

# **Syllabus for Biology 2402 - Human Anatomy and Physiology II**

## **Jerry James – Fall, 2009**

### **Course Description**

Human Anatomy and Physiology II is a study of various organ systems of the human body including: cardiovascular, lymphatic, immune, respiratory, digestive, urinary, and reproductive systems. Emphasis is on understanding the physiology of negative and positive feedback mechanisms associated with these organ systems.

Weekly laboratory activities are designed to complement and/or coincide with lecture topics. Laboratory activities will include use of various organ system models, group activities, and dissections of preserved or fresh specimens of hearts, lungs, etc. No live animal experiments are used. The students will be guided through a study of the structural anatomy of the organs as well as the physiological processes involved in each organ system.

### **Prerequisites**

Students must have successfully completed BIOL 2401(3-3) [2607065124] at an accredited college. Certain EMS or medical work experiences may be substituted to fulfill this requirement. See your instructor today if you have not successfully completed BIOL 2401 (A&P I).

### **Instructor**

Jerry James, Office: B237 230-3353, (hm 265-1640 but no later than 9 p.m.)  
A schedule of my office hours and on-campus availability is printed separately.  
Email: jerry.james@brazosport.edu (response usually <24 hrs.)  
Departmental Office Professional is Connie Davis, B202, 230-3225

### **Learning Outcomes (Course Goals)**

1. Students will demonstrate knowledge of the properties of cardiac muscle fibers as well as how the intrinsic conduction system coordinates contractions of the myocardium.
2. Students will demonstrate knowledge of the path of blood flow through the chambers, valves, and vessels of the heart.
3. Students will demonstrate knowledge of how the autonomic nervous system influences heart rate and contractility to adjust cardiac output to meet the needs of the body.
4. Students will demonstrate knowledge of the short-term and long-term mechanisms for adjusting and maintaining blood pressure via changes in peripheral resistance, blood volume, and blood viscosity.
5. Students will demonstrate knowledge of the principles of tissue perfusion and capillary exchange.
6. Students will demonstrate knowledge of the roles of various cells and chemical substances involved in our nonspecific and specific defense responses.
7. Students will demonstrate knowledge of the anatomy and functions of the components of the respiratory system.
8. Students will demonstrate knowledge of the principles involved in the mechanics of pulmonary ventilation.
9. Students will demonstrate knowledge of the principles associated with external and internal respiration as well as the transport of oxygen and carbon dioxide in the blood.
10. Students will demonstrate knowledge of the various factors influencing the respiratory control centers resulting in compensatory and noncompensatory hyperventilation and hypoventilation.
11. Students will demonstrate knowledge of the anatomy and functions of the gastro-intestinal tract.
12. Students will demonstrate knowledge of how the hypothalamus serves as a thermostat controlling heat gain and heat loss to regulate body temperature.

13. Students will demonstrate knowledge of the anatomy and functions of the urinary system including detailed functions of each segment of the nephron.
14. Students will demonstrate knowledge of the principles involved in net filtration pressure, glomerular filtration rate, as well as the intrinsic and extrinsic regulations thereof.
15. Students will demonstrate knowledge of how the kidneys regulate the volume and concentration of extracellular fluids via the formation of concentrated or dilute urine.
16. Students will demonstrate knowledge of the principles of pH, acids and bases, as well as the three methods (chemical buffers, respiratory adjustments, & renal adjustments) by which the body tries to maintain proper pH of ECF.
17. Students will demonstrate knowledge of the causes and consequences of respiratory acidosis, respiratory alkalosis, metabolic acidosis, and metabolic alkalosis.
18. Students will demonstrate knowledge of how ABGs (arterial blood gas values) are interpreted to determine the cause of acidosis and alkalosis.
19. Students will demonstrate knowledge of how fluids and electrolytes are distributed among the "fluid compartments" as well as the causes of fluid and/or electrolyte shifts between compartments.
20. Students will demonstrate knowledge of the negative feedback mechanisms regulating potassium, calcium, and sodium concentrations in the ECF as well as the effects of electrolyte imbalances upon neuromuscular irritability.
21. Students will demonstrate knowledge of the anatomy and functions of male/female reproductive organs.
22. Students will demonstrate knowledge of the hormonal controls of the ovarian and menstrual cycles.
23. Students will demonstrate knowledge of the hormonal controls associated with pregnancy and childbirth.

### Textbook and Other Resources

**Required Text:** Human Anatomy & Physiology, 7<sup>th</sup> or 8<sup>th</sup> Ed., by Elaine Marieb. This is the #1 most popular A&P text in the USA. You will need it for both lecture and lab for both A&P 1 & 2.

Detailed **Study Guides** will be provided to help you identify the most important topics in the text.

**CD Rom – Interactive Physiology.** This CD comes with your text and is full of great tutorial animation clips, explanations, and practice quizzes. **Laptops** can be checked out from the IT department (230-3266) for 24 hrs at a time on a 1<sup>st</sup> come-1<sup>st</sup> served basis.

