

BSC 425/525
Human Physiology Laboratory
Fall 2015

PROFESSOR: Dr. Stephen Secor

CONTACT INFORMATION:

Office: 420 Biology
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Office hours: by appointment
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PRE/CO REQUISITES: BSC 424/524

COURSE DESCRIPTION:

The course provides hands-on experience for students to understand the principles and mechanism of physiological processes of the human body. The course emphasis is organ system performance, whole-body metabolism, and energetics.

COURSE OBJECTIVES:

The goal of this course is to gain an understanding of the principles and mechanisms of the physiology of organ systems within the human body by undertaking measurements using a variety of physiological instrumentation. Students will become familiar with the response of the cardiac and pulmonary system to varying levels of demand, how metabolic rate varies with exercise, how to quantify ingested energy, and how to develop an energy budget.

STUDENT LEARNING OUTCOMES:

At the completion of this course students will have been instructed on how to measure, analyze, evaluate, and describe a variety of physiological responses of the body and how energy intake is balanced by energy expenditure and storage. Students will be able to:

- 1) Measure physiological responses and performance
- 2) Maintain a laboratory notebook
- 3) Analyze physiological data and illustrate results
- 4) Write laboratory reports in the format of a scientific paper
- 5) Undertake the analysis of food energy
- 6) Construct an individual energy budget
- 7) Present findings and results in an oral presentation

ATTENDANCE:

Students are expected to attend all laboratories. Students are responsible for undertaking each laboratory exercise and collecting data for each assignment. Graded assignments will be generated largely from data collected during class. Students will also be responsible for all announcements made in lab.

QUIZZES:

There will be two quizzes given during the semester, each worth 25 points. The format and time of each quiz will be determined by your teaching assistant.

ASSIGNMENTS:

There are four written, two worksheet, and one presentation assignments for this class:

- Paper assignment 1: Cardiac performance – individual data
- Paper assignment 2: Cardiac performance – group data
- Paper assignment 3: Metabolic and ventilatory responses to exercise
- Paper assignment 4: Individual energy budget
- Worksheet 1: Food energy
- Worksheet 2: Food journal for a week
- Presentation: Individual energy budget presented to class

NOTEBOOK:

All students are required to maintain a laboratory notebook that contains material from the course, tabulation of data, and all completed assignments. There will be two notebook checks during the semester. Each check has a maximum of 25 points.

525 STUDENTS:

Graduate students enrolled in 525 will have the following additional responsibility of organizing and instructing a particular component of the semester's lab.

Tentative Schedule

Week	Date	Lab exercise
2	Aug. 25-27	Greetings, class business, use of Biopac system, and reaction time exercise, Excel tabulation and functions
3	Sept. 1-3	Biofeedback and polygraph, Excel data analysis and Powerpoint graphing
4	Sept. 8-10	Electroencephalogram
5	Sept. 15-17	Electromyogram Quiz 1
6	Sept. 22-24	Electrocardiogram, cardiac response (data collected for assignments 1 & 2)
7	Sept. 29-Oct. 1	Nerve conduction velocity Assignment 1 due
8	Oct. 6-8	Pulmonary performance Assignment 2 due
9	Oct. 13-15	Principles of bomb calorimetry and bombing Quiz 2
10	Oct. 20-22	Energy content of food (assignment 4 data) Food energy worksheet due
11	Oct. 27-29	Human energetics – RMR (data for assignment 4). No scheduled class on 29th
12	Nov. 3-5	Human energetics – RMR, AMR (data for assignment 3 & 4) / Body media armbands
13	Nov. 10-12	Body composition / AMR (data for assignment 3 & 4)/ Body media armbands
14	Nov. 17-19	Body composition / AMR (data for assignment 3 & 4)/ Body media armbands
14	Nov. 24	Open lab, RMR, AMR, bombing, assistance with presentation Assignment 3 due No scheduled classes on the 28th
15	Dec. 1-3	Individual presentations on energy budget. Assignment 4 and food journal due

GRADING: 425/525

Points available

Quizzes (2)	50
Worksheets (2)	50
Food energy	
Food journal	
Notebook checks (TBA)	50
Assignment 1	50
Assignment 2	50
Assignment 3	100
Assignment 4	100
Presentation	100
Total points	550

FINAL COURSE GRADE:

At the end of the semester final grades will be assigned accordingly to percentage of points received out of possible 550 points for BSC 424

A+ = 98-100%	B+ = 88-89.9%	C+ = 78-79.9%	D+ = 68-69.9%	F = < 60%
A = 92-97.9%	B = 82-87.9%	C = 72-77.9%	D = 62-67.9%	
A- = 90-91.9%	B- = 80-81.9%	C- = 70-71.9%	D- = 60-61.9%	

And possible 550 points for BSC 524

A = 90-100%	B = 80-89.9%	C = 70-79.9%	D = 60-69.9%	F = < 60%
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THERE IS NO EXTRA CREDIT!

DISABILITY ACCOMMODATIONS:

If you are registered with the Office of Disability Services, please make an appointment with Dr. Secor as soon as possible to discuss any course accommodations that may be necessary. If you have a disability but have not contacted the Office of Disability Services, please call 354-5175 or visit Osband Hall to register for services. Students who may need course adaptations because of a disability are welcome to make an appointment to see me during office hours. Students with disabilities must be registered with the Office of Disability Services, 133-B Martha Parham Hall East, before receiving academic adjustments.

ACADEMIC MISCONDUCT:

All students in attendance at the University of Alabama are expected to be honorable and to observe standards of conduct appropriate to a community of scholars. The University expects from its students a higher standard of conduct than the minimum required to avoid discipline. All acts of dishonesty in any work in this course constitute academic misconduct. Academic misconduct includes all acts of dishonesty in any academically related matter and any knowing or intentional help or attempt to help, or conspiracy to help, another student. This includes, but is not limited to, cheating, plagiarism, fabrication of information, misrepresentations, and abetting any of the above. The Academic Misconduct Disciplinary Policy will be followed in the event that academic misconduct occurs. Student should refer to the Student Affairs Handbook which can be obtained in the Office of Student Life and Services in the Ferguson Center or online from the same office. As a student in this course, this statement means that all words on all exams must be your own.

SEVERE WEATHER PROTOCOL:

In the case of a tornado warning (tornado has been sighted or detected by radar; sirens activated), all university activities are automatically suspended, including all classes and laboratories. If you are in a building, please move immediately to the lowest level and toward the center of the building away from windows (interior classrooms, offices, or corridors) and remain there until the tornado warning has expired. Classes in session when the tornado warning is issued can resume immediately after the warning has expired at the discretion of the instructor. Classes that have not yet begun will resume 30 minutes after the tornado warning has expired provided at least half of the class period remains.

UA is a residential campus with many students living on or near campus. In general classes will remain in session until the National Weather Service issues safety warnings for the city of Tuscaloosa. Clearly, some students and faculty commute from adjacent counties. These counties may experience weather related problems not encountered in Tuscaloosa. Individuals should follow the advice of the National Weather Service for that area taking the necessary precautions to ensure personal safety. Whenever the National Weather Service and the Emergency Management Agency issue a warning, people in the path of the storm (tornado or severe thunderstorm) should take immediate life saving actions. When West Alabama is under a severe weather advisory, conditions can change rapidly. It is imperative to get to where you can receive information from the National Weather Service and to follow the instructions provided. Personal safety should dictate the actions that faculty, staff and students take. The Office of Public Relations will disseminate the latest information regarding conditions on campus in the following ways:

Weather advisory posted on the UA homepage

Weather advisory sent out through Connect-ED--faculty, staff and students (sign up at myBama)

Weather advisory broadcast over WVUA at 90.7 FM

Weather advisory broadcast over Alabama Public Radio (WUAL) at 91.5 FM

Weather advisory broadcast over WVUA 7. WVUA 7 Storm Watch provides a free service you can subscribe to that allows you to receive weather warnings for Tuscaloosa via e-mail, pager or cell phone. Check <http://www.wvua7.com/stormwatch.html> for details.

COURSE WITHDRAW:

The last day to withdraw from this course with a "W" is Oct. 28th. If you feel that you need to withdraw from this class, please speak to me prior to doing so.