

**RANGER COLLEGE**  
Syllabus  
Fall 2010 – (Tuesday 6:30-9:15pm)

**COURSE NUMBER AND TITLE:** Biology 2402 - Anatomy and Physiology

**CREDIT HOURS :** 4

**SCHEDULED HOURS/WEEK:** Lecture: 2.75    Lab: 2.75    Lec/Lab Combined: 5.5

**Name of Instructor:** Mr. Terry Johnson

**Office Location:** Early, TX: Room 102

**Fall Office Hours:** M-Th 10:45am-12:45pm (or by appt.)

**Office Phone:** 325-641-5726 x 205

**E-Mail:** tjohnson@rangercollege.edu

To facilitate communication in this course, students should check their email AND Blackboard often, at least once daily. Your instructor may use either to communicate important information or announcements that you don't want to miss!

\*\*\*Disclaimer: All schedules and procedures in this syllabus and this course are subject to change in the event of extenuating circumstances.\*\*\*

- I. CATALOG DESCRIPTION:** This course includes study of the tissues, organ structure and physiological processes of the endocrine, circulatory, respiratory, digestive, urinary and reproductive systems in humans. The principle of structure and function and the role these organ systems play in maintaining homeostasis will be emphasized.
- II. REQUIRED BACKGROUND / PREREQUISITES**  
Passing score on THEA Reading section or equivalent alternate test is recommended. Prerequisite Biology 1408 recommended.
- III. TEXTBOOK(S) ; READINGS; MATERIALS**  
HOLE'S ESSENTIALS OF HUMAN ANATOMY AND PHYSIOLOGY 9th edition. Shier, Butler and Lewis. McGraw Hill. 2006. Not required, but highly recommended. Many helpful figures, reading materials, and practice activities are in the textbook.
- Laboratory Atlas of Anatomy and Physiology 6<sup>th</sup> edition. Eder, Kaminsky, and Bertram. McGraw Hill. 2009. **(Required.)**  
Occasional readings will be available in the library.

The decision to purchase a textbook is ultimately up to the student. However, reading the texts, observing figures and pictures included in the texts, and working the practice questions and activities within each chapter will improve memory and understanding of the material throughout the course, and consequently may help improve your grade. Although typically all exam questions come from the lecture material and notes, many of the practice questions in the textbook chapters are similar to the questions on the lecture exams. Though you are not required to purchase the textbook, and you have the option of

using other resources available to supplement your study, purchasing the textbook as an additional reference is highly recommended.

#### **IV. METHODS OF INSTRUCTION**

1. Lectures (2.75 hours once weekly) in which the major concepts and theories in anatomy and physiology will be discussed.
2. Lecture notes will be provided through Blackboard. The student will be responsible for printing the appropriate lecture notes prior to each lecture.
3. Labs (2.75 hours once weekly) in which major anatomical and physiological principles will be demonstrated by examination of specimens and viewing of videos.

#### **V. EXEMPLARY EDUCATIONAL OBJECTIVES NATURAL SCIENCES (N)**

Natural Sciences (N)

- N-1 to understand and apply methods and appropriate technology to the study of natural sciences;
- N-2 to recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry and to communicate findings, analyses, and interpretation both orally and in writing;
- N-3 to identify and recognize the differences among competing scientific theories;
- N-4 to demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values and public policies;
- N-5 to demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture.

#### **VI. BASIC INTELLECTUAL COMPETENCIES**

**B-1 Reading** -the ability to analyze and interpret a variety of printed material.

**B-2 Writing** - the ability to produce clear, correct and coherent prose adapted to purpose, occasion and audience.

**B-3 Speaking** - the ability to communicate orally in clear, coherent and persuasive language appropriate to purpose, occasion and audience.

**B-4 Listening** - the ability to analyze and interpret various forms of spoken communication.

**B-5 Critical Thinking** - the ability to apply both qualitative and quantitative skills analytically and creatively to subject matter to evaluate arguments and construct alternative strategies.

