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Prerequisite:

Biol. 1010, or Zool. 1050, or Zool. 2250

Objectives: To illustrate, with laboratory experiments, exercises and demonstrations, the principles of physiology with special reference to human physiology.

Required Text: PhysioEx 9.0 Laboratory simulations in Physiology by Zao, Stabler and Peterson

<http://biology.csustan.edu/~watson/watson-moodle/>

Spring 2011 Tentative Laboratory Schedule

Date	Topic	Handouts	Biopac	PhysioEx
2-1	Getting Started - What to Expect	Homeostasis Metrics		
2-1	Tissues and Organs	Tissues		
2-8	Diffusion, Osmosis and Tonicity	Transport		
2-15	Measurement of Plasma Glucose	Glucoses determination		
2-22	Exam 1 The Digestive System	Digestion		Ex 8 - #3, 4
2-29	Measurements of Pulmonary Function		12,13	
3-7	The Cardiovascular System		5, 7	Ex 6 - #1 to 8
3-14	Effects of Exercise on Pulmonary and Cardiovascular Systems			
3-21	Exam 2 The Immune System	Immunity		
3-28	The Muscular System *		1 2	Ex2 - #1 to 9
4-4	Renal Regulation	Renal lab		

4-18	Acid-base Balance			Ex10 - #1-8
4-25	The Nervous System	Sensory		
5-2	The Endocrine system			Ex 4 - #1 to 8
5-9	Final exam			

Laboratory worksheets: Laboratory worksheets will be collected on five occasions at the beginning of randomly chosen labs. These worksheets consist of materials that are downloadable from the website. These include questions listed in the exercises as well as data sheets for the BioPac and PhysioEx exercises. Worksheets must be turned in at the beginning of the period when asked for; worksheets will not be accepted after the first 5 minutes of lab. They are worth 10 points each for a total of 50 points. Download your lab assignment/worksheets posted on the website before coming to lab.

You need to create your own moodle account where grades will be posted. Here is the instruction:

To create your Moodle account and enroll yourself in our ZOOL 2232 course site, begin at <http://moodle.csustan.edu> and click through the course categories to find ZOOL 2232. Click the link for the ZOOL 2232 course to continue the enrollment process. At the login screen, click the "Create new account" button over on the right. Fill out the form and wait for the email confirmation message to arrive in your inbox and follow its instructions to finish creating your account. The final step to enrolling is to enter the course enrollment key (password) when you're prompted to do so. The key is: zool2232. This key will ensure that only the students in our class will have access to the course site. If you encounter any problems, please email **Glenn Pillsbury** (gpillsbury@csustan.edu); he is OIT's Moodle administrator. **You need to enroll to the Moodle account by February 6. You will be dropped from my roster if you are not on the account by this due date.**

Please do not use the lab printer to print your lab exercises and worksheets.

Laboratory equipment and space: Please read your laboratory safety guidelines and assignment before coming to lab. These are posted on the web site. At the beginning of each lab, organize your lab space and get all necessary glassware, instruments and reagents. Be aware of what you and your lab partners are doing. **At the end of each lab, clean all glassware and return all supplies to their proper locations.** You will be working in assigned groups (usually no more than three students per group) and your group is responsible for the given equipment and supplies. Missing and broken glassware/equipment will be charged to the group. These items have to be replaced before a grade will be given. Clean your lab area with soap and water before you leave the laboratory. **NO FOOD OR DRINK is allowed in lab.**

Attendance: Attendance is required in this class. Due to the complexity of the experiments, **no make-up labs are available.** It is required that you remain in the laboratory **until the entire exercise/experiment is completed and your lab areas are cleaned.** Individuals leaving their lab partners to collect data, or leaving their workspaces messy will have 10 points deducted per lab. Fifteen points per lab will be deducted from your grade if you miss more than two labs.

Grading: Grading is based on three exams @ 50 +/- points each, with a total of 150-175 points, and 5 laboratory work sheets at 10 points each, with a total of 50 points. The final exam in lab is not comprehensive. **Make-up exams are NOT available.** Grading will be based on approximately 200 points.

Grading scale:

Points	Grade
180-200 -- >90%	A
179-160 -- >80%	B
159-140 -->70%	C
139-120 -- >60%	D
<120	F

You have one week to contest your grade after an exam has been returned.

Please turn off your cell phone and pager before each lab. Cell phones must be put away during exams and quizzes.

There is zero tolerance for academic dishonesty, as defined by the university catalog. Any form of academic dishonesty will be reported to the Dean and will result in an F grade for the course.

Lab Policies

Infractions of any of these policies will result in the docking of 5% of your total lab points for each incident.

Attendance is mandatory; you may miss one laboratory period without it affecting your grade. All further missed labs, including lab periods where you are marked absent for leaving while your partners are still working, will result in a loss of 5% of your total lab points.

You are required to stay until your lab group has finished the exercise and your workspace and glass-ware has been cleaned and returned to its appropriate place.

You are required to stay during student presentations, leaving early will result in an absence for the day.

The printer in the lab is for recording data from BioPac and PhysioEx exercises only, you will not be allowed to keep other materials printed using the laser printer.

Broken glass belongs in the labeled glass disposal containers and paper and plastic in the regular trash.

You are responsible for the equipment checked out to you for each lab. Lost or broken equipment will be charged to the group and must be paid for before grades will be released.

No Food or Drinks will be consumed in the lab.

Cell phones must be turned off and put away during lab, leaving lab to talk on the phone is considered an absence.

Computers are to be used for laboratory exercises, not checking email or surfing the net. No programs, files or pictures may be downloaded to the computers in lab.

Bare feet are not allowed, and shoes with tops (vs. thongs or sandals) are recommended.

Microscopes, regardless of the condition they were previously put away in, must be put away properly and have clean optics.

LABORATORY SAFETY

Be safe! It is extremely important for you to establish good safety practices when working in the lab. Safety is a combination of common sense and familiarity with existing hazards and potential dangers. Accidents in the lab are most often the result of careless or improper handling of materials.

STUDENT RESPONSIBILITY AND LABORATORY SAFETY RULES

1. At the beginning of the first lab, know the location and proper use of the fire extinguishers, first aid kit, and eye wash station.
2. Wear goggles or safety glasses and gloves while you are working with solutions that are toxic, acidic or caustic, and may splash into your or your partner's eyes.
3. No smoking, eating or drinking is allowed in lab. Chemicals may enter your mouth and/or lungs. Your hands may also be contaminated with toxic chemicals. Never taste or sniff a chemical.
4. No bare foot is allowed in the laboratory. Long hair should be tied back when a Bunsen burner, alcohol lamp, mixers, stirrers, etc. is used. When working in lab, remove neckties and scarves.
5. It is the responsibility of the student to read labels and properly handle all equipment and reagents. If you are unsure, please ask your instructor.
6. Receptacles for proper disposing of materials are provided in the lab. Dispose glassware, plastic-ware, needles, urine samples, and animals, in their **proper containers**. Do not discard hazardous materials, flammable, toxic, or water-insoluble liquids in the sink. Water insoluble liquids, solids, hazardous/toxic wastes, volatile liquids and reactive chemicals should be discarded in separate waste jars. Paper products should be discarded into wastebaskets.
7. Acidic or basic chemicals should be diluted before flushing down the sink. No solvent should be flushed down the sink.
8. Report all accidents, even minor ones to the instructor.
9. Unauthorized experiments and/or variations of the lab experiments are not allowed.
10. Lab coats are not required but are recommended.

11. Always read the labels on the reagent bottles very carefully. Avoid contaminating the stock solution- do not return the excess chemicals to the reagent bottle. Transfer the stock solution to a clean beaker using the pipette (with mechanical pipettor) from the stock beaker. Always add more concentrated solution into water or into less concentrated solution. This is especially true with concentrated acids.
12. Clean your work area. The workbench should be clean at the end of each lab period. Wash your hands before you leave the lab.
13. For all emergencies call 911 (9-911 from my office).

Failure to comply with these policies will result in expulsion from the laboratory and therefore the course.

Name (Print) _____ Signature _____ Date _____

Course # _____ Semester: _____ Fall Winter Spring