**Physiology of Exercise**

**(KINE3680-002 and 003) Course Syllabus**

**Spring 2012**

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**Instructor:** Dr. Heidi Kluess

**Office:** 2100 Memorial Coliseum

**Phone:** 844-1844

**E-mail:** hak0006@auburn.edu

**Office Hours:** TTH 8:30-9:30AM, or by appointment

**Credit:** 4 credit hours

**Prerequisites:**

**Corequisites:**

**Syllabus prepared:** 11/30/2011

**Class Schedule:**

**Section 2:** TTH 12:30PM to 1:45PM, **lab:** T 3PM-4:50PM room 2043 COLSM or 2118

**Section 3**: TTH 9:30AM-10:45AM, **lab**: W 3PM-4:50PM room 2043 COLSM or 2118

**Course Description:** This course will focus on basic energy, musculoskeletal, nervous, cardiovascular and respiratory systems as they relate to aerobic and anaerobic exercise. Emphasis will be placed on the adaptations of these systems to training.

**Objectives:** Undergraduate exercise physiology students are expected to demonstrate competency in the following areas:

1. A general knowledge of the bioenergetics systems and their functions during specific exercises
2. A general knowledge of the adaptations of the bioenergetics systems to specific training programs
3. A general knowledge of various organ systems and their functions during exercise and adaptations to specific training programs
4. An ability to perform basic physiology of exercise laboratory test

**Required Text:** Powers and Howley. Exercise Physiology: Theory and Application to Fitness and Performance, 2012, 8thed.

**Student Evaluation:**

A. Examinations: 79% of class grade (5/6 exams will count toward final grade)

B. Laboratory: 20% of class grade (see below for details).

C. Course syllabus acceptance: 1% of class grade

This syllabus serves as a contract to identify what is required for a given course grade. Each student is required to either 1) formally accept the terms outlined in this syllabus, or 2) engage in open discussion with the instructor about matters of clarification/alteration, followed by formal acceptance of the revised syllabus. Formal acceptance of the syllabus is performed within the Blackboard quiz content module and counts toward 1% of the class grade. All students must complete the syllabus acceptance on or before **Jan 20, 2012**.

**Grading Scale:**

A: 90% - 100% D: 69.99% - 60.0%

B: 89.99% - 80.0% F: < 60.00%

C: 79.99% - 70.0%

**Attendance Policy:**

***Lecture attendance*** Attendance is mandatory as a pre-requisite for participation. However, attendance will not be regularly taken or recorded. As such, class attendance will not directly impact your course grade. Students will be expected, should they choose to be absence for any excused or unexcused reasons, to obtain all information necessary for successful completion of this course.

***Lab attendance*** No Lab absences will be allowed. Lab write-ups will not be accepted if one was not present for data collection. The only exception to this is data will be provided to students that miss lab for an excused absence.

***Exam attendance***: Exam dates are on the tentative schedule in this document. Missed exams will result in 0 points for that portion of the course grade, no exceptions. Excused absences on exam dates must be arranged in advance of the start of the exam for makeup consideration. It is the student’s responsibility to be aware of scheduled exams – even in the event that they miss a class where an

exam is announced (for excused or unexcused reasons).

**Late policy:** Assigned lab work will not be accepted late. All assigned work is due on the stated date during the class period. The only exception is if you talk to me before the assignment is late (end of the class period when it is due) and negotiate a new due date with me.

Failure to do so will result in a **ZERO** on the assignment. The only appropriate excuses for failing to inform me ahead of time are: you were unconscious, you were unable to speak or type as a result of a medical condition, or you were in jail and didn’t want to use your one phone call on me.

**Dress:** Labs will require your participation; therefore you should dress ready for physical activity. If you are not dressed properly and cannot participate you WILL BE COUNTED ABSENT and not receive credit for that lab.

**Personal Item:** Please refrain from bringing personal items to the lab. The Dept. of Kinesiology and I will not be responsible for lost or damaged items. You should also try to minimize the amount of stuff brought with you to each lab due to limited storage space in the lab.

**Lab grading:**

Pre-lab quizzes (8) 8% (1% each)

Lab reports (5) 80% (16% each)

Worksheet (1) 2%

Lab final 10%

**Lab reports:**

Cover pages include the title of the lab, the lab number, the date, and your name.

Lab reports must contain a rationale, methods, results and discussion section. Everything should be in paragraph format (no bullet points or numbered sections). All writing should be in the PAST TENSE.

Rationale section Should be ½ to ¾ of a page explaining the background and value of what we are measuring. Make sure to cover how these measurements could be used/changed in health, sports and disease. Please use appropriate citations. I don’t require any particular format, but please be consistent. Remember that you need to cite a sentence even if you paraphrase the information. You have to cite information from all sources including text books, the internet, magazines, journals, etc.

The Methods section includes the details of the test you performed, such as the equipment used, places you took the measurements, formulas you used, and where you found the normative data information. The level of detail required in this section is such that another person would be able to read your methods section and be able to reproduce the test. No data should be included in this section. Also, remember to reference appropriately ie, tell me where you got the information like formulas.

The Results section includes all of the data that you collected (raw data and calculations) and the percentile ranks/fitness classifications in an easily readable format. For some data a graph/figure will be required for full points. The figure must have a correctly labeled x- and y-axis and be consistent with the raw data presented. You should also include any calculations that you performed (this can be on a separate handwritten page). If there is more than one figure or table, please number them and refer to them using the number in the text.

The Discussion section includes a summary of your findings and a 1 page discussion of your data and what it means physiologically.

Neatness, organization, and grammar count towards your grade, so please proof read.

Always use complete sentences and write in the past tense. Do not use undefined abbreviations.

