COURSE SYLLABUS

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SECTION 1: COURSE INFORMATION

Format: Eight weeks.

Course ID: BIOL 1334

Course Title: Essentials of Human Anatomy and Physiology

College: College of Unrestricted Education – Department of Foundational Core

Prerequisites: None

Credit Hours: 4

Instructor: See the online course in MyFIRE for instructor contact information and availability.

Course Description

This course is a study of the structure, formation and function of the eleven human body systems. This course is required for Psychology majors and meets general education requirements for non-science majors only.

Course Overview

This course will introduce you to the structure and function of the human body. Before we begin focusing on the individual organ systems, we will review basic chemical and biological properties that govern the human body. As we begin to journey through the individual systems, you will also be introduced to cutting edge research that applies to diseases and disorders associated with the systems. Additionally, through virtual labs, you will simulate "hands on" experiments and data collection to facilitate understanding human physiology.

Course Workload

Time spent on course assignments will vary by student depending on familiarity with course content, reading rate of speed, writing rate of speed, and other individual factors. Based on averages for most students, it is estimated that the course workload estimate for this course **is 78.24 (9.78 hours per week).**

Course Materials

This course is utilizing Follett Access®, a new and convenient program designed to ensure every student has the course materials they need to succeed. When you register for this course, the required course materials will be ordered for you, and the cost of the materials will be applied to your student account as a course fee. This feature enables you to identify the full cost of your course upfront with no surprises of additional out of pocket expenses for required course materials.

Once you are registered in the Student Information System (JICS) and you gain access to the course, you will automatically have access to the required course materials.

If a physical (print) copy of course textbook is preferred, a request can be sent from within the McGraw Hill course under the 'Course Materials' title on the left-

hand side of the page.

If you have questions about the cost of your course materials, please access your financial statement through the Student Information System (JICS). The cost will be listed as a course material(s) fee.

Grades: Grades that appear in McGraw Hill are not reflective of course grades; course grades will appear in MyFIRE only.

Required and optional textbooks are accessed and ordered through SEU's bookstore.

Disclaimer: The resources utilized in this course provide information, thoughts and insights that should encourage critical thinking on the part of the student. Please note as well that as an Assembly of God institution, Southeastern University does not necessarily endorse specific personal, religious, philosophical, or political positions found in these resources.

Course Topics

The purpose of this course is to introduce, reinforce, and measure learning on the following topics:

- Chemical Basis of Life, Cells, Cellular Metabolism, Tissues, Organs and Organ Systems of the Human Body
- Integumentary System, Endocrine System, Blood, Skeletal System, Muscular System, Nervous and Sensory Systems, and Reproductive System

Intended Learning Outcomes

As a result of reading, study, and assessments in this course, the student should be able to:

1. Obtain a basic understanding of the human body on the cellular, tissue, organ, and organ system levels.
2. Obtain a greater appreciation for science generally and the human body particularly.
3. Interact intelligently with ethical issues related to medicine and the Christian faith that are often raised in contemporary society.
4. Achieve competency using electronic, online class materials.

Late Work

Work ahead: For planned events (mission trips, vacations, surgeries) you are invited to work ahead in order to submit work by the due date. No permission is needed.

Request an extension: If you know you will not be able to turn work in on time contact your professor at least 24 hours before the assignment is due. Let the professor know about your circumstances and when you can turn the

work in. If the professor decides to grant you an extension and you get the work in when you say you will, there will not be a penalty. You should only request an extension when something unforeseen comes up that you have no control over; a professor has no obligation to grant an extension and will be less inclined to do so if you are asking for one every week.

Late work: without prior arrangements, late work* submitted within one week of the original due date will be considered for partial credit. Work will ONLY be accepted for the first seven days after it is due. NO WORK will be accepted past the last day of the course.