**B-6 Computer Literacy** - the ability to understand our technological society, use computer based technology in communication, solving problems and acquiring information.

**VII. COURSE OBJECTIVES :** Biology 2401 is designed to instruct students in methods that will result in a student who is able to:

1. Describe the structure and function of the endocrine system, (N-1, N-2)  
(B-1, B-4, B-5)
2. Describe the structure and function of the cardiovascular system, (N-1, N-2)  
(B-1, B-4, B-5)
3. Describe the structure and function of the lymphatic system, (N-1, N-2)  
(B-1, B-4, B-5)
4. Describe the structure and function of the respiratory system, (N-1, N-2)  
(B-1, B-4, B-5)
5. Describe the structure and function of the digestive system, (N-1, N-2)  
(B-1, B-4, B-5)
6. Describe the structure and function of the urinary system, (N-1, N-2)  
(B-1, B-4, B-5)
7. Describe the structure and function of the reproductive system. (N-1, N-2)  
(B-1, B-4, B-5)

In order to evaluate the progress in achieving the course objectives, each student may respond on written exams to questions that include but are not limited to the following areas, and that assess the student's ability to:

- Describe the functional relationship between the endocrine system and the nervous system.
- Describe the production, release, transportation and target tissue of the hormones produced by the endocrine system.
- List the endocrine glands and the hormones each produces.
- Describe the response of the target tissue to the specific hormones discussed in class.
- List the functions of the blood and describe the composition of blood plasma.
- Describe the origin, function and structure of the formed elements of blood.
- Describe the external and internal anatomy of the heart.
- Explain the events of the cardiac cycle.
- Describe the structure and function of arteries, capillaries and veins.
- Describe the pattern of circulation of blood through the body.
- Describe the factors that control the movement of blood through the cardiovascular system.
- Explain the three primary functions of the lymphatic system.
- Explain how lymph is formed and transported.
- Describe the structure of lymph vessels, nodules and nodes, spleen and thymus.
- List the structures that compose the respiratory passages.
- List the tissues that form each structure of the respiratory passages.
- Describe the structure of the alveoli or terminal respiratory units.
- Explain how contraction of the respiratory muscles causes pulmonary ventilation.
- List the structures that form the digestive tract and the tissues that form each of

these structures.

- Explain the mechanism that moves food through the digestive tract.
- List the accessory digestive glands and their secretions.
- Describe the process of chemical digestion and absorption.
- List the components of the urinary system and the function of each.
- Describe the tissue structure of the kidney.
- Explain the countercurrent multiplier mechanism for concentration of urine.
- Describe the structure and function of nephrons.
- List the components of the male reproductive tract that produce and deliver sperm.
- Describe the production and development of sperm.
- Describe the hormonal control of the male reproductive system.
- List the components of the female reproductive tract that produce, deliver and support the egg.
- Describe the production and development of eggs.
- Describe the hormonal control of the female reproductive system.
- Describe the events that lead to fertilization and development of the egg.

#### **VIII. COURSE CALENDAR** (see attachments)

#### **IX. COURSE / CLASSROOM POLICIES**

Regular and punctual attendance in all classes and labs is considered essential for optimum academic success. If the student has the equivalence of three weeks of unofficial absences... the instructor may drop the student from the course with a grade of F (Ranger College General Catalog 2009-2010). Students are expected to be seated by the beginning of the lecture period. Excessive tardies (6) may be considered as absences. Excessive unexcused absences (6) may result in a grade of I (incomplete) and may result in dismissal from the course with a grade of F. It is your responsibility to inform the instructor of an excused absence. An absence is excused if you are excused by the Dean to participate in an authorized College activity. Any student who is disruptive to the class will be dismissed from the class and may be dismissed from the course. Any student found with unauthorized notes (cheat sheets, electronic devices, etc.) during an exam or copying from another student's exam will be subject to disciplinary action. Any student misconduct will be reported to the Dean of Student Services. Please do not bring cell phones, pagers or similar devices to class or be sure they are turned off. No smoking or tobacco use is permitted in the building.

