**PAMANTASAN NG LUNGSOD NG VALENZUELA**

Poblacion II, Malinta, Valenzuela City

**Course Title:** HUMAN ANATOMY AND PHYSIOLOGY

**Course Code:** ANA

**School Year & Semester:** S.Y. 2011-2012 / First Semester

**Number of Credit Units:** 5 units

**Faculty:** JAIME S. DE VERA JR.

**Department:** Science

**College:** College of Education

**Course Description**

Human Anatomy and Physiology explores the systems comprising the human body by emphasizing physiological mechanisms and a thorough understanding of human anatomy. The course is divided into four main parts. The first part of the course introduces anatomy, its vocabulary, and briefly overview the systems of the body. The second part covers the inorganic as well as the organic elements, which are the basic components of cells and tissues. The third part of this unit studies the cell as the functional unit of any living organisms. This part focuses on how the cells are group and differentiate into specialized tissue. The final component of the course begins the study of the body organized by systems and human genetics.

**Course Objectives**

* + - To develop a working knowledge on anatomy and physiology that is based on conceptual understanding rather than rote memory;
    - Relate the various structures of the human body to their biological functions
    - Develop various laboratory skills and strategies for teaching biological concepts related to anatomy and physiology
    - Contribute on the development of Anatomy and Physiology through a simple science research/project.

**Course References**

* Sylvia Mader. **Understanding Human Anatomy and Physiology 5th Ed**. The McGraw-Hill Companies. 2004
* K.M. Van De Graaff and R.W. Rhees. **Schaum’s Easy Outlines: Human Anatomy and Physiology.** McGraw-Hill Companies. 2001
* Valerie Scanlon & Tina Sanders. **Essentials of Anatomy and Physiology 5th Ed.** F.A. Davis Company. 2007

**Course Requirements**

A student should be able to:

1. pass the major examination and quizzes
2. participate in the classroom discussion and group activities
3. lead the discussion by being a student-discussant or reporter
4. submit a science research project

**Bases of Course Grade**

* Quizzes 20%

Midterm + Final Term = **Final Grade**

2

* Midterm / Final Examination 40%
* Classroom Participation / Science Research 30%
* Attendance / Attitude 10%

100%

**Course Calendar**

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| **Week No./Date** | **Topic** | **Model / Strategy** |
| Week 1  June 15, 2011 | **Introduction of the course**  **Organization of the human body:**   * Overview of organ systems * Directional and regional terms * Cavities and planes * Homeostasis: negative and positive feedback systems * Life processes | Lecture/Discussion |
| Week 2  June 20, 2011 | **Chemistry of Life**   * Basic Chemistry * Water, acids & Bases * Molecules of Life * Carbohydrates * Lipids * Proteins * Nucleic acid | Socratic Dialogue |
| Week 2  June 22, 2011 | **Tissues and Integumentary System**   * Cell membranes, transport and junctions * Structure, function and locations of epithelial, * connective, muscle and nerve tissues * Microscopic identification of tissue types * Structure and function of skin, (layers and accessory organs) * Growth, repair and pigmentation of skin   **LONG QUIZ 1** | Lecture / Discussion  Group Activity  Paper & pen test |
| Week 3  June 27 & 29, 2011 | **Skeletal System**   * Functions of skeletal system * Anatomy of long bone * Bone histology * Naming all bones of axial and appendicular skeleton * Formation, growth and repair * Structural and functional classification of joints * Types of movement * Calcium homeostasis | Lecture / Discussion |
| Week 4  July 4 & 6, 2011 | **Muscular System**   * Functions of muscular system * Names of all major muscles * Origin, insertion and action * Sliding Filament Model * Neuromuscular junction * Structure (gross and microscopic) * Physiology of muscle contraction * Muscle metabolism (ATP) * Fiber types   **LONG QUIZ 2** | Group Activity  Problem-based learning Approach  Paper & pen test |
| Week 5-6  July 11, 13 & 18, 2011 | **Cardiovascular System**   * Functions of circulatory system * Heart structures (chambers, valves, vessels) * Circulatory routes (systemic, pulmonary, coronary and hepatic portal) * Blood vessels and pressure * Blood components, function and typing * Blood clotting * Regulation and conduction (EKG) | Lecture / Discussion |
| Week 7  July 20 & 25, 2011 | **Lymphatic/Immune System**   * Functions of lymphatic system * Structures (vessels, nodes, cells) * Lines of defense * Humoral immune response * Cell mediated immune response * Immune cell types * Disease/AIDS | Group Activity  Panel discussion |
| Week 8  July 27- August 1 & 3, 2011 | **Digestion and Nutrition**   * Functions of digestive organs * Modes of mechanical digestion * Chemical digestion (hormones, enzymes, pH) * Absorption and elimination * Name parts of GI Tract and accessory organs * Nutrition and metabolism (production of ATP) * Biological polymers * Hydrolysis and dehydration synthesis   **LONG QUIZ 3** | Lecture  Small Group Discussion / Sharing  Paper & pen test |
| Week 9  August 8 & 10 | **Excretory System**   * Functions of urinary system * Kidney, ureter, bladder, urethra * Microanatomy and function of nephron | Problem-based learning Approach |
| Week 10  August 15, 2011 | **MIDTERM EXAMINATION** | Paper and pen test |
| Week 11  August 22 & 24, 2011 | **Respiratory System**   * Functions of respiratory system * Anatomy of respiratory tract * Mechanics and regulation of breathing * Gas exchange and gas laws | Lecture/discussion |
| Week 12 - 13  August 29 & 31 – September 5 & 7, 2011 - | **Nervous System**   * Functions of nervous system * Nerve cell anatomy * Neural physiology (action potential, synaptic transmission, Na/K pump) * Brain anatomy and hemispheres * Spinal cord anatomy, reflex arc * PNS (autonomic and somatic) * Sensory motor nerve functions * Sensory organs   **LONG QUIZ 1** | Social Cognition Learning Approach  Paper & pen test |
| Week 14  September 12 & 14, 2011 | **Endocrine System**   * Functions of endocrine system * Naming organs/glands/cells and their hormones * Hormone types and target cells * Homeostasis and feedback loops * Chemical messengers | Lecture / Discussion  Group Activity |
| Week 15 - 16  September 19, 21, 26 & 28, 2011 | **Reproductive System**   * Functions of reproductive systems * Male and female anatomy * Menstrual cycle * Meiosis/gamete production | Reporting |
| Week 17  October 3 & 5, 2011 | **Human Development**   * Fertilization * Process of Development * Stages of birth   **LONG QUIZ 2** | Lecture / Discussion/Reporting |
| Week 18  October 10, 2011 | **Human Genetics**   * Chromosomal inheritance * Genetic inheritance * DNA technology | Reporting |
| Week 18  October 12, 2011 | Presentation of Science Research/Project | Forum/Panel Discussion |
| Week 19  October 17, 2011 | Final Examination | Paper & Pen Test |

**Supplementary Materials:** Multimedia Equipment (laptop and LCD projector, Human AnaPhysio laboratory activities / manual, Science Journals and companion website (www.sirjamesdeverajr.weebly.com)

Prepared by:

**JAIME S. DE VERA JR.**

Instructor

**CLASS POLICY:**

* **ATTENDANCE**. Roll will be taken before class starts, except when there is a quiz or exam (your exam paper serves as the attendance record). Three unexcused absences are allowed, after which, the student may be dropped from the course at the instructor’s discretion.
* **ARRIVE ON TIME**. All students are expected to arrive to class on time. If you work and estimate that you may have time-conflict, please let me know.
* **MAKE-UPS OF EXAMS AND QUIZZES**. During the last week of regular classes (completion week/exam week) or finals/completion week, make-up quizzes and exams will be administered in the laboratory during the mentioned schedule. You have to tell me your intention of making-up an exam or quiz in advance.
* **AVOID LATE ASSIGNMENTS**, procrastination is our worst enemy, don’t let it rule you
* **NO EATING, DRINKING, OR PLAYING IN THE LAB**.
* **ALL MOBILE PHONES need to be OFF OR IN SILENT MODE during lecture.**
* **CHEATING WILL NOT BE TOLERATED**. Instances of cheating or ANY form of academic dishonesty will be handled in strict accordance with university guidelines.
* **NO HORSEPLAY**. ANY disruptive and/or unsafe behavior WILL NOT BE TOLERATED. Any person involved will be asked to leave the room.
* In accordance with university policies, only those enrolled in this course are allowed in the class.

**SUGGESTIONS:**

􀀔 Get organized and follow a daily plan

􀀔 Read the chapter ahead of time, but do not try to learn the material during the first reading, just familiarized with the terminology.

􀀔 Use the your time wisely.

􀀔 Ask questions.

􀀔 Form study partners/groups

􀀔 Maintain a positive attitude.

􀀔 Medical Dictionary, Colored pencils and a calculator are very helpful tools.

**STUDY TIPS**

**Learning** involves not only memorizing, but also understanding the subject matter, especially at a conceptual level. Effective learning is active learning and requires **critical thinking**, which is an active, sustained, cognitive effort directed at solving a complex problem. Critical thinkingrequires integration of different sources of information, considering alternate perspectives, making critical judgments, and developing and testing hypotheses.

The following **study tips** will help you develop your capacity for critical thinking and therefore for active learning.

* **Familiarize** yourself with the material to be covered during lecture. Look at the syllabus, and then scan the pertinent portions of the *textbook*. As you read, jot down a *map* showing the major *concepts* that are covered and a *vocabulary* list of terms likely to be important to understanding these concepts (especially terms new to you). These activities will make you think about the topic and help prepare you for constructive listening and participation during class.
* **Take class notes**, being sure you write enough detail to follow the *logic* and capture the *concepts* that form the basis of the lecture or discussion. Don't try to write down everything; this will just get in the way of your listening and understanding concepts.
* **Read** the relevant pages in the *textbook*. This time, you are going for content, so it will help to generate an outline of the material, basing it on the concept maps you began when you skimmed the material before class.
* **Write new notes** based on your concept maps, vocabulary lists, class notes and reading outlines. The object is not neatness, nor is it just *reorganizing* or *categorizing* the material (although these are important parts of the process); rather, it is the *integration* of this material and *synthesis* of concepts and models that allow you to truly *understand* the material. Write these notes in your own words, because that makes you *assimilate* the material and *reflect* on it, thus fostering understanding by building neural pathways with links between things you knew before and new things.
* **Analyze** your notes rather than trying to just memorize them. It will, of course, be very important for you to remember the content, but that is not sufficient. Critical thinking about the subject material is needed to allow you to truly understand it. To do this in a more effective manner, try these processes:
  + **Be *curious*** ... seek to know as much as possible about the topics at hand.
  + **Look for *connections*** among facts, ideas and concepts.
  + ***Visualize* the concepts**, linking them to images will help you remember concepts and grasp both individual concepts and connections among them more easily.
  + **Generate *analogies*** to couple new material to things you knew previously.
* **Form a study group** of five or six people to use as a source of alternative perspectives, "sounding boards" and study partners. Keep "on task" when studying and remember to apply the principles of critical thinking throughout.