***Discussion Posts:** late participation in discussion forums is not accepted for late credit. The purpose of the discussion forum is to engage with your classmates on substantive ideas related to the course material, and your classmates will not revisit forums past the due dates. Similarly, professors will not revisit forums to grade past discussion due dates. Professors of Foundational Core courses have been instructed to follow this policy to ensure fairness across all FC classes. Your professor will work with you if true emergencies occur, but your busy schedule will not be considered an emergency. If you have travel, a vacation, a wedding, or any other plannable event, it is up to you to communicate with your instructor to avoid grade penalties.

Extra Credit

None accepted.

SECTION 2: SOUTHEASTERN POLICIES

Academic Policies

View this link to see Southeastern's Policies regarding SEU's Mission and Vision Statements, Title IX Statement, Student Services, Class Participation, Official Email, MyFIRE Use, Technical Difficulties, Technical Support, Disability Statement, Academic Honesty, Course Evaluation, Official Withdrawal, Grading Scale, and Netiquette.

SECTION 3: COURSE SCHEDULE

The **Course Schedule** provides a listing of your work in this course. The assessments are listed by Module and include the due dates and point values.

Note: Assignments are due by 11:59 p.m. EST on the due date, unless otherwise noted.

AIM, LEARN, AND APPLY DESCRIPTIONS

Aim

When you see the Aim icon, you will be introduced to topics and ideas that will be covered throughout this module. The AIM will also provide you with a glimpse into your learning objectives and an introduction to this module.

Learn

When you see the Learn icon, all of your reading assignments will be listed and may include additional resources that your instructor is providing to help you complete the activities and assessments for the module.

Apply

 When you see the Apply Icon, it will be time to demonstrate your learning for the module. The items here are those in which you'll be graded and may include discussions, activities, assignments, quizzes, exams, and projects.

MODULE 1

Aim:

- Explain how anatomy and physiology are related.
- List the levels of organization in the human body and the characteristics of each.
- List and describe the fundamental characteristics of life.
- List and describe the major requirements of organisms.
- Explain the importance of homeostasis and how it is regulated.
- Explain the differences between positive and negative feedback loops.
- Identify locations of major body cavities and list the organs associated with each cavity.
- Name the major organ systems (and their functions) and the organs associated (and their function) with each.
- Properly use the terms that describe relative positions, body sections, and body regions.
- Define the term chemistry.
- Describe the relationships among matter, atoms, and molecules.
- Describe the relationship between atomic structure and the interaction of atoms.
- Describe three types of chemical reactions and the various types of chemical bonds.
- Define the terms acids, bases, and buffers.
- Define pH and be able to use the pH scale.
- List some major inorganic chemicals in cells and identify their functions.
- Describe the general functions of the four main groups of organic chemicals in cells.

Learn:

- **Read:** Chapters 1 and 2
  - Due Tuesday
- 10 points each
- Learning Resources Week 1
- Supplemental Resources Week 1

Apply:

- Practice Activities for Week 1
  - Due: Tuesday
  - Points: 19
- Quiz for Week 1
  - Due: Tuesday
  - Points: 19
- Lab Activities for Week 1
  - Due: Tuesday
  - Points: 27
- Module 1 Discussion
  - Initial post due Saturday; Reponses due Tuesday
  - Points: 12 (6 points for the initial post and 3 points for each response post)

MODULE 2

Aim:

- Explain how cells differ from one another.
- Explain how the structure of the cell membrane makes possible its functions.
- Describe each type of organelle and explain their functions.
- Describe the cell nucleus and its parts.
- Explain how substances move into and out of cells.
- Discuss the cell cycle.
- Explain the overall function of metabolism.
- Compare and contrast anabolism and catabolism.
- Describe how enzymes control metabolic reactions.
- Describe a metabolic pathway.
- Identify the source of biological energy.
- Describe how DNA molecules store genetic information.
- Describe how DNA molecules are replicated.
- Describe the steps of protein synthesis.