ADA Statement: Ranger College provides a variety of services for students with learning and/or physical disabilities. The student is responsible for making the initial contact with the Ranger College Counselor. It is advisable to make this contact **before** or **immediately** after the semester begins.

**X. ASSESSMENT (Grading Procedure)**

**Lecture:** The lecture portion of the course comprises 75% of your final grade in BIOL 2402. Exams will cover all material discussed since the last exam and will consist of one or more of the following:

- 1) fill-in-the-blank questions, 2) short answer/essay questions, 3) matching, 4) multiple choice, 5) true or false questions

Each question will be graded as correct or incorrect in accordance with information in the text and lectures. Exam grades will be taken as the number of points correct. Each exam will carry equal weight in the average, including the Final Exam.

**Laboratory grades:** The lab portion of the course comprises 25% of your final grade in BIOL 2402. Your final Lab grade will be the average of your Lab Exams. Further information including safety guidelines in the laboratory will be given by your lab instructor.

**Calculation of final course grade:**

The course grade will be computed as follows:

$$\begin{array}{rcl} \text{Average of lecture exams (including Final Exam)} & = & 3/4 \\ \text{Lab average} & = & 1/4 \\ \text{Total} & = & \text{Course Grade} \end{array}$$

How to calculate:

$$\frac{(\text{average of lecture exams} * 3) + \text{lab average}}{4} = \text{Course Grade}$$

Letter grades will be assigned as follows:

$$90-100 = A, \quad 80-89 = B, \quad 70-79 = C, \quad 60-69 = D, \quad \text{below } 60 = F$$

**Extra Credit:** Extra points may be added to your grades, but this is not guaranteed. The instructor reserves the right to give extra credit in the form of pop quizzes, rewards for attendance, assignments, bonus questions, or any other method deemed appropriate by the instructor.

**Lecture Absences Policy:** A student who misses any lecture is responsible for getting missed notes or assignments from the instructor or classmates. Make-up lecture exams are given only for exams missed due to an excused absence, and will be given later in the semester. You will not be allowed to make up any exams due to unexcused absences, and you will receive a grade of Zero for the missed exam. You are responsible for providing evidence to substantiate the reason for any absence. Evidence of a college-authorized absence will be required and authenticated prior to my scheduling a make-up lecture exam. You

should notify me of your intent to take a make-up and provide substantiating evidence within one week of missing an exam. Make-up exams are normally more difficult than regular exams and may be in essay format. Students are strongly urged to not miss regularly scheduled exams. You are required to take the Final Exam and there is **NO MAKEUP** for the Final Exam (no exceptions).

**Lab Absences Policy:** Students who miss an A&P lab will miss valuable time and opportunity to observe models and specimens, and learn important information for the lab exams. Missing labs may negatively impact a student's grade. If a student must miss a lab, it is the responsibility of the student to obtain missed lab notes and information from another student or the lab instructor. Students are allowed to make-up only ONE missed Lab Exam. This make-up will be given the last week of the semester. Make-up exam questions are usually more difficult and worth more points each, and students do not normally perform as well on make-up exams. Therefore, students are strongly encouraged not to miss any regularly scheduled lab exams.

**XI. ADMISSIONS, EMPLOYMENT, AND PROGRAM POLICIES OF RANGER COLLEGE ARE NONDISCRIMINATORY IN REGARD TO RACE, CREED, COLOR, SEX, AGE, DISABILITY, AND NATIONAL ORIGIN.**

**XII. LABORATORY SAFETY**

Students are expected to understand and comply with all environmental, health and safety procedures and protocols, and must agree to abide by all lab safety policies. Specific safety guidelines will be discussed at the beginning of each lab activity. Any student who is late and misses the safety training or instructions may not be allowed to participate in the lab activity. Any student who intentionally or thoughtlessly jeopardizes the safety of another student will be immediately dismissed from the lab, and may be withdrawn from the course.

