

**BIO 3413    General Physiology    THIS SEMESTER**

NOTE FOR ON LINE SECTION (No attendance required): All course materials and performance assessments will be completed and administered entirely on-line through the world wide web internet and via WebCT software of UTSA (webct.utsa.edu). The introductory lecture on the syllabus and all lectures will be recorded and posted through the WebCT Homepage as streaming video. Check the WebCT Calendar for the scheduled dates for exams in this semester. All performance assessments, e.g., exams and quizzes, will be administered on line beginning the day [WebCT Calendar too.] mentioned on the syllabus, i.e., exams, or date posted, i.e., quizzes; an email will be sent via WebCT Mailbox to all enrolled students notifying them of availability and end date/time for completion of on line assessment materials. All lecture presentations will be posted, e.g., Powerpoint and pdf slides, and pdf handouts for printing, on the WebCT course site. All correspondence will be conducted via the WebCT Mailbox function on the course site. Grades are posted automatically upon completion of performance assessment materials. Final grades are posted subsequent to the administration of the final exam.

- Instructor:** Clyde F. Phelix, Ph.D.  
**Office Hours:** Correspondence through WebCT Mailbox.  
**E-mail address:** WebCT Mail (webct.utsa.edu)  
**Office:** BSB 1.03.30A; (210) 458-5498 (voicemail) (1604 campus)  
**Course Objectives:** To understand the functioning and interrelationships of physiological systems in animals.  
**Prerequisites:** You must have successfully completed BIO 1113 (Biology I), 1122(Lab) and 1123 (Biology II ) and BIO 1143. Concurrent enrollment in BIO 3422 recommended.  
**Required Text:** *Principles of Anatomy and Physiology*, 10th edition by Tortora and Grabowski.  
*Eckert Animal Physiology: Mechanisms and Adaptations*, by Randall et al.

Welcome to General Physiology, a study of vertebrate animal life. In the course of a semester we will study principles of physiology, physiological processes, and the integration of these systems. An effort will be made to stress basic quantitative physiological principles and these quantitative problems will be on the on-line quizzes. Each quiz will be weighed equally toward the final grade.

This course consists of three hours of lecture and supplemental, required material on the WebCT course site. Your grade will be determined in the following manner...

**Grading System**

Six (6) Comprehensive exams	60% of final semester grade
Lecture quizzes	10% of final semester grade
On Line Exercises	20% of final semester grade
On Line Case Studies	10% of final semester grade
Letter Grades	A = 90% and above
	B = 80% - 89%
	C = 70% - 79%
	D = 60% - 69%
	F = 59% and below

Note - Fractions of a percentage will be rounded to the nearest whole percentage.

**\*Supplemental Lectures 1-5 are posted as pdf files and streaming video and must be studied to complete Exercise 1 within 7 days of class beginning!**

**Lectures provided as streaming video are in two categories – Supplemental & Pre-recorded.**

Absolutely no extra credit will be given to any one individual. **All six exams will be administered on-line through WebCT and you are encouraged to study the posted powerpoint slide presentations carefully.** This usually works to your advantage.

Lecture quizzes will be given on-line, lecture quizzes will be announced through WebCT Mailbox email.

In order to be successful in this class you will need to be dedicated, take good lecture notes, complete your on-line exercises and case studies, do well on quizzes and tests, view streaming video lectures (**study on-line lectures**), be attentive, and be able to memorize materials quickly. You will also need supplemental animal or medical physiology text book(s) for comprehensive understanding of the material in the lecture presentations.

## **COURSE OUTLINE**

<u>DAY</u>	<u>(LEC #)</u>	<u>TOPIC</u>
<b><u>MODULE I: REGULATION: Endocrine and Nervous Systems</u></b>		
(1)	(1)	Homeostatic Control Mechanisms
(2)	(2)	<b>Endocrine System:</b> Overview of hormones; Glucagon & Insulin
(3)	(3)	Diabetes Mellitus; Parathyroid hormone and calcitonin
(4)	(4)	Hypothalamic-pituitary relationships; Posterior pituitary hormones; oxytocin; antidiuretic hormone
(5)	(5,6)	Anterior Pituitary: GnRH; FSH, and LH in male and female
(6)	(7,8)	Ovarian and uterine cycles (Menstrual and Estrous Cycles)
(7)	<b>EXAM I</b> (Lectures 1-8) [on line exam; lectures will continue on line] <i>(CENSUS DAY: LAST DAY TO WITHDRAW WITHOUT A GRADE -- check WebCT Calendar)</i>	
(8)	(9)	<b>Nervous System;</b> Neurons
(9)	(10)	Neurophysiology; Resting Membrane and Graded Potentials
(10)	(11)	Neurophysiology; Action Potentials
(11)	(12)	Propagation of action potentials; synaptic transmission
(12)	(13)	Postsynaptic potentials; summation; neurotransmitters
(13)	(14)	Sensory receptors; Sensory receptor potentials
(14)	(15)	Autonomic Nervous System
(15)	<b>EXAM II</b> (Lectures 9-15) [on line exam; lectures will continue on line]	

**MODULE II: Movement: The Somatic Nervous and Skeletal Muscle Systems**

- (16) (16) Reflex arc; stretch and flexor reflexes
- (17) (17) **Muscular System**; Muscle action potential; Overview
- (18) (18) Microscopic anatomy; skeletal muscle contraction
- (19) (19) Excitation-contraction coupling; Summation
- (20) (20) Agents that interfere with muscle contraction and Disorders

(21) **EXAM III** (Lectures 16-20) [on line exam; lectures will continue on line]

