

Physiology Lab (Phsl 3063, Phsl 3701)

2 credits

<http://www.vhlab.umn.edu/~bmen3701/>

Course Developer: Paul A. Iaizzo, Ph.D. (Surgery and Physiology)

Prerequisite: Physiology 3061

Class Meeting: Moos Tower 3-110

Section 001: Monday 1:25pm-04:25pm (09/10/07 - 12/10/07)

Section 002: Tuesday 1:25pm-04:25pm (09/11/07 - 12/11/07)

Optional Lab Session: Friday 12:30-3:30 (coordinate with TA)

Instructor	Office Location	Telephone	E-mail Address
Paul Iaizzo	B-592 Mayo	624-7912	iaizz001@tc.umn.edu
Steve Saliterman	7-105 NHH	952-920-8771	drsteve@umn.edu
Douglas Wangenstein	2-168 Jackson Hall	625-6421	wange001@tc.umn.edu

TA	Office Location	E-mail Address
Emily Habisch	7-105 NHH	habis002@umn.edu

Office Hours:

Formal office hours will not be held. However, an additional open lab time will be scheduled on Friday afternoons from 12:30 - 3:30pm, which is available for help and/or for extra time to get labs done. A TA will be available from 12:30 - 1:00 pm, if no students show up or other arrangements haven't been made, the TA will leave after 1:00 pm. If you need help and can not make it on Fridays, then please contact one of the TAs listed above.

Objectives:

- Provide an active learning environment to teach the basic principles of human physiology.
- Teach students the principles of experimental documentation in a laboratory notebook.
- Have the student gain an appreciation for how variable human physiology can be.
- Provide students with a hands on opportunity to use commonly used physiological monitoring equipment.
- Promote and encourage team work and collaboration among students in the lab.

Grading:

Attendance in all sessions is required and make-up sessions will need to be arranged by the student with a TA. Each student will be required to document their experimental findings in a laboratory notebook. The notebooks will be collected and evaluated by the TA several times throughout the semester to provide feedback for improvement. In addition, specific written laboratory write-ups will be assigned and verification of completion of computer modules will be noted. The final grade is composed of:

Attendance/quiz/notebook: 35%

Weekly Write-up: 25%

Group Project:20%

Evaluations: 20%

Textbook:

Since each module is being taught by various faculty members, there is no one textbook that will be required, however there is a **required lab packet** that can be purchased in the bookstore. Human Physiology by Vander, Sherman and Luciano, which is required for the prerequisite course will be used as a resource. It will be a future goal of this course faculty to develop a specific laboratory text book for physiological laboratory modules that is geared specifically for the biomedical engineering student.

Topics: (The number and types of modules will increase and vary based on student feedback as to their specific learning value)

- The Laboratory Notebook
- Skeletal muscle force assessment
- ECG recording and analysis
- Cardiac performance
- Respiratory function
- Metabolic rates
- Thermoregulation
- Electromyography
- Visual evoked potentials
- Color vision
- Hearing
- Renal function
- Sensory evaluations: taste and smell
- Reflexes and reaction times
- Biomedical equipment used in the operating room

Academic Dishonesty

Scholastic dishonesty includes, but is not limited to: cheating on a test, plagiarism, and collusion. Cases of dishonesty may be handled as a scholastic matter or as a student conduct code matter at the discretion of the instructor. Instructors choosing to treat the case as a scholastic matter have the authority to decide how the incident of dishonesty will affect the student's grade in the course. If the instructor has treated the case as a scholastic matter involving the grade in a course and the student has a grievance related to this action, that grievance would be processed as outlined in Article IV, Section 3 of the Campus Assembly Constitution. Instructors choosing to treat the case as a disciplinary matter will refer the case to UMC's Student Conduct Code Coordinator for resolution under the University's Student Conduct Code.

Lab Schedule (subject to change)

Fall 2007	Week	Topic	Instructor	Biopac Lesson	Work Due
Sept 10-11	1	Lab Orientation and Cardiovascular Lecture	P. Iaizzo	Tutorial	
Sept 17-18	2	ECG I and use of lab notebook	TAs	5	
Sept 24-25	3	Systemic Blood Pressure and ECG II	TAs	16-6	Lab 5 Report
Oct 1-2	4	Heart Sounds, Pulse	TAs	17-7	
Oct 8-9	5	Muscle Force Assessment	P. Iaizzo	Lecture/ Demos	Lab 16 Report Lab 6 Data Sheets
Oct 15-16	6	Skeletal Muscle: EMG I and II	TAs	1-2	Lab 17 Report Lab 7 Data Sheets
Oct 22-23	7	EEG I and II	TAs	3-4	Lab 1 and 2 Report
Oct 29-30	8	Respiratory: Respiratory Cycle I, Pulmonary Function I and II	Wangenstein	12-13	Lab 3 and 4 Report Lab Notebooks
Nov 5-6	9	EOG	TAs	10	Lab 12 and 13 Reports
Nov 12-13	10	Aerobic Exercise Physiology	Saliterman	15	Lab 10 Report
Nov 19-20	11	Present Group Project Proposal Lesson of choice	Iaizzo & TAs	Choose Lesson 8,9,11, or 14	Lab 15 Report
Nov 26-27	12	Design your own experiments	TAs		Report from BIOPAC Module of your choice
Dec 3-4	13	Design your own experiments	TAs		
Dec 10-11	14	Group presentations	Iaizzo & TAs		Final Project Report Lab notebooks