Students should read the upcoming lab exercises **prior** to attending labs in order to be prepared for the required protocols and procedures, and enhance safety.

**XIII. RECEIPT OF SYLLABUS (see attachments)**

**XIV. PRE-TEST REQUIRED**

A "Pre-test" will be provided for you in Blackboard. Please take the pre-test during the first week of the course and return to me in hard copy form. This will not count towards your grade; the purpose of the pre-test is to assess overall class education levels in this course.

**BIOLOGY 2402 - ANATOMY AND PHYSIOLOGY  
FALL 2010 TENTATIVE SCHEDULE**

Text: Hole's Essentials of Human Anatomy and Physiology 9th edition  
Shier, Butler and Lewis

<u>DATES</u>	<u>LECTURE TOPIC</u>	<u>CHAPTERS</u>
Aug. 24	Introduction, orientation and review	Chs 1, 3, 4
Aug. 24	Endocrine system – gland structure and position	Ch 11
Aug. 31	“ - hormones and their action	“
Aug. 31	Cardiovascular system – Blood cell development	Ch 12
Sept. 7	“ - red blood cell function	“
Sept. 7	“ - white blood cells and defense	“
Sept. 14	<b><u>Exam 1</u></b> (Endocrine system and blood)	
Sept. 14	Cardiovascular system - heart structure	Ch 13
Sept. 14, 21	“ - heart dynamics and blood flow	“
Sept. 21	“ - control of blood flow	“
Sept. 21, 28	Cardiovascular system – vessel structure	Ch 13
Sept. 28	“ - dynamics and blood flow	“
Oct. 5	<b><u>Exam 2</u></b> (Cardiovascular system)	
Oct. 5, 12	Lymphatic system – lymphatic tissue and lymph flow	Ch 14
Oct. 12	“ - and immunity	“
Oct. 12	Respiratory system – structure of conducting portion	Ch 16
Oct. 19	“ - mechanics of pulmonary ventilation	“
Oct. 19	“ - oxygen absorption and transport	“
Oct. 26	<b><u>Exam 3</u></b> (lymphatic and immune systems)	
Oct. 26	Digestive system – structure of digestive tube	Ch 15
Nov. 2	“ - “ “ “	“
Nov. 2, 9	“ - hormones and enzymes of digestion	“
Nov. 9	“ - regulation of digestion	“
Nov. 16	<b><u>Exam 4</u></b> (respiratory and digestive systems)	
Nov. 16, 30	Urinary system – structure and formation of urine	Ch 17
Nov. 30	Reproductive system – male structures	Ch 19
Nov 30-Dec. 7	“ - male hormonal control	“
Dec. 7	“ - female structures	“
Dec. 7	“ - female hormonal control	“
Dec. 14	<b><u>FINAL EXAM</u></b> (Not comprehensive: urinary and reproductive systems)	

### **Receipt of Syllabus**

I have received, and I understand the information in, the syllabus for Biology 2402 and I agree to abide by the stated policies. This includes use of electronic equipment in the class room. Also, I understand the method for calculating my grade.

Name: (print)\_\_\_\_\_ Date:\_\_\_\_\_

(sign)\_\_\_\_\_

1. Please list other biology or related courses you have taken in previous semesters.
2. What is your major, program, or interest? Why are you taking A & P ?
3. Is there anything in particular that you would like your instructor to know about you or your circumstances?
4. Do you have an advisor or sponsor, and if so, who?
5. What is your preferred email address? (this is the one that your instructor will use to communicate with you off campus)  
\_\_\_\_\_
6. What is your user name for Blackboard (I must have this in order to enroll you into this course in Blackboard)?  
\_\_\_\_\_