

# **PHYSIOLOGY OF EXERCISE (KINE 3315) Spring 2011**

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**Office: Hammond Hall 506**

**Meetings:** Lecture Tuesday and Thursday (8:00 – 9:20) Trimble Hall 111

**Office Hours:** 2-4 pm

**Credit:** 3 semester credit hours

**Textbook:** Plowman SA and DL Smith. Exercise Physiology for Health, Fitness and Performance (reprinted 3<sup>rd</sup> edition, Lippincott, Williams & Wilkins, 2011)

Physiology of Exercise Laboratory Manual: The University of Texas at Arlington, Fall 2010, B. C. McKeown

**Prerequisites:** KINE1400 Introduction to Exercise Science; College Algebra; Biology 2457 and 2458, Human Anatomy and Physiology I and II; or permission of instructor.

## **Purpose of the Course:**

The classroom and laboratory experiences of this course are intended to provide the student with an opportunity to discuss, observe and become aware of the acute and chronic responses of the human body to physical activity. Mechanisms of neuromuscular, respiratory, cardiovascular, and metabolic control and adaptation during and following activity will be studied.

## **Course Objectives:**

**Upon successful completion of this course, the student should have achieved the following:**

- I. Developed an understanding of the immediate and long-term responses of the systems of the body to physical activity.
- II. Developed an understanding of the body's physiological abilities and limitations.
- III. Developed an understanding of the research processes and limitations, procedures and interpretation of physical performance measurement.
- IV. Familiarization with the physiological basis of physical training and the practical application of these techniques to teaching and coaching.

## **Subject Matter:**

**I. Introduction: (Ch 1)**

**II. Metabolic System (Ch 2, 3, 4)**

**III. Muscular System (Ch 17, 18)**

**IV. Cardio-Respiratory System (Ch 9, 10)**

**V. Cardiovascular System (Ch 11, 12, 13, 15)**

**VI. Thermoregulation (Ch 14)**

**VII. Body Composition and Weight Control (Ch. 7, 8)**

## **Principle Learning Activities:**

- A. Class Lecture and Discussion
- B. Textbook Assignments
- C. Laboratory Experiences\*
- D. Supplemental Readings

## **Evaluation:\***

**A. Written Examinations (4) 60%**

**B. Quizzes/Assignments 20%**

**C. Laboratory Experiences 20%**

**Grading Scale 90% = A, 80% = B, 70% = C, 60% = D**

\*Quality of written assignments will be enhanced by following correct writing techniques which will include, but is not limited to correct spelling, sentence structure, paragraph usage, capital

letters, punctuation, noun-verb agreement and legible handwriting.

### **Missed Exams**

There will be no make-up opportunities for examinations unless the absence was due to a **university-approved excuse**. If the absence is due to either a university activity or a university excused absence (e.g. illness) **you must notify me by email prior to the day that you will miss if you wish to make up any work missed**. Then, the documentation for the absence should be presented to the instructor at the next class appearance, BEFORE class begins. All make-up examinations will be administered by arrangement.

### **Article Reviews**

There a number of articles selected from Exercise and Sport Sciences Reviews that must be reviewed (see calendar for list of articles and due dates). A one page (reviews exceeding one page will not be graded) single spaced, 12 point font (Times) review of each article will be completed. The review will address the following questions: What is the article about? What is the salient point? What are the implications? What was most interesting about the article? What further research needs to be done? What questions do you have after reading the article? An example of a review is included. Please use the format for your name and the article reference as in the example. The one page review also must be emailed to me as a Word or PDF document with the student's name and article number in the file title (example: John Smith article #3).

### **Departmental Lecture (Quizzes/Assignments Category)**

There will be two departmental lectures scheduled during the Enrichment Hour (12:00 Noon Monday or Wednesday) that are **required**.

