
LAB MANUAL:  VISUAL ANATOMY AND PHYSIOLOGY LAB MANUAL, MAIN Version, By Stephen N. Sarikas, Ph.D., Pearson Education, Inc., 2015. (**NOTE: Pic to left is NOT correct cover.)

COURSE DESCRIPTION: : “Anatomy and Physiology 2” is the second of the two-part anatomy and physiology course. This course is designed to provide students with basic knowledge and understanding of human anatomy and physiology. In this course you learn about the various systems in the body, including the Endocrine, Cardiovascular, Lymphatic, Respiratory, Digestive, Urinary, and Reproductive systems. Those students entering the allied health programs will find the material covered in this course to be essential. The required textbook and laboratory manual will provide information that the student will need to understand the complexity of human anatomy and physiology. We will be covering chapters 17 – 29 over the course of the semester. A&P 1 and General Biology I are highly recommended as prerequisites for this course. This course requires a basic understanding of biology, math, and chemistry.
SUPPLEMENTS:

BLACKBOARD – Supplemental information, including course announcements, assignments, and some lecture outlines, will be posted to the online BB course for this class. You can access this directly via https://blackboard.stthom.edu/, or through the UST website (www.stthom.edu) by following the link in the right lower column. Obtaining a CELT login for portal access is suggested, as it will allow you to access Webmail and Blackboard, among other UST features.

MASTERING A and P – www.MasteringAandP.com Website. You will have regular chapter homework posted on this website. The code is sold bundled with your new course text. If you somehow bought a used text that did not have a code, please visit the website & directly buy a new code for the class from the publisher. **IF you already have a code that you used for AP1 (within the last year), it will still work for this term.

OPTIONAL RESOURCES:

Anatomy Coloring Book. Physiology Coloring Book.
Anatomy Atlas for Laboratory use.
Optional Media: Practice Anatomy Lab (PAL) Version 3.0 Pearson Benjamin Cummings.

**A complete set of optional and required resources is on reserve in Doherty Library.

COURSE OBJECTIVES:

Generally...
✓ To describe the principles of physiology and anatomy.
✓ To study the structure and function of human cells, tissues and organ systems, including cardiovascular, digestive, respiratory and endocrine systems, among the others.
✓ Describe the systems at all of the levels of organization, including chemical, cellular, tissue, organ, and systemic, and as they relate to the overall function of the human body.

INSTRUCTOR GUIDELINES & POLICIES

Attendance: Class attendance is required and the student is responsible for all material covered. If student is not able attend class, the instructor should be notified immediately – preferably before the missed session or the student may relinquish their ability to make up missed material. If two lecture exams are missed before the withdrawal date, the student should drop the course. Withdrawal from the course is the student's responsibility.
**Communication:** We will communicate primarily through email, the Blackboard course system, and during office hours. Email inquiries will be checked and answered daily; however, any emails generated on the weekend have no guarantee that they will be checked before Monday. It might be normal that I only answer emails once daily – please be patient. Also keep in mind that you will see me every week in the lecture and laboratory sessions, and that I have posted office hours in AND 203.

**Cell phones and beepers:** During class sessions, please keep cell phones and beepers on vibrate or silent mode during class. Do NOT text during class OR LAB or talk on your cell phone. This is disruptive to the class and you will be asked to leave the classroom if you cannot follow this rule. We are in the zone of professionalism. If you have an emergency communication, please exit and discuss this outside of the classroom to prevent class disruption.

**Computer Use Policy:** You may use a computer to take notes or refer to class materials in class but not during quizzes, exams or lab tests. If you are using a computer to take notes or refer to class materials, you may not send email, chat or surf the web during class. This is disruptive. You may be asked to turn off your computer and not bring it again if it is used in ways not permitted in the classroom.

**Disability Support Services:** Should you require reasonable accommodations to ensure your success in this and any other class, please contact the Counseling and Disability Services to ensure you meet the documentation requirements in a timely fashion, and especially in advance of the first class examination.

**GRADING POLICIES**

**Lecture Exams:** Three (3) in-class exams will be given during the semester on the material presented in lecture and in the textbook, and the 4th Lecture Exam will be tied in with the Comp Final (discussed below). All material *assigned*, covered or not, is fair game for the exams. Each lecture exam will include various question-types, including multiple-choice, matching, true and false, fill in the blanks, labeling and/or short essay questions.

