SYLLABUS FOR KINE 7680

**ADVANCED PHYSIOLOGY OF EXERCISE I**

Fall, 2016

**Course Number:** KINE 7680

**Course Title:** Advanced Physiology of Exercise I

**Credit Hours:** 3 hours

**Meeting Times:** 4:00 pm – 6:30 pm, Wednesday

**Meeting Place:** STACT 249

**Instructor**: L. Bruce Gladden – 844-1466; [gladdlb@auburn.edu](mailto:gladdlb@auburn.edu).

Office Hours, Room 280 Kinesiology Building:

T and Th – 2:30 – 3:30 pm and by appointment

Textbook: Exercise Physiology: Theory and Application to Fitness and Performance, Ninth Edition, by Scott K. Powers and Edward T. Howley, McGraw-Hill, New York, 2015. ISBN 978-0-07-352353-8; MHID 0-07-352353-4

This is a Graduate School course. Therefore, much material will be taken for granted as baseline knowledge. **If you feel that your background in the sciences and physiology is less than you would prefer, it is your responsibility to work even harder to compensate for any deficiencies you may have.** This course is a graduate survey course in Exercise Physiology. Therefore, we will cover a broad range of the field of Exercise Physiology. The course format will be lecture plus question and answer. Please ask questions! I will ask questions of you.

It is imperative that you come to class prepared to discuss the topic of the day. In order to derive optimal benefits from our discussions, previous knowledge of the topic is required. Therefore, all students are expected to read all assignments prior to class. You will be asked to provide evidence that you are already familiar with the readings.

**GRADING**

1. There will be two examinations, a Midterm and a Final, each about 2.5 hours in length and each worth 100 points, for a total of 200 points; **these exams will be given outside of scheduled class time**.

2. There will be two “quizzes,” each about 75 minutes in length. Each quiz is worth 50

points for a total of 100 points; **these quizzes will be given outside of scheduled**

**class time**.

3. Surprise quizzes are a possibility. If given, they would be about 10-15 minutes in length and worth 10 points each.

4. There will be **at least one** assignment for a total of 25 points.

88.00% or greater = A

79.00%-87.99% = B

70.00%-78.99% = C

60.00%-69.99% = D

less than 60.00% = F

**Curving** – DO NOT request that grades be adjusted (curved); the grading scheme above is based on 30+ years of teaching this class.

**Extra Credit** – There is no scheduled extra credit in this class; there is only credit. Should “extra” credit opportunities arise, they will be offered to all students in the class.

**Class Policy Statements:**

**Unannounced Quizzes -** There could be unannounced quizzes in this class.

**Email –** You are responsible for checking your e-mail regularly and in a timely manner for any communications related to this class. The University has requested that all students use their Auburn University email accounts. This is the most efficient way for instructors to communicate with an entire class, and the University will occasionally send global notices that are important for all students. For this class, it is a requirement that you check your Auburn University email frequently.

**Electronic Devices** - As a courtesy to others, turn your cell phone completely off during class or individual meetings with me. If you are expecting an emergency call, please let me know at the beginning of class or appointment. Similarly, texting, surfing, or other electronic use (e.g., computer, iPad, etc.), unless directly related to the class or appointment, is strictly prohibited. If these policies are violated, you will be asked to leave class or the appointment.

**Attendance -** Although roll will not be taken specifically, it is expected that students taking a graduate class will attend every class meeting and will actively participate in class discussions. Please refer to the Student Policy eHandbook ([www.auburn.edu/studentpolicies](http://www.auburn.edu/studentpolicies)) for the definition of excused absences. Students are expected to show evidence of thorough reading of assigned materials. Students are responsible for initiating arrangements for missed work.

**Disability Accommodations -** Students who need accommodations are asked to electronically submit their approved accommodations through AU Access and to arrange a meeting during office hours the first week of classes, or as soon as possible if accommodations are needed immediately. If you have a conflict with my office hours, an alternate time can be arranged. To set up this meeting, please contact me by e-mail. If you have not established accommodations through the Office of Accessibility, but need accommodations, make an appointment with the Office of Accessibility, 1228 Haley Center, 844-2096 (V/TT).