1. The Anderson Sport Performance Lecture
2. The UTA-American College of Sports Medicine Lecture

Pick up a program that provides background of the speaker, write your name at the top and turn it in to the instructor along with a summary of the lecture **BEFORE** you leave the auditorium. If you cannot attend, there will be an assigned article by the speaker for you to review. The 12:00 Noon Monday or Wednesday Exercise Science Seminars will provide interesting information that may prove useful to you in your career. Write the presenter's name and topic on a sheet of paper and take notes on the topic. These reviews are to be given to me **IMMEDIATELY** after the presentation.

**Attendance Policy:** Laboratory attendance is mandatory. Lecture attendance is expected.

**Drop Policy:** Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. Contact the Financial Aid Office for more information.

**Americans with Disabilities Act:** The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the

*Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability) or by calling the Office for Students with Disabilities at (817) 272-3364.

**Academic Integrity:** It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University. According to the UT System Regents' Rule 50101, §2.2, "Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts."

**Student Support Services Available:** The University of Texas at Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. These resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals to resources for any reason, students may contact the Maverick Resource Hotline at 817-272-6107 or visit [www.uta.edu/resources](http://www.uta.edu/resources) for more information.

**Electronic Communication Policy:** The University of Texas at Arlington has adopted the University "MavMail" address as the sole official means of communication with students. MavMail is used to remind students of important deadlines, advertise events and activities, and permit the University to conduct official transactions exclusively by electronic means. For example, important information concerning registration, financial aid, payment of bills, and graduation are now sent to students through the MavMail system. All students are assigned a MavMail account. ***Students are responsible for checking their MavMail regularly.*** Information about activating and using MavMail is available at <http://www.uta.edu/oit/email/>. There is no additional charge to students for using this account, and it remains active even after they graduate from UT Arlington.

To obtain your NetID or for logon assistance, visit <https://webapps.uta.edu/oit/selfservice/>. If you are unable to resolve your issue from the Self-Service website, contact the Helpdesk at [helpdesk@uta.edu](mailto:helpdesk@uta.edu).

## Tentative Schedule

Week	Tuesday	Thursday
1	1-18 (Intro- Ch 1)	1-20 (Intro- Ch 3)
2	1-25(Metabolism Ch 4)	1-27 (Metabolism Ch 5)
3	2-1(Article #1 discussion)	2-3 (Article #1 due, Review)
4	2-8 (Exam #1)	2-10 (Muscle Ch 17)
5	2-15 (Muscle Ch 18)	2-17 (Article #2 discussion)
6	2-22 (Article #2 due, Cardio-Resp Ch 9)	2-24 (Cardio-Resp Ch 10)
7	3-1 (Article #3 discussion)	3-3 (Article #3 due, Review)
8	3-8 (Exam #2)	3-10 (Cardiovasc Ch 11)
9	3-15 (Spring Break)	3-17 (Spring Break)
10	3-22 (Cardiovasc Ch 12)	3-24 (Article #4 discussion)
11	3-29 (Article #4 due, #5 discussion)	3-31 (Cardiovasc Ch 13, #5 due)
12	4-5 (Cardiovasc Ch 15)	4-7 (Review)
13	4-12 (Exam 3)	4-14 (Thermo Ch 14)
14	4-19 (Article #6 discussion)	4-21 (Body comp Ch 7, #6 due)
15	4-26 (Body Comp Ch 8)	4-28 (Article #7 discussion)
16	5-3(Article #8 discuss, #7 due)	5-5 (Review, #8 due)
17	5-7 to 5-13 Final Exams	

## Article

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- 1 SHULMAN, R.G. Glycogen turnover forms lactate during exercise. *Exerc. Sport Sci. Rev.*, Vol. 33, No. 4, pp. 157–162, 2005.
- 2 KENT-BRAUN, J.A. Skeletal muscle fatigue in old age: whose advantage? *Exerc. Sport Sci. Rev.*, Vol. 37, No. 1, pp. 3-9, 2009.
- 3 WAGNER, P.D. Why doesn't exercise grow the lungs when other factors do? *Exerc. Sport Sci. Rev.*, Vol. 33, No. 1, pp. 3–8, 2005.
- 4 CLIFFORD, P.S. and M.E. TSCHAKOVSKY. Rapid vascular responses to muscle contraction. *Exerc. Sport Sci. Rev.*, Vol. 36, No. 1, pp. 25-29, 2008.
- 5 BUCKWALTER, J.B., and P.S. CLIFFORD. The paradox of sympathetic vasoconstriction in exercising skeletal muscle. *Exerc. Sport Sci. Rev.*, Vol. 29, No. 4, pp. 159–163, 2001.
- 6 SHIRREFFS S.M and R.J. MAUGHAN. Rehydration and recovery of fluid balance after exercise. *Exerc. Sports Sci. Rev.* Vol. 28, No. 1, pp. 27–32, 2000.
- 7 SHAIBI, G.Q., C.K. ROBERTS, and M.I. GORAN. Exercise and insulin resistance in youth. *Exerc. Sport Sci. Rev.*, Vol. 36, No. 1, pp. 5-11, 2008.
- 8 JAKICIC, J. M., and K. I. GALLAGHER. Exercise considerations for the sedentary, overweight adult. *Exerc. Sport Sci. Rev.*, Vol. 31, No. 2, pp. 91–95, 2003.



## The University of Texas at Arlington College of Education and Health Professions Mission, Core Values and Professional Dispositions

**MISSION:** To develop and deliver an educational program that ensures the highest teacher, administrator and allied health science preparation and performance and to be a recognized contributor in the field of educational and allied health science research and practice through effective teaching, quality research and meaningful service. The Educator and Administrator Preparation units' collaboratively developed shared vision is based on these **CORE VALUES**, dispositions and commitments to:

- Excellence • Diversity
- Learner-centered environment • Technology
- Research-based • Field Experiences
- Collaboration • Life-long Learning

Each candidate in the Educator and Administrator Unit of the College of Education of UT-Arlington will be evaluated on **PROFESSIONAL DISPOSITIONS** by faculty and staff. These dispositions have been identified as essential for a highly qualified educator. Instructors and program directors will work with candidates rated as "unacceptable" in one or more stated criteria. The candidate will have an opportunity to develop a plan to remediate any deficiencies.

### Demonstrates excellence

- Meets stated expectations of student performance.
- Keeps timelines. Arrives on time for class and other activities.
- Produces significant artifacts of practitioner evidence.
- Possesses a willingness to set goals.
- Attends all classes/trainings and practicum experiences.
- Completes activities as assigned.
- Has appropriate personal appearance and/or hygiene for professional setting.

### Participates in a learner centered environment and shows respect for self and others

- Uses appropriate and professional language and conduct.
- Supports a "high quality" learning environment.
- Shows respect and consideration for the thoughts and feelings of others.

### Research-based pedagogy

- Has an awareness of and willingness to accept research-based concepts.
- Identifies important trends in education.
- Demonstrates interests in learning new ideas and strategies.
- Relates class discussions and issues to current events in education.

### Participates in on-going collaboration with peers and professionals

- Demonstrates kindness, fairness, patience, dignity and respect in working with peers, staff and instructors.
- Works effectively with others.
- Assists others in the university classroom or practicum setting.
- Demonstrates an openness to assistance from others.
- Receives feedback in a positive manner and makes necessary adjustment.

### Exhibits stewardship of diversity

- Shows appropriate stewardship and tolerance to diverse people, environments, and situations.

### Advocates use of technology

- Uses and applies existing technologies sufficiently in work.
- Shows a willingness to use and apply emerging technologies in work.

### Shows interest in the learner and the learning-process

- Demonstrates significant learning improvement over time.
- Shows interest in the learning process and demonstrates the necessary amount of time, energy, and enthusiasm for becoming better learners, teachers, and practitioners