You are welcome to bring a draft of your lab report to me to review no later than the day before it is due to get pointers to improve your grade. I will only review lab reports in person, so please do not send it to me via e-mail, blackboard or leave it in my box.

I expect these lab reports to be professional and carefully researched.

**Academic Integrity Policy:** The Auburn University student academic honesty code Title XII found on the University Policies webpage (<https://sites.auburn.edu/admin/universitypolicies/default.aspx>) applies to this class. All academic honesty violations or alleged violations of the SGA Code of Laws will be reported to the Office of the Provost, which will then refer the case to the Academic Honesty Committee.

In this class, data will often be collected in pairs or groups. Exchanging raw data from the lab is acceptable. However, all data processing, analysis and write up must be individual. Therefore, you may not collaborate on lab reports, data processing, or data analysis. Any evidence that this has occurred will be considered academic dishonesty and reported to the Office of the Provost. The minimum penalty will be a zero on the assignment. You also may not use the data of other students to complete your lab report. All data for lab reports must be data that you participated in collecting. If you have a documented, university-approved absence on a data collection day, you must talk to me to receive a make-up (within one week of the day missed). You **MAY NOT** get the data from the other people in your group without my permission. Failure to get an approved make-up from me will result in a **zero** on that section of the lab report.

**Disability Accommodations:** Students who need accommodations are asked 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 PSD office, but need accommodations, make an appointment with The Program for Students with Disabilities, 1228 Haley Center, 844-2096 (V/TT).

**Professionalism:** As faculty, staff, and students interact in professional settings, they are expected to demonstrate professional behaviors as defined in the College’s conceptual framework. These professional commitments or dispositions are listed below: Engage in responsible and ethical professional practices

o Contribute to collaborative learning communities

o Demonstrate a commitment to diversity

o Model and nurture intellectual vitality

Tentative schedule of topics and exams for the lecture.

|  |  |  |
| --- | --- | --- |
|  | Topic/activity | Reading |
| T 1/10 | Syllabus and history | Ch 0 |
| TH 1/12 | History | Ch 0, Harvard Fatigue Laboratory: Contributions to WWII, Comments on Classical Papers |
| T 1/17 | Measurement of work, power, energy | Ch 1 |
| TH 1/19 | Measurement of work, power, energy |  |
| T 1/24 | **Exam 1** |  |
| TH 1/26 | Control of internal environment | Ch 2 |
| T 1/31 | Control of internal environment |  |
|  | Bioenergetics | Ch 3 |
| TH 2/2 | Bioenergetics |  |
| T 2/7 | Bioenergetics |  |
| TH 2/9 | **Exam 2** | Dr. Kluess gone to a conference |
| T 2/14 | Exercise Metabolism | Ch 4 |
| TH 2/16 | Exercise Metabolism |  |
| T 2/21 | Hormonal responses to exercise | Ch 5 |
| TH 2/23 | Hormonal responses to exercise | Dr. Kluess gone to a conference |
| T 2/28 | **Exam 3** |  |
| TH 3/1 | The nervous system | Ch 7 |
| T 3/6 | The nervous system |  |
| TH 3/8 | Skeletal muscle | Ch 8 |
| T 3/13-TH 3/15 | **Spring Break** |  |
| T 3/20 | Skeletal muscle |  |
| TH 3/22 | **Exam 4** |  |
| T 3/27 | Circulatory adaptations | Ch 9 |
| TH 3/29 | Circulatory adaptations |  |
| T 4/3 | Temperature regulation | Ch 12 |
| TH 4/5 | Temperature regulation |  |
| T 4/10 | **Exam 5** |  |
| TH 4/12 | Physiology of training | Ch 13 |
| T 4/17 | Physiology of training |  |
| TH 4/19 | Factors affecting performance | Ch 19 |
| T 4/24 | Factors affecting performance | Ch 24; Dr. Kluess gone to conference |
| TH 4/26 | Study for exam | Dr. Kluess gone to conference |
| Final exam | **Exam 6** |  |

**Laboratory Schedule**

|  |  |  |  |
| --- | --- | --- | --- |
| Date | lab | assignments | Readings |
| 1/10, 1/11 | No lab |  |  |
| 1/17, 1/18 | Lab 1: Work and power |  | Ch 1, p 16-20 |
| 1/24, 1/25 | Lab 2: VO2 measurement |  | Ch 1, p20-25 |
| 1/31, 2/1 | Lab 2: EPOC/O2 debt | Lab 1: Work and power lab report due | Ch 4 p69-74 |
| 2/7, 2/8 | No lab |  |  |
| 2/14, 2/15 | Anaerobic measurements-worksheet | Lab 2: VO2/EPOC/ O2 debt lab report due | Ch 20, p470-471 |
| 2/21, 2/22 | No lab |  | Anaerobic measurement worksheet due |
| 2/28, 2/29 | Lab 3: Lactate Threshold |  | Ch 4, 76-79 |
| 3/6, 3/7 | Lab 3: Lactate recovery |  | Ch 4, 71-74 |
| 3/13, 3/14 | **Spring Break!!!** |  |  |
| 3/20, 3/21 | Lab 4: Blood pressure | Lab 3: Lactate threshold and recovery lab report due | Ch 9, p205-213 |
| 3/27, 3/28 | Lab 5: Pulmonary |  | C 10, p224-228 |
| 4/3, 4/4 | No lab | Lab 4: Blood pressure lab report due |  |
| 4/10, 4/11 | Review lab final |  |  |
| 4/17, 4/18 | Lab final | Lab 5: Pulmonary lab report due |  |
| 4/24, 4/25 | No lab |  |  |