Texas A&M University- Corpus Christi
Physiology of Exercise

KINE 4312.001 - Summer I 2017
Meeting Time: MTWR, 1200-1355, 5/30-6/30
Location: Island Hall 163
Office Hours: M-R 1600-1700
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Departmental Administrative Assistant: Liz Perez 825-6072

I. COURSE DESCRIPTION

(KINE 4312.01, Physiology of Exercise) Provide the student with knowledge of the physiological changes and residues of exercise with emphasis on muscular analysis and practical applications for conditioning and therapeutic exercises.

Prerequisites: 1. Requires Department Approval; 2. Prerequisite course required-BIOL2401 or Prerequisite course required-KINE2325 and Prerequisite course required-KINE1320 or Prerequisite course required-KINE2313 and Prerequisite/Co-Requisite course required- KINE4112;

Note: Grades in this course are not related to, nor are they affected by grades in KINE 4112, Physiology of Exercise Lab.

II. RATIONALE

The primary goal of this class is to acquaint students with a basic working-knowledge, understanding, and value of the study of physical exercise as related to fitness and performance.

III. STATE ADPOTED PROFICIENCIES FOR TEACHERS AND/OR ADMINISTRATORS/COUNSELORS

a. LEARNER-CENTERED KNOWLEDGE: The teacher possesses and draws on a rich knowledge base of content, pedagogy, and technology to provide relevant and meaningful learning experiences for all students.

b. LEARNER-CENTERED INSTRUCTION: To create a learner-centered community, the teacher collaboratively identifies needs; and plans, implements, and assesses instruction using technology and other resources.

c. EQUITY IN EXCELLENCE FOR ALL LEARNERS: The teacher responds appropriately to diverse groups of learners.

d. LEARNER-CENTERED COMMUNICATION: While acting as an advocate for all students and the school, the teacher demonstrates effective professional and interpersonal communication skills.

e. LEARNER-CENTERED PROFESSIONAL DEVELOPMENT: The teacher, as a reflective practitioner dedicated to all students’ success, demonstrates a commitment to learn, to improve the profession, and to maintain ethics and personal integrity.
IV.  TeXeS COMPETENCIES & CAATE COMPETENCIES & PROFICIENCIES

a.  TExES COMPETENCIES

Competency 002 - Physical education teacher applies principles and concepts of fitness and fitness development/maintenance to evaluate, select, and adapt activities that help learners achieve and maintain appropriate fitness levels.

Competency 003 - The teacher appreciates human diversity, recognizes how diversity in the classroom and the community may affect learning and creating a classroom environment in which both the diversity of groups and the uniqueness of individuals are recognized and celebrated.

Competency 004 - Fitness-related health, nutrition, and safety. The physical education teacher knows health, nutrition, and safety principles and practices related to fitness/performance and encourages learners to apply these principles and practices.

Competency 011 - Legal, ethical, medical, and safety issues. The physical education teacher understands legal, ethical, medical, and safety issues relating to physical education programs and applies this understanding in a variety of contexts

b.  NATIONAL COMPETENCIES & PROFICIENCIES FOR ATHLETIC TRAINING (CAATE 4th Ed.)

   Diagnosis Competencies Taught & Evaluated:

   DI-C3: Describe the physiological and psychological effects of physical activity and their impact on performance.

   Psychosocial Competencies Taught & Evaluated:

   PS-C2: Explain the stress-response model and the psychological and emotional responses to trauma and forced inactivity.

   PS-C3: Describe the motivational techniques that the athletic trainer must use during injury rehabilitation and reconditioning.

   PS-C4: Describe the basic principles of mental preparation, relaxation, visualization, and desensitization techniques.

   PS-C5: Describe the basic principles of general personality traits, associated trait anxiety, locus of control, and patient and social environment interactions.

   PS-C6: Explain the importance of providing health care information to patients, parents/guardians, and others regarding the psychological and emotional well being of the patient.

   PS-C9: Explain the basic principles of counseling (discussion, active listening, and resolution) and the various strategies that certified athletic trainers may employ to avoid and
resolve conflicts among superiors, peers, and subordinates.

PS-C12: Describe the basic signs and symptoms of mental disorders (psychoses), emotional disorders (neuroses, depression), or personal/social conflict (family problems, academic or emotional stress, personal assault or abuse, sexual assault, sexual harassment), the contemporary personal, school, and community health service agencies, such as community-based psychological and social support services that treat these conditions and the appropriate referral procedures for accessing these health service agencies.

