syllabus. The TAMU Faculty Senate established the wording of these policies.

Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to [Student Rule 7](#) in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or for any other reason deemed appropriate by the instructor.

Please refer to [Student Rule 7](#) in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" ([Student Rule 7, Section 7.4.1](#)).

"The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence" ([Student Rule 7, Section 7.4.2](#)).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (See [Student Rule 24](#).)

Academic Integrity Statement and Policy

"An Aggie does not lie, cheat or steal, or tolerate those who do."

"Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one's work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case" ([Section 20.1.2.3, Student Rule 20](#)).

Texas A&M at College Station

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at aggiehonor.tamu.edu.

Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact the Disability Resources office on your campus (resources listed below). Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

Texas A&M at College Station

Disability Resources is located in the Student Services Building or at (979) 845-1637 or visit disability.tamu.edu.

Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see [University Rule 08.01.01.M1](#)):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, a person who is subjected to the alleged conduct will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University's goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Texas A&M at College Station

Students wishing to discuss concerns related to mental and/or physical health in a confidential setting are encouraged to make an appointment with [University Health Services](#) or download the [TELUS Health Student Support app](#) for 24/7 access to professional counseling in multiple languages. Walk-in services for urgent, non-emergency needs are available during normal business hours at University Health Services locations; call 979.458.4584 for details.

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University's [Title IX webpage](#).

Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors influencing a student's academic success and overall wellbeing. Students are encouraged to engage in healthy self-care practices by utilizing the resources and services available through [University Health Services](#). Students needing a listening ear can call the Texas A&M Helpline (979.845.2700) from 4:00 pm to 8:00 am weekdays and 24 hours on weekends for mental health peer support while classes are in session. The [TELUS Health Student Support app](#) provides access to professional counseling in multiple languages anytime, anywhere by phone or chat, and the 988 Suicide & Crisis Lifeline offers 24-hour emergency support at 988 or [988lifeline.org](#).

Texas A&M College Station

Students needing a listening ear can contact University Health Services (979.458.4584) or call the Texas A&M Helpline (979.845.2700) from 4:00 pm to 8:00 am weekdays and 24 hours on weekends while classes are in session. 24-hour emergency help is also available through the 988 Suicide & Crisis Lifeline (988) or at [988lifeline.org](#).