**Honesty Code** – The University Academic Honesty Code and the Student Policy eHandbook ([www.auburn.edu/studentpolicies](http://www.auburn.edu/studentpolicies)) pertaining to Cheating will apply to this class.

**Professionalism** – As faculty, staff, and students interact in educational settings, they are expected to demonstrate professional behaviors as defined in the College of Education’s conceptual framework. These professional commitments or dispositions are as follows: 1) engage in responsible and ethical practices, 2) contribute to collaborative learning communities, 3) demonstrate a commitment to diversity, and 4) model and nurture intellectual vitality.

**KINE 7680 Course Outline:**

The course outline that follows is a baseline schedule. It is subject to change. This allows flexibility in dealing with different topics. For example, if more discussion arises on a particular subject or set of papers, it may take longer to cover it. In other cases, less time may be required. You will be informed regularly and promptly of any changes. **Please note that research and travel this fall will take me away for several classes. In all cases, we will arrange mutually agreeable times to make up the missed classes.**

Week 1: History of exercise physiology, homeostasis and steady state, Chapters 0

and 2.

Week 2: Biochemistry of Exercise: Overview and glycolytic pathway - Chapter 3

Week 3: Biochemistry of Exercise: TCA cycle, electron transport chain - Chapter 3

Week 4: Biochemistry of Exercise: lipid metabolism, control of reactions, and

summary.

Week 4: Metabolic Rate Calculations: O2, CO2, RER, RQ, pp. 20-23 in Chapter

1 and Hand-outs (O2 section).

Week 5: Metabolic Rate Calculations: O2, CO2, RER, RQ, continued. pp. 20-23

in Chapter 1 and Hand-outs (O2 section).

Week 6: Whole Body Exercise Response: O2 deficit, O2 Debt. EPOC – Chapter 4.

Week 7: Whole Body Exercise Response: O2 and lactate response to progressive

incremental exercise.deficit, lactate threshold – Chapter 4.

Week 8: Whole Body Exercise Response: Fuel selection and utilization during

exercise, effects of intensity and duration – Chapter 4.

Week 9: Measurement of work and power, estimation of O2 for walking, running,

cycle ergometry – Chapter 1.

Week 10: Efficiency and economy – Chapter 1.

Week 11: O2max predictions – Chapter 15.

Week 12: Laboratory tests of performance – Chapter 20.

Week 13: Skeletal muscle – Chapter 8.

Week 14: Skeletal muscle – Chapter 8.

Week 15: Skeletal muscle – Chapter 8.

W Sep 7 **Gladden out of town – Pre- or re-schedule.**

W Sep 14 **Gladden out of town – Pre- or re-schedule.**

W Oct 5 **Gladden out of town – NAK meeting – Pre- or re-schedule.**

W Nov 2 **Gladden out of town (Integrative Biology of Exercise) – Pre- or**

**re-schedule.**

W Nov 2 **Gladden out of town (APS meeting) – Pre- or re-schedule.**

W Nov 23 **THANKSGIVING HOLIDAYS.**

W Nov 30 Last class day of Fall 2016 semester.

**TENTATIVE TESTING SCHEDULE**

**QUIZ #1** – September 7 – 4:00 – 6:30 pm.

**MIDTERM** – 2.5 hour time limit. October 5 – 4:00 – 6:30 pm.

**QUIZ #2** – November 2 – 4:00 – 6:30 pm.

**FINAL EXAM** – shortly after November 30.

**Possible make-up dates for classes:**

Make-up #1 – Thursday, August 25

Make-up #2 – Thursday, September 22

Make-up #3 – Thursday, October 27

Make-up #4 – Thursday, November 10

Make-up #5 – Thursday, December 1