Nutrition Competencies Taught & Evaluated:

NU-C14: Describe disordered eating and eating disorders (i.e., signs, symptoms, physical and psychological consequences, referral systems).

V. COURSE OBJECTIVES/LEARNING OUTCOMES

Given lectures, discussions, videos and/or field experiences, the student will be able to;

a. Demonstrate knowledge of the structure and function of the body as it relates to physical activity.
b. Demonstrate knowledge of the integrative nature of the physiological systems under the stress of exercise
c. State representative values of the various body systems at rest, submaximal exercise, and maximal exertion.
d. Identify functional changes in response to a session of exercise.
e. Identify laboratory procedures with respect to exercise physiology.
f. Identify the scientific body of knowledge in exercise physiology.

VI. COURSE TOPICS

The major topics to be considered are:

a. energy systems relationship to exercise and training;
b. carbohydrate, protein and fat breakdown and utilization;
c. neuromuscular physiology and adaptations to exercise and training;
d. mechanisms of muscular strength, hypertrophy, endurance, and power;
e. cardiovascular physiology and adaptations to exercise and training;
f. mechanisms of cardiovascular adaptations;
g. maximal oxygen uptake and adaptations to training;
h. acid base balance and adaptations to training;
i. Valsalva maneuver;
j. methods of determining nutritional needs in response to exercise;
k. nutritional needs before, during, and after exercise to accommodate exercise and training adaptations;
l. the science and practice of body composition
VII. INSTRUCTIONAL METHODS AND ACTIVITIES
Traditional lecture via power point, classroom discussion, independent learning, and online instruction/readings.

VIII. EVALUATION AND GRADE ASSIGNMENT

<table>
<thead>
<tr>
<th>Exams = 40%</th>
<th>Quizzes = 35%</th>
<th>Assignments = 25%</th>
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<tbody>
<tr>
<td>Grading Scale:</td>
<td>A = 90-100%</td>
<td>B = 80-89%</td>
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<td>C = 70-79%</td>
<td>D = 60-69%</td>
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**Exams (40%):**
Five (5) exams including the final will be given. The final exam is mandatory (i.e., not optional). The final and three (3) additional exams (top scores by percentage of total possible points on the exams) will be weighted equally towards the exam percentage. In short, I will drop one exam grade – but I will not drop the final exam grade.

**Quizzes (35%):**
Online quizzes are given via Blackboard. The quizzes will cover material from the readings up to the week they are given and may include previously assigned material (including course readings and lecture material, supplemental material and exercise terminology). It would be in your best interest to stay current with readings and lectures. You have three attempts at each quiz and you will have 60 minutes to complete each attempt. The highest score of your three attempts will be used to calculate your quiz percentage.

Quizzes may also be given in class periodically throughout the semester (at the professor’s discretion) to assess student’s understanding of material covered in the lecture and assigned course readings. Students arriving to the lecture after a quiz has been passed out will not be permitted to take the quiz and will receive a score of zero for that quiz (i.e., be on time).

**Assignments (25%):**
Throughout the semester there will be various assignments you will be asked to complete. Further details for each assignment will be provided on Blackboard in the Assignments folder.

**Nota Bene:** Your evaluations in this course will draw on not only information presented in this course, but also the sum total of your kinesiology-based education thus far. Do not expect a specific regurgitation of information on your exams. I do not have time to cover basic anatomy, biology, and physiology, AND exercise physiology. I will present the materials relating to exercise, but you are expected to know the underlying information.

Grades are based on performance, not effort or need. You will earn your grade; I do not give them out and you don’t get a passing grade just for showing up. Please keep in mind that providing just the information asked for is considered average. Earning an “A” grade requires you perform much above and beyond.

Additionally, if this class is your only hope for retaining your scholarship or not being on academic probation or whatever else (graduating), perhaps you should have studied more in your other classes, because this factor will not increase your grade in this class.
<table>
<thead>
<tr>
<th>Topic Area</th>
<th>Assignments/Quizzes</th>
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<tbody>
<tr>
<td>Portion 1</td>
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<tr>
<td>Introduction to Exercise &amp; Sport Physiology</td>
<td>OLQ 1 OLQ 2</td>
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<tr>
<td>Principles of Exercise Training (Ch. 9)</td>
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<tr>
<td>Neuromuscular Physiology (Ch. 1 [p. 29-38] &amp; Ch. 2 [p. 73-87])</td>
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<tr>
<td>July 6-7</td>
<td>EXAM 1 (online)</td>
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<tr>
<td>Portion 2</td>
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<tr>
<td>Skeletal Muscle &amp; Exercise (Ch. 1 [p. 39-48])</td>
<td>Assignment 1</td>
</tr>
<tr>
<td>Metabolic Systems for Exercise (Ch. 2)</td>
<td>OLQ 3 OLQ 4</td>
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<tr>
<td>Muscular Fatigue (Ch. 5 [p. 134-146])</td>
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<td>Adaptations to Resistance Training (Ch. 10)</td>
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<tr>
<td>July 18</td>
<td>EXAM 2 (In-class)</td>
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<td>Portion 3</td>
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<tr>
<td>Measuring Energy Expenditure (Ch. 5 [p. 119-134])</td>
<td>Assignment 2</td>
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<td>Cardiorespiratory Responses to Exercise (Ch. 8)</td>
<td>OLQ 5 OLQ 6</td>
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<td>Adaptations to Cardiorespiratory Training (Ch. 11)</td>
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<td>Training for Sport (Ch. 14)</td>
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<td>July 25</td>
<td>EXAM 3 (In-class)</td>
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<td>Portion 4</td>
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<tr>
<td>Hormonal Responses to Exercise (Ch. 4 [p. 109-115])</td>
<td>Assignment 3</td>
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<td>Environmental Issues and Exercise (Ch. 12 &amp; 13)</td>
<td>OLQ 7 OLQ 8</td>
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<td>July 27-28</td>
<td>EXAM 4 (online)</td>
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<td>Portion 5</td>
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<tr>
<td>Hormonal Responses to Exercise (Ch. 4 [p. 101-109; 115-118])</td>
<td>Assignment 4</td>
</tr>
<tr>
<td>Body Composition (Ch. 15 [p. 370-379; 393-399]</td>
<td>OLQ 9</td>
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<tr>
<td>Environmental Issues (Ch. 12 [296-302]; Ch. 13 [p. 329-331])</td>
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<tr>
<td>Aug 4</td>
<td>FINAL EXAM (IN CLASS)</td>
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<td>Bring an actual calculator!</td>
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Don't be afraid to use the index in the book and search around for needed information.
IX. **TEXTBOOK**


X. **BIBLIOGRAPHY**


XI. **GRADE APPEALS**

As stated in University Rule 13.02.99.C2, Student Grade Appeals, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal.

A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Rule13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Web site at [http://www.tamucc.edu/provost/university_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html).

For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.

**Academic Honesty**

University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, forgery, or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.)

Disciplinary action for academic misconduct is the responsibility of the faculty member assigned to the course. The faculty member is charged with assessing the gravity of any case of academic dishonesty, and with giving sanction to any student involved. Penalties that may be applied to individual cases of academic dishonesty include one or more of the following:

a. Written reprimand;
b. Requirement to re-do work in question;
c. Requirement to submit additional work;
d. Lowering of grade on work in question;
e. Assigning grade of “F” to work in question;
f. Assigning grade of “F” for course;
g. Recommendation for more severe punishment.
If the faculty member determines that assigning a grade of “F” to the course is the appropriate penalty and this disciplinary action occurs prior to the deadline for dropping courses, the student forfeits his/her right to drop the course in question.

The faculty member may file a record of cases of academic dishonesty, including a description of the disciplinary action taken, along with any materials involved, with his or her college dean and the Office of Student Affairs. The office of the academic dean of the college in which the offense took place will maintain records of all cases of academic dishonesty reported for a period of not more than two years. Any student who has been penalized for academic dishonesty has the right to appeal the judgment or the penalty assessed (see XII above).

**What is also considered dishonest with reference to this class?**

A. using an assignment from a previous semester, no matter where it came from, to produce your own (my electronic checker will catch this)

B. file swapping with a partner to produce your work, loaning your work to another person to "model" as the borrower may take more than you think putting you both in trouble

C. changing a few words on someone else’s assignment and submitting it as your own

D. failure to properly cite resources in your lab report or assignments

E. using any form of outside help other than your mind on any test or quiz, calculators without Internet or note-taking capabilities might be allowed at the professor’s discretion.

F. unethically obtaining copies of exams etc.

G. photographing or copying ANY quiz or test materials for any purpose with ANY device

H. anything else that falls under the umbrella of dishonest conduct that common sense would dictate as unethical

**XII. DISABILITIES AND ACCOMODATIONS**

*Americans with Disabilities Act (ADA)* - The ADA is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disability. If you believe you have a disability requiring an accommodation, please call or visit Disability Services at (361) 825-5816 in Driftwood 101.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.