**MODULE III: Distribution: The Cardiovascular and Lymphatic Systems**

- (22) (21) **Cardiovascular System**; cardiac versus skeletal muscle
- (23) (22) Heart anatomy; pathway of blood; heart valves
- (24) (23) Cardiac muscle fibers; intrinsic conduction system; ECG
- (25) (24) Cardiac cycle; heart sounds; cardiac output; regulation of HR  
Capillary blood flow; **Lymphatic system**

(26) **EXAM IV** (Lectures 21-24) [on line exam; lectures will continue on line]  
*(DROP DAY: LAST DAY TO DROP WITH A GRADE OF "W" -- check WebCT Calendar)*

**MODULE IV: Disease Resistance: The Lymphatic and Immune Systems**

- (27) (25) **Lymphatic & Immune System**; Nonspecific defenses; Inflammatory response
- (28) (26) Antimicrobial proteins; Immunity; Antigens
- (29) (27) B and T cells; Humoral and cell-mediated immune responses

**MODULE V: Gas Exchange and pH Balance: The Respiratory System**

- (30) (28) **Respiratory System**; conducting/respiratory zones, pleura
- (31) (29) Mechanisms of breathing; External, Internal respiration; Control of Respiration

**MODULE VI: Fluid and pH Balance: The Urinary System**

- (32) (30) **Urinary System**; anatomy, nephrons; net filtration pressure
- (33) (31) Glomerular filtration rate; Tubular reabsorption
- (34) (32) Tubular secretion; Electrolyte balance; aldosterone, ADH

- (35) (33) Review of pH, **Acid-base balance**; chemical buffers
- (36) (34) Respiratory and renal mechanisms of acid-base balance
- (37) (35) Respiratory and renal mechanisms of acid-base balance WebCT Lecture

(38) **EXAM V** (Lectures 25-35) [on line exam; lectures will continue on line]

**MODULE VII: Energy Acquisition and Use: The Digestive System**

(39) (37) Cephalic Phase; Mechanical and Chemical Digestion

(40) (38) Chemical Digestion and Absorption

(41) (39) Carbohydrate, Lipid, and Protein Metabolism

(42) (40) Energy Expenditure: Metabolic Rate

**MODULE VIII: Continuity: The Reproductive System**

(43) (41) **Reproductive System**; Male and female anatomy and the sexual response cycle

(44, 45) **STUDY DAYS**

(46) Check WebCT Calendar, **FINAL EXAM** as scheduled on-line (Covers lectures 37-41)

**FINAL EXAM SCHEDULED FOR ADMINISTRATION ACCORDING THE UTSA OFFICIAL SCHEDULE!**

**EXAM SCHEDULE: [Each exam will be posted on line on WebCT and noted on the Calendar. You will have 60 minutes for Exams I-IV (extra time will be provided for Exam V because there are more questions over more material); 85 minutes for the Final Exam THAT WILL ALLOW ONLY ONE attempt. The exams I-V will be posted starting 24 hours before the dates below and will remain available for you to take them until midnight on those days.]**

EXAM I	DURING WEEK 3
EXAM II	DURING WEEK 6
EXAM III	DURING WEEK 8
EXAM IV	DURING WEEK 10
EXAM V	DURING WEEK 14
FINAL EXAM	DURING FINALS WEEK

## ***Policy sheet***

### ***Attendance***

Obviously not, for the on-line section. Be committed to regular visits, viewing, reading, and studying because performance assessments will be administered on time! You should treat this course as a M, W, F course - as those will be the days the instructor will definitely be checking WebCT Mailbox, and sending or receiving messages; every effort will be made by the instructor to visit the WebCT course each morning. Be sure to view the WebCT posted lectures, you might miss tips for the exams.

### ***Exams:***

EXAMS 1 - 4 and FINAL EXAM approximately 50 questions; EXAM 5 is 75 questions.

Each exam will be graded by WebCT on line and instantly, except for any short answer questions. Questions will be multiple choice, matching, true/false and short essay. Check and double check your on line grades and correspond via WebCT email with me **promptly** if you have any questions.

### ***Missed quizzes and exams***

**There are NO make-up quizzes!** Make-up exams may be essay exams of extreme difficulty. You must make up an exam within **2 calendar days** (excluding weekends) of the scheduled day of the exam unless you and I have made other arrangements. Leave a message with the Department office (458-4458) if you cannot reach me in person or by email.

### ***Missed final***

You will receive a grade of "I" (incomplete for a postponed final) if you make prior arrangements. Otherwise, if I have not heard from you within 1 day after the final, you will receive a zero for the final.

### ***Exercises, Case Studies and Quizzes***

The instructor will describe the nature of the exercises, case studies and quizzes via WebCT Mailbox emails early in the semester. Whatever number of each (exercises, case studies, and quizzes) that are administered in a semester (at least three of each) will count equally toward the total points for the course, as allotted on the Table of page 1. You will be provided a formula for calculating your grade during the semester through WebCT Mailbox.

### ***Cheating (See <http://www.utsa.edu/ucat/InfoGuide/Chapter5/register.htm> for Student Code of Conduct)***

I expect you to be honest. **Cheating includes**, but is not limited to:

- 1) using notes during an exam**
- 2) looking at on line materials while taking the exam**
- 3) looking at another's or letting someone look at your exam**

### ***Dropping the course***

**Check both the WebCT and UTSA Academic Calendar to know what is the last day to drop and still get a grade of "W". You must take responsibility for dropping the class. You do not need my signature if you drop by the drop date. You cannot drop after the drop date simply because of low grades.**