**Optional text:** Encyclopedia & Dictionary of Medicine, Nursing, and Allied Health, 5<sup>th</sup>, 6<sup>th</sup>, or 7<sup>th</sup> Ed., by Miller-Keane. This is a great resource for terminology definitions as well as for the causes, signs & symptoms, and treatments of many diseases and disorders. **Equally good information is becoming increasingly available online at a variety of websites.**

**Online Lectures in Streaming Video:** We are in the process of recording lectures and making them available online as streaming video files. You will need a high speed internet connection for satisfactory results. The idea is that you can listen to lecture and view the images a 2<sup>nd</sup> or 3<sup>rd</sup> time. However, since all technology is susceptible to glitches some lectures will be available online and others will not. Also, not everything presented or discussed in class will always be recorded. Links to my lecture videos can be found on my website

<http://www.brazosport.edu/sites/CurrentStudents/Faculty/JerryJames/Pages/default.aspx>

**Favorite Websites** for A&P, health, and medicine questions:

<http://mayoclinic.com/>

<http://www.medicinenet.com/script/main/hp.asp>

<http://www.rxlist.com/>

<http://www.emedicinehealth.com/script/main/hp.asp>

<http://www.drkoop.com/home/93/default.html>

## Lab Requirements

This course has a weekly 3 hour laboratory. The required textbook for the course will be used in the laboratory. You will receive a handout at the beginning of each laboratory to be used as a study guide along with instructor notes and other activities to provide an opportunity to learn the anatomy and physiology of various organ systems in a “hands on” environment.

## Students with Disabilities

BC is committed to providing equal education opportunities to every student. BC offers services for individuals with special needs and capabilities including counseling, tutoring, equipment, and software to assist students with special needs. Please contact Phil Robertson, Special Populations Counselor, 979-230-3236 for further information.

## Academic Honesty

BC assumes that students eligible to perform on the college level are familiar with the ordinary rules governing proper conduct including academic honesty. The principle of academic honesty is that all work presented by you is yours alone. Academic dishonesty including, but not limited to, cheating, plagiarism, and collusion shall be treated appropriately. Please refer to the BC Student Guide for more information, this is available online at <http://www.brazosport.edu>, click on the link found on the left side of the homepage.

## Attendance and Withdrawal Policies

Regular attendance in both lecture and lab is critical for the comprehension of material and successful and successful completion of the course. Every student is responsible for everything covered both lecture and lab whether you are present that day or not. Attendance records are kept to fulfill college requirements but are not directly factored into grading.

1. If a student has 4 or more absences (cumulative from both lecture and lab) the instructor may at his or her discretion withdraw the student from the course.
2. If the student decides to withdraw for whatever reason **it is the student's responsibility to officially withdraw from the course.** To officially withdraw from the course, students must complete and sign a withdrawal form, available in the Registrar's Office. **Failure to do so will result in the student remaining enrolled and receiving a grade – most likely an 'F'.**

## Course Requirements and Grading Policy

Students will demonstrate evidence of what they have learned by a combination of lecture exams and lab quizzes. There are typically 5 lecture exams and 12 lab quizzes. In general, lecture exams test your knowledge of the topics covered in lecture while lab quizzes test your knowledge of topics covered in lab. Grades for the course are based 60% on lecture exams and 40% on lab quizzes. You must take lecture exams and lab quizzes during your scheduled lecture and lab times.

## Projects, Assignments, Portfolios, Service Learning, Internships, etc.

None

## Student Responsibilities

Students are expected to fully participate in lectures and labs. You are responsible for your own success or failure. Good time management, punctuality, initiative, and teamwork are keys to success.

**The most successful students are usually the ones who:**

- have a "Let's Go For It!" attitude
- come to lecture early and often ask questions
- come to every lab and use their lab time productively and return to lab later for review
- read the text and view the CD-ROM video clips
- search for answers on websites
- participate in study groups
- meet with tutors or the instructor for help

## Testing & Grading

Lab quizzes are given weekly at the beginning of lab over the previous lab's information. Come early. Questions are not repeated for late arrivals. Lab quizzes are usually given in oral format with the student writing his or her responses. Other formats may be used when deemed appropriate by the instructor. Spelling counts. Only your 10 best quiz scores are used to calculate your lab average.

Lecture exams typically consist of 75-100 multiple questions. They may also include matching, fill-in-the-blank, labeling, and essays when the instructor deems these appropriate.

If you take all five lecture exams at their scheduled times and you are content with your grades, you are not required to take the comprehensive final exam. If not content with your grades, you have the option of taking the comprehensive final exam to replace a lower exam score.

If you miss one of the five lecture exams you must take the comprehensive final exam during finals week to replace the missing score.

If you miss more than one lecture exam only one score can be replaced. The other(s) will remain as zeros. You should most likely withdraw from the course and retake it another semester.

For course grades the grading scale is:

90% and above = A

80% and above = B

70% and above = C

60% and above = D

Below 60% = F

## Make-up policy

There are no makeup lab quizzes or lecture exams. See details above.

## Other Student Services Information

- Information about the **Library** is available at <http://www.brazosport.edu/~lib/Information.htm> or by calling 979-230-3310.
- **Free seminars** to improve study skills are offered in the Learning Assistance Center (LAC), see [www.brazosport.edu/~lac](http://www.brazosport.edu/~lac) or call 979-230-3253.
- **Free** tutoring for math, reading, writing, biology, chemistry, and other subjects is available in the Learning Assistance Center (LAC), see [www.brazosport.edu/~lac](http://www.brazosport.edu/~lac) or call 979-230-3253.
- To contact the **Life Sciences Department** call Connie Davis at 979-230-3225.
- The Office of Student Services provides assistance in the following:
  - **Counseling and Advising** 979-230-3040
  - **Financial Aid** 979-230-3294
  - **Student Activities** 979-230-3355.
- To reach the **Information Technology Department** for computer, email, or other technical assistance call the helpdesk at 979-230-3266.