- LECTURE EXAM I – Endocrine, Blood & Heart
- LECTURE EXAM II – Blood Vessels, Lymphatic & Immunology
- LECTURE EXAM III – Respiratory, Urinary & Fluid/Electrolyte/Acid-Base Balance
- --FINAL/EXAM IV – COMPREHENSIVE & Digestive, Metabolism/Nutrition Reproductive, Development

The average of the 3 normal lecture exam grades will constitute **40%** of your final grade for the course. Students MUST take all exams. If one exam is missed, the student will receive a zero that will be included in the average. Check the course Weekly Class Schedule for the exam dates. The weekly schedule outlines the tentative course schedule. It is your responsibility to check the calendar, review the in-class and online information/announcements and note any meeting or testing updates.
COMPREHENSIVE FINAL EXAM IV: There will be a comprehensive final during finals week(s). It will cover all of the material assessed during the semester, AND the final chapters as indicated above. This Comp final will be worth 15% of your final grade. The comprehensive final exam is mandatory.

LECTURE HW: You will be assigned miscellaneous assignments throughout the term. You will also be assigned regular assignments to complete on the MasteringAandP.com website, as listed above. The average of any Lecture HW/assignments/quizzes given during the term will constitute 10% of the final LECTURE grade for the course.

LAB PORTION: This portion is divided into Lab Practical grades, Lab Participation grades, and Lab Assignment grades, for a total of 35% of the overall course grade, as follows:

There will be 3 Lab-Practical tests/quizzes. These laboratory tests cover the material presented in the laboratory manual and in the laboratory during the exercises. Lab Practicals will cover dissected specimen or digital images of specimen, microscope slides, models, or on drawn diagrams and will be timed. The average of these Lab Practical grades will be worth 20% of the final course grade.

Students must also complete and turn-in the labs Reports/assignments for each exercise as assigned, worth 10%. Moreover, there is a Lab Participation grade, which will be made up of Activity questions found in your lab manual and your actual lab performance – this will be explained in your lab class. This participation grade is worth 5% of the course grade. The total of these Lab points/grades will constitute 35% of the final grade for the course.

LAB PRACTICAL I – Cardiovascular System & Lymphatic/Immunology
LAB PRACTICAL II – Respiratory & Urinary Systems
LAB PRACTICAL III – Digestive & Reproductive Systems

FINAL COURSE GRADES: Lecture Portion (3 Exams + HW = 50%) + Comprehensive FINAL (15%) + Lab Portion (3 Practicals + Reports + Participation = 35%) = Final Course Grade

STANDARD GRADING RUBRIC APPLIES.

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MISSED EXAMS: If an exam or lab practical test is missed, prior notification BEFORE THE EXAM must be made to be eligible for a make-up exam. EMAIL THE INSTRUCTOR PRIOR TO THE DAY OF THE TEST IF UNABLE TO ATTEND CLASS. Make-up exams
will be taken in the testing center on the student's own time. Make-up exams must be taken within one week of the assigned test date or a zero will be given for the test grade. No more than two make-up exams can be given during the semester (includes both lecture and lab exams). Make every effort to take the examinations as scheduled.

*Cheating will not be tolerated in this class. Students entering the medical field should have high ethical standards and conduct themselves in an appropriate manner. Academic honesty is expected of all students.*

Cheating and/or plagiarism may include: using unauthorized assistance on any exam, paper or project; present the work of someone else as your own without acknowledging the source; taking exams or course material from an instructor or student; or submitting the same academic work for credit more than once without consent. Violations will result in receiving a “zero” on the assignment or exam and may lead to course failure. See additional information on the Academic Dishonesty in the UST Student Handbook.

**Tentative GENERAL LECTURE OUTLINE:**

**Chapter 18 - The Endocrine System**
types of hormones; actions of hormones on target cells; control of hormone secretions; negative and positive feedback; control of hormone effects; survey of major endocrine glands, their location, secretions, and control; hormonal, humoral, and neural controls; consequences of hypo- and hypersecretions of hormones; hypothalamic and pituitary relationships; adenohypophyseal vs. neurohypophyseal relationships

**Chapter 19 - Cardiovascular System: Blood**
structure and functions of blood; blood cells, formation in adult vs. in development, control and destruction; disorders of blood; composition and functions of plasma, hemostasis; ABO and Rh blood groups; volume expanders

**Chapter 20 - Cardiovascular System: The Heart**
structure and function of heart, electrical and mechanical activities, pathway of blood throughout the heart, cardiac valves, coronary circulation, cardiac muscle specializations, ECG, events of cardiac cycle, heart sounds, control of cardiac cycle, fetal vs. adult heart

**LECTURE EXAM I**

**Chapter 21 - Cardiovascular System: Blood Vessels and Circulation**
structure and function of blood vessel types, blood flow, blood pressure, peripheral resistance, regulation of blood flow and pressure, hypertension, circulatory shock, pulmonary, systemic, and hepatic portal circulation, fetal circulation
Chapter 22 - Lymphatic System and Immunity
lymph, its source and transport; lymphatic circulation; lymph vessels; lymph nodes; other
lymphoid organs (spleen, thymus gland, tonsils, Peyer's patches); nonspecific body defenses,
cellular and chemical, inflammation response; specific body defenses: B and T lymphocytes,
immunocompetence, antigens, humoral immunity, antibodies, complement, monoclonal
antibodies, cell-mediated immunity; immune deficiency diseases; immune hypersensitivities;
autoimmune diseases; nervous system regulation immune responses

LECTURE EXAM 2

Chapter 23 - Respiratory System
pulmonary mechanics; ventilation; pressure-volume relationships of intrapleural and thoracic
spaces; respiratory muscles; lung elasticity and compliance; respiratory volumes and function
tests; dead space; gas exchange: partial pressure, compositions of atmospheric vs. alveolar air,
gas solubilities; respiratory regulation by brain; oxygen and carbon dioxide transport; oxygen
loading and unloading and effects of temperature, pH, pCO, 2,3-DPG, diseases of respiratory
system; effect of exercise; acidosis vs. alkalosis, respiratory vs. metabolic, compensating vs.
non-compensating

Chapter 26 - Urinary System
renal structure and function; filtration; reabsorption; secretion; aldosterone, atrial natriuretic
factor and water and electrolyte balance; creation and maintenance of medullary osmotic
gradient; antidiuretic hormone action; acid-base balance; elimination of urine: ureters, bladder,
urethra, micturation reflex; nephron and parts responsible for filtration, reabsorption and
secretion; normal and abnormal urine compositions

Chapter 27 - Fluid, Electrolytes, and Acid-Base Balance
three fluid compartments; fluid shifts; water balance; electrolyte balance; acid-base balance:
sources of acids, buffers, influence of respiratory vs. renal systems, acidosis vs. alkalosis,
respiratory vs. metabolic, compensating vs. non-compensating

LECTURE EXAM 3

Chapter 24 - Digestive System
gastrointestinal tract and associated organs; four layers of alimentary tube wall; tooth structure
and function; specializations of walls of different regions of alimentary canal; saliva and its
regulation; gastric juice composition/regulation; pancreatic juice composition/regulation; bile
and its regulation; mechanical and chemical digestive processes; absorption; neural,
mechanical and hormonal controls of gastrointestinal functions; GI motility; Peyer's patches
Chapter 25 – Metabolism and Energetics
nutrients and the six classes; complete vs. incomplete proteins; vitamins: fat vs. water soluble, functions, food sources; minerals: functions, food sources; lipids and cholesterol, simple sugars, energy balance; body composition and its measurement; protein malnutrition; postabsorptive state; basal metabolic rate, body temperature regulation

Chapter 28 - Reproductive System
male system: sources and functions of semen, testes, accessory structures, spermatogenesis, male sexual response, hormonal regulation of testicular function; female system: ovaries, reproductive duct system, mammary glands, oogenesis and folliculogenesis, hormonal regulation, female sexual response, menstrual cycle; sexually transmitted diseases; development of male and female reproductive systems

Chapter 29 – Development and Inheritance
capacitation; implantation; placenta and its formation; fertilization; cleavage; gastrulation; extraembryonic membranes and their functions; embryogenesis; fetogenesis; changes in maternal systems; parturition; stages of labor; lactation; fetal and postnatal circulation; genes/chromosomes; alleles; sources of genetic variability; meiosis; sex chromosomes; chromosome disorders; haploid vs. diploid

LECTURE EXAM IV/ COMP FINAL

Tentative GENERAL LAB OUTLINE:

LAB 19 THE ENDOCRINE SYSTEM
LAB 20 BLOOD CELLS
LAB 21 GROSS ANATOMY OF THE HEART
LAB 22 ANATOMY OF BLOOD VESSELS
LAB 23 CARDIOVASCULAR PHYSIOLOGY
LAB 24 THE LYMPHATIC SYSTEM .........................
Lab Practical I

LAB 25 ANATOMY OF THE RESPIRATORY SYSTEM
LAB 26 RESPIRATORY PHYSIOLOGY
LAB 29 ANATOMY OF THE URINARY SYSTEM
LAB 30  URINARY PHYSIOLOGY  

Lab Practical II

LAB 27  ANATOMY OF THE DIGESTIVE SYSTEM
LAB 28  ACTIONS OF A DIGESTIVE ENZYME
LAB 31  MALE REPRODUCTIVE SYSTEM
LAB 32  FEMALE REPRODUCTIVE SYSTEM
LAB  SURFACE ANATOMY REVIEW  

Lab Practical III

GRADE SUMMARIES

** LECTURE EXAMS – (40% of the overall grade)

EXAM I  
EXAM II  LECTURE EXAM AVG.  
EXAM III  

** LAB PRACTICALS – (20% of the overall grade)

PRACTICAL I  
PRACTICAL II  LAB PRACTICAL AVG.  
PRACTICAL III  

** MISC. GRADES – (Lab Assignments @ 10%. Lecture HW @ 10%.)

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