Physiology

BIOL 325, 3 cr. hrs. (& BIOL 325L, 1 cr. hr.)

Black Hills State University

Fall, 2009

**Course Meeting Time and Location:**

lecture - 12:00-12:50 MWF, BJA 303

lab - 2:00-3:50 Th, BJS 153 (first lab meets Thur., Sept. 04)

# Instructor’s Contact Information:

## Dr. Charles Lamb

Office - BJS 150

Office hours – MTuWF 9:30-10:30

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# Course Description :

This course involves a study of the function of the human body. It is specifically designed to prepare students for advanced study in professional or graduate school programs.

# Course Prerequisites:

This course requires prior completion of BIOL 151/151L & 153/153L and one year of college chemistry, and I would recommend BIOL 381/381L (vertebrate anatomy) as well. As far as student preparation, I will announce the required reading for each meeting in advance, and I expect each student to read the material before coming to class. Falling behind in this course is easy to do and difficult to remedy, so it is the responsibility of each student to be prepared.

# Course Learning Goals or Objectives:

We will be learning how individual cells and whole systems function in the vertebrate body. You should come out of this course with a detailed knowledge of general cellular functions, as well as more specific coverage of neural, muscular, hormonal, cardiovascular, respiratory, digestive, and excretory physiology as it applies to humans and other vertebrates.

# Description of Instructional Methods:

### This course will be taught using a combination of lecture presentations, laboratory experiments, and computerized instruction formats.

### **Course Requirements:**

## Required textbook(s) and other materials:

lecture - *"Human Physiology* *"*, by Fox (11th Ed.);

lab - (materials to be distributed by instructor)

Class attendance policy:

In general, enrollment in a class implies the responsibility for attending each class session. However, the attendance policy for a specific class is at the discretion of the faculty member teaching that class and will be outlined in the course syllabus. Students will be allowed to make up graded work if an absence is due to participation in university-sponsored activities, provided prior notification of the impending absence has been given to the instructor. You will not be penalized for missing lectures (other than having to depend on your fellow students for the material covered that day), but you will lose points for missing exams or laboratories (see below). You should remember that I will be supplementing the material provided in your textbook (Fox) with additional information about non-human vertebrates where I think it better illustrates physiological concepts, so attendance and attention are vital to your success in this course.

Cheating and plagiarism policy:

Each student should be familiar with the guidelines for Personal Identification and Representation as stated in the Student Handbook. The following passage is particularly relevant:

*"A student who, in connection with his or her studies, disrupts a class, plagiarizes, cheats, or otherwise violates reasonable standards of academic behavior may, at the discretion of the faculty member involved, have his or her enrollment cancelled and/or be given a reduced or failing grade."*

You're investing your money and your time in order to get a quality education, so I expect all of you to act as responsible adults.

Make-up policy:

(see below)

**Evaluation Procedures:**

#### Total points -

 There will be 450 points possible in this course, and final grades will be determined roughly on a scale of:

 90-100% (405-450 pts) - A

 80-89% (360-404 pts) - B

 70-79% (315-359 pts) - C

 60-69% (270-314 pts) - D

 <60% (0-269 pts) - F

There will be three (3) midterm exams worth 100 pts each (given during the laboratory period), and the final exam will be worth 100 pts. The remaining 50 pts will be earned in the laboratory (see below).

Lecture -

 Each of the three midterms will cover only material presented during that section of the course, while the final will be comprehensive (covering all three sections). You must notify me, in advance, if some unavoidable crisis prevents you from taking a test at the scheduled time so we can make appropriate arrangements. Unexcused absences will result in zero points for that test. Missing more than one midterm will result in the loss of 100 pts, regardless of the excuse (your highest possible grade would then be a C, so don't miss exams!). The final exam will be comprehensive, with an emphasis on your ability to integrate the functioning of multiple systems in the body (which is the main purpose of this course, anyway!).

Labs -

 Students will be expected to come to each lab prepared to maximize the short time we have available, with appropriate reading material being distributed or identified by the instructor during the week prior to the lab. Points will not be given for the labs, strictly speaking, but each student is expected to submit a one-page (maximum) summary of each laboratory session at the beginning of the lecture on the following day (each Friday, unless notified otherwise by the instructor). These summaries are to be a list of the *concepts* covered in that laboratory session and their relationship to concepts covered in the lecture portion of the course. If you turn nothing in, you get no points for that week's lab.

**ADA Statement (must be used verbatim):**

“Reasonable accommodations, as arranged through the Disabilities Services Coordinator, will be provided students with documented disabilities. Contact the BHSU Disabilities Services Coordinator, Mike McNeil, at 605-642-6099, (Jacket Legacy Room in the Student Union) or via email at mikemcneil@bhsu.edu for more information. Additional information can also be found at <http://www.bhsu.edu/StudentLife/Learning/DisabilityServices/tabid/162/Default.aspx>”

**Academic Freedom and Responsibility (must be used verbatim):**

“Under Board of Regents and University policy student academic performance may be evaluated solely on an academic basis, not on opinions or conduct in matters unrelated to academic standards. Students should be free to take reasoned exception to the data or views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled. Students who believe that an academic evaluation reflects prejudiced or capricious consideration of student opinions or conduct unrelated to academic standards should contact the chair of the department in which the course is being taught to initiate a review of the evaluation.”

**Tentative Course Outline/Schedule:**

Section 1 - Chapters 1-7 in Fox;

 Test 1 on Thur., **Sept. 24**.

Section 2 - Chapters 7-10 in Fox;

 Test 2 on Thur., **Oct. 22**.

Section 3 - Chapters 10-14 in Fox;

 Test 3 on Thur., **Nov. 19**.

Final - Everything we have studied in Fox (& additional lecture material);

 Final Exam on Wed., **Dec. 16** (9:45-11:15).

**Lecture Schedule:**

|  |  |  |
| --- | --- | --- |
| **Date** | **Topic** | **Pages** |
| Sept 02 | Introduction | 2-22 |
| *03* | *no lab* |  |
| 04 | Inorganic Chemistry | 25-30 |
| 07 | Labor Day |  |
| 09 | Organic Chemistry | 30-47 |
| *10* | *Metabolism Lab* |  |
| 11 | Cells | 51-71 |
| 14 | Enzymes | 88-102 |
| 16 | Cellular Metabolism | 106-125 |
| *17* | *Enzyme Lab* |  |
| 18 | Diffusion & Transport | 129-145 |
| 21 | Membrane Potential | 146-156 |
| 23 | Neural Cells | 161-169 |
| ***24*** | ***Exam 1*** | ***2-169*** |
| 25 | Action Potential | 170-177 |
| 28 | Synapses | 178-181 |
| 30 | Neurotransmitters | 182-199 |
| *Oct 01* | *NeuroSim Lab* |  |
| 02 | no class |  |
| 05 | Central Nervous System | 204-221 |
| 07 | CNS (cont.) | 222-235 |
| *08* | *EEG Lab* |  |
| 09 | Autonomic Nervous System | 240-246 |
| 12 | Native American Day |  |
| 14 | ANS (cont.) | 247-260 |
| *15* | *Sensory Lab 1* |  |
| 16 | Sensation | 263-270 |
| 19 | Taste & Olfaction | 271-273 |
| 21 | Vestibular & Audition | 274-285 |
| ***22*** | ***Exam 2*** | ***170-285*** |
| 23 | Vision | 286-299 |
| 26 | Vision (cont.) | 300-307 |
| 28 | Muscle Contraction | 356-369 |
| *29* | *Sensory Lab 2* |  |
| 30 | Muscle (cont.) | 370-379 |
| Nov 02 | Muscle (cont.) | 379-396 |
| 04 | Endocrine | 312-332 |
| *05* | *Muscle Activity Lab* |  |
| 06 | Endocrine (cont.) | 333-351 |
| 09 | Blood | 401-413 |
| 11 | Veteran’s Day |  |
| *12* | *ECG Lab* |  |
| 13 | Heart | 414-426 |
| 16 | Vasculature | 427-441 |
| 18 | Cardiac Output | 445-461 |
| ***19*** | ***Exam 3*** | ***286-461*** |
| 20 | CO (cont.) | 462-483 |
| 23 | Respiratory System | 524-545 |
| 25 | Resp. Syst. (cont.) | 546-570 |
| *26* | *Thanksgiving* |  |
| 27 |  |  |
| 30 | Excretory System | 574-590 |
| Dec 02 | Excretory (cont.) | 591-608 |
| *03* | *Spirometry* |  |
| 04 | Digestive System | 613-627 |
| 07 | Digestion (cont.) | 627-650 |
| 09 | ? |  |
| *10* | *Polygraph Lab* |  |
| 11 | ? |  |
| **16** | **Exam 4 (9:45-11:15)** | **462-650** |