Learn:

- **Read:** Chapters 3 and 4
  - Due Tuesday
  - 10 points each
- Learning Resources Week 2
- Supplemental Resources Week 2

Apply:

- Practice Activities for Week 2
  - Due: Tuesday
  - Points: 19
- Quiz for Week 2
  - Due: Tuesday
  - Points: 19
- Lab Activities for Week 2 (two lab assignments)
  - Due: Tuesday
  - Points: 27 each
- Module 2 Discussion
  - Initial post due Saturday; Reponses due Tuesday
  - Points: 12 (6 points for the initial post and 3 points for each response post)

MODULE 3

Aim:

- List the four major tissue types and indicate the function of each type.
- Describe the general characteristics and functions of epithelial tissue.
- Name the types of epithelium.
- Describe the major functions of connective tissue.
- Distinguish among the three types of muscle tissues.
- Describe the general characteristics and functions of nervous tissue.
- Describe what constitutes an organ and name the large organ of the integumentary system.
- List the general functions of the skin.
- Describe the structure of the layers of skin.
- Summarize the factors that determine skin color.
- Explain how the skin helps regulate body temperature.
- Describe wound healing.

Learn:

- **Read:** Chapters 5 and 6
  - Due Tuesday
  - 10 points each
- Learning Resources Week 3
- Supplemental Resources Week 3

Apply:

- Practice Activities for Week 3
  - Initial post due Saturday; Reponses due Tuesday
  - Points: 19

- Quiz for Week 3
  - Due: Tuesday
  - Points: 19
- Lab Activities for Week 3
  - Due: Tuesday
  - Points: 27
- Module 3 Discussion
  - Due Tuesday
  - Points: 12 (6 points for the initial post and 3 points for each response post)

MODULE 4

Aim:

- Describe the secretions of the endocrine system.
- Distinguish between paracrine and autocrine secretions.
- Explain how the nervous and endocrine systems are alike and how they are different.
- Describe the source of specificity of the endocrine system.
- Name some functions of hormones.
- Discuss how negative feedback mechanisms regulate hormonal secretions.
- Explain how the nervous system controls secretion of hormones.
- Name and describe the locations of the major endocrine glands and list the hormones they secrete.
- Describe the functions of the hormones that endocrine glands secrete.
- Explain how the secretion of each hormone is regulated.
- Describe how the body responds to stress.

Learn:

- **Read:** Chapter 11
  - Due Tuesday
  - 10 points
- Learning Resources Week 4
- Supplemental Resources Week 4

Apply:

- Practice Activities for Week 4
  - Due: Tuesday
  - Points: 19
  - Quiz for Week 4Due: Tuesday
  - Points: 19

- Lab Activities for Week 4
  - Due: Tuesday
  - Points: 27
- Module 4 Discussion
  - Initial post due Saturday; Reponses due Tuesday
  - Points: 12 (6 points for the initial post and 3 points for each response post)
- Mid-Term Exam
  - Due Tuesday
  - Points: 100

MODULE 5

Aim:

- List the active tissues found in bone.
- Describe the macroscopic and microscopic structure of along bone, and list the functions of these parts.
- Distinguish between intramembranous and endochondral bones and explain how such bones develop and grow.
- Discuss the major functions of bone.
- Distinguish between the axial and appendicular skeletons and name the major parts of each.
- Locate and identify the bones and the major features of the bones that compose the skull, vertebral column, thoracic cage, pectoral girdle, upper limb, pelvic girdle, and lower limb.
- Classy joints and identify movements of joints.
- List various outcomes of muscle actions.
- Identify the structures that make up a skeletal muscle.
- Identify the major parts of a skeletal muscle fiber and the function of each.
- Discuss nervous stimulation of skeletal muscle.
- Identify the major events of skeletal muscle fiber contraction.
- Describe oxygen debt develops.
- Describe how muscles may become fatigued.
- Distinguish among twitch, recruitment, and sustained contraction.
- Distinguish between the structures and functions of multiunit smooth muscle and visceral smooth muscle.
- Compare the contraction mechanisms of skeletal, smooth muscle, and cardiac muscle.
- Explain how the attachment, locations, and interactions of skeletal muscles make different movements possible.

Learn:

- **Read:** Chapters 7 and 8
  - Due Tuesday
  - 10 points each
- Learning Resources Week 5
- Supplemental Resources Week 5

Apply:

- Read: Chapters 7 and 8
  - Due Tuesday
  - 10 points each
- Learning Resources Week 5
- Supplemental Resources Week 5
- Practice Activities for Week 5
  - Due: Tuesday
  - Points: 19
- Quiz for Week 5
  - Due: Tuesday
  - Points: 19
- Lab Activities for Week 5
  - Due: Tuesday
  - Points: 27
- Module 5 Discussion
  - Initial post due Saturday; Reponses due Tuesday
  - Points: 12 (6 points for the initial post and 3 points for each response post)

MODULE 6

Aim:

- Distinguish between the two types of cells that compose nervous tissue.
- Name the two major groups of nervous system organs.
- Explain the general functions of the nervous system.
- State the functions of neuroglia in the central nervous system.
- Distinguish among the types of neuroglia in the central nervous system.
- Describe the general structure of a neuron.
- Explain how the differences in structure and function are used to classify neurons.
- Describe and understand the process of an action potential." Subsequent numbers will need changed, of course.
- Identify the changes in membrane potential associated with excitatory and inhibitory neurotransmitters.
- Replace 8-10 above with the following: "Describe and understand the process of an action potential." Subsequent numbers will need changed, of course.
- Describe how nerves are classified.
- Describe the function of each part of a reflex arc.
- Name the major parts and functions of the brain.
- Distinguish among sensory, association, and motor areas of the cerebral cortex.
- List the major parts of the peripheral nervous system.
- Describe the functions of the autonomic nervous system.
- Distinguish between the sympathetic and parasympathetic divisions of the ANS.
- Distinguish between general and special senses.
- Name five kinds of receptors and their functions.
- Describe how the sense of pain is produced.
- Identify the locations and functions of the receptors associated with the special senses.

Learn:

- **Read:** Chapters 9 and 10
  - Due Tuesday
  - 10 points each
- Learning Resources Week 6
- Supplemental Resources Week 6

Apply:

- Practice Activities for Week 6
  - Due: Tuesday
  - Points: 19
- Quiz for Week 6
  - Due: Tuesday
  - Points: 19
- Lab Activities for Week 6
  - Due: Tuesday
  - Points: 27
- Module 6 Discussion
  - Initial post due Saturday; Reponses due Tuesday
  - Points: 12 (6 points for the initial post and 3 points for each response post)

MODULE 7

Aim:

- Describe the general characteristics of blood and discuss its major functions.
- Distinguish among the formed elements and the liquid portion of blood.
- Explain the significance of red blood cell counts.
- Summarize the control of red blood cell production.
- Distinguish among the five types of white blood cells and give the functions of each type.
- Describe the functions of each of the major components of plasma.
- Define hemostasis and explain the mechanisms that help achieve it.
- Review the major steps in blood coagulation.
- Explain blood typing and how it is used to avoid adverse reactions following blood transfusions.
- Describe how blood reactions may occur between fetal and maternal issues.
- Discuss the functions of the organs of the cardiovascular system.
- Identify the major parts of the heart and their functions.
- Trace the pathway of blood through the heart and the vessels of coronary circulation.
- Describe the cardiac cycle and cardiac conduction system.
- Explain control of the cardiac cycle.
- Compare the structures and function of the major types of blood vessels.
- Describe how substances are exchanged between blood in the capillaries and the tissue fluid surrounding body cells.
- Explain how blood pressure is produced and controlled.
- Describe the mechanisms that aid in returning venous blood to the heart.
- Compare the pulmonary and systemic circuits of the cardiovascular system.

Learn:

- **Read:** Chapters 12 and 13
  - Due Tuesday
  - 10 points each
- Learning Resources Week 7
- Supplemental Resources Week 7

Apply:

- Practice Activities for Week 7
  - Due: Tuesday
  - Points: 19
- Quiz for Week 7
  - Due: Tuesday
  - Points: 19
- Lab Activities for Week 7
  - Due: Tuesday
  - Points: 27
- Module 7 Discussion
  - Initial post due Saturday; Reponses due Tuesday
  - Points: 12 (6 points for the initial post and 3 points for each response post)

MODULE 8

Aim:

- