Texas A&M University-Corpus Christi  
Physiology of Exercise

KINE 4312.001  
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Fall 2013, 9/4-12/10  
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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

A. Traditional lecture via power point, classroom discussion, independent learning, and online instruction/readings.

B. Classroom participation activities

VIII. EVALUATION AND GRADE ASSIGNMENT

The method of evaluation and the criteria for grade assignment are:

A. Requirements and point values. The total number of quizzes and in-class point opportunities are tentative. Therefore, the point values listed may vary.
   Quizzes, approximately 7-9 at 10 pts each* 90 points
   Tests, 3 at 100 pts, 1 at 160 pts. * 460 points
   Get your head in the book assignments.* 60 points 610 points

   The final test, at 160 pts. is cumulative.

   Get Your Head In The Book Assignments are study assignments (10-15) questions each in which the student will answer provided study questions to enhance learning, research skills, and test preparation.

   *Points, test values, and numbers of assignments may be altered to best reflect the needs of the class

B. Grading Scale:
90-100% = A
80-89% = B
70-79% = C
60-69% = D
59% and below = F

NOTE REGARDING YOUR GRADES: I don’t normally round grades. At the end of the semester, I will not even consider rounding up your grade or passing you on a close grade unless you have done the following: a) seen me (in person) for help on a regular basis, b) completed all point opportunities, and c) bothered to ask questions regularly in class.

NOTE REGARDING QUALITY OF YOUR WORK: If any work done on behalf of this class is not performed at a standard expected of a junior or senior in college, it either will not be graded or it will be severely penalized. I will not give partial credit for a partially completed assignment, a sloppy assignment, an assignment that was obviously completed in a big hurry to beat a deadline, or because you didn’t read the instructions. You will simply receive a zero. These assignments will not be allowed to be made up once the grade is assigned. You can avoid this problem by simply doing a quality job the first time and planning ahead. For class quizzes, which will be done at the beginning of class, your writing must be legible. If I can’t read something, it is wrong.

NOTE REGARDING SUBMISSION OF YOUR ASSIGNMENTS: All work in this class is to be submitted as an attached word document unless otherwise specified. It is your burden to work with the instructor during the first assignment to get your format correct and then use it consistently throughout the semester. Word Perfect (.wps) files, some Mac formats, and the newest Windows programs do not open on most university computers. We currently use Windows 2007. It is your job to save your documents in a format that can be opened by the instructor.

IX. COURSE SCHEDULE AND POLICIES

Note: course and test schedules may be altered to best fit the schedule.

Unit I:

Weeks 1-3

Introduction

Chapter 2: Fuel for Exercising Muscle: Metabolism and Hormonal Control

Chapter 10: Pages 245-247 Adaptations to Anaerobic Training

Weeks 4-6

Chapter 3: Neural Control of Exercising Muscle

Chapter 1: Structure and Function of Exercising Muscle

Chapter 9: Adaptations to Resistance Training
Chapter 4: Pages 113-118 Fatigue

Test # 1

Unit 2:
Weeks 7-8

Chapter 5: The Cardiovascular System and Its Control

Weeks 8-9

Chapter 6: The Respiratory System and Its Regulation

Chapter 4: Pages 103-104 Respiratory Exchange Ratio

Weeks 10-11

Chapter 7: Cardiovascular Responses To Acute Exercise

Chapter 10: Pages 222-245 Adaptations to Aerobic Training

Test # 2

Unit 3:
Weeks 11-12

Chapter 14: Body Composition and Nutrition For Sport 328-352

Weeks 12-13

Chapter 8: Principles of Exercise Training

Chapter 10: Pages 247-249 Specificity of Training and Cross-Training

Chapter 13: Pages 301-308 Overtraining

Weeks 14-15

Chapter 14: Body Composition and Nutrition For Sport 318-328

Test # 3 - LAST REGULAR DAY OF CLASS!

Don’t be afraid to use the index in the book and search around for needed information.

Test # 4: Final Cumulative Exam (on scheduled date during finals week or specified date)

Class Policies
I apologize for all of the class policies. Unfortunately, common sense and self-responsibility is lost on just a few people. They make it bad for the majority of you. Please read them anyway.

1. Lack of attendance, for any reason (legit or not), can hurt your grade. There is no credit for coming to class. If you must be absent or do have a conflict, take responsibility for yourself for all missed materials by obtaining notes and making arrangements as needed.

2. The highest level of personal and professional decorum is expected in the classroom. Please conduct yourself accordingly. If you are tired and feel like sleeping, please stand and take your notes to the side of the class or excuse yourself if you must.

3. Please put away your cell phones in class. If you are expecting an emergency call or text, notify the instructor and discretely excuse yourself and handle your business. Feel free to come back in if you can. Please wait until class is over to text (yes, you can make it). If you choose to text in class, I will kindly ask you not to. If that doesn’t work, I will ask you to leave the class. Further action will be taken if necessary.

4. You may not use a computer in class for anything other than taking notes. If you are not using the computers in the classroom for note-taking, please push the screen down into the desk. Use of computers for any other function during class will be considered disruptive. If you are one of those people who like taking notes on the computer during class and surfing elsewhere between notes (yah, it’s easy to see), please cease this practice and exercise some self-control.

5. While most people know smoking is not allowed in class, too many haven’t figured out that smokeless tobacco is not allowed either, as per university policies. No smokeless tobacco use in class. While not currently addressed by university policy, I do not allow the use of mechanical cigarettes in class, even if they only emit water vapor. Believe it or not, some people have tried it.

6. During all tests; 1) you are only allowed to have a writing utensil and a blank sheet of paper in your possession (paper will generally be provided by instructor), 2) all bags and purses will be placed along either the front or back of the classroom, 3) your cell phone should either be in the bag, purse, or on the instructor’s desk. Putting the phone in your lap, under your leg, or between your legs on the chair is a bad idea. Please do the right thing. Anybody found using any outside electronic or more primitive resources designed to aid them in passing their tests will be automatically assigned a zero for that exam.

7. All assignments submitted in this class are to be original productions. This means you created it 100% without any other student’s class materials from this semester or any previous semester. If the assignment is not 100% your production, it will be subject to the University’s Academic Integrity policies. For more information see section XII below.

**Tests, Quizzes, and Assignment Policy**

A. In order to get you to class and to keep you sharp, quizzes will be given regularly at the beginning of class. Yes, this is how I keep you coming to class and consistently preparing. If
you miss class or are late on a regular basis you will soon find yourself in grade trouble. I don’t allow make ups on these quizzes unless the University has issued an excused absence for you.

B. Tests will be taken on the designated or arranged test dates and times only, no last-minute reschedules. Late tests will not be allowed unless prior arrangements are made. Tests taken with testing services should be arranged well in advance of exams.

C. Any class assignments will be sent as documents over Blackboard and on-time. No assignment will be written or copied into the submission box on Blackboard, no matter what any other instructor in your past has done.

X. TEXTBOOK


I ENCOURAGE YOU TO SAVE MONEY BY USING THE “E-BOOK” VERSION OF THIS TEXT OR USING THE 4TH EDITION OF THIS TEXT!

Book Link: Currently $99 at the publisher’s website.

[Website Link]

E-Book Link: Place the order and instructions will be given on how to download. Currently $54 at the publisher’s website.

[Website Link]

XI. BIBLIOGRAPHY


XII. 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 Rule 13.02.99.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. 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

XIII. DISABILITIES AND ACCOMMODATIONS

The Americans with Disabilities Act (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 disabilities. If you believe you have a disability requiring an accommodation, please call or visit Disability Services at (361) 825-5816 in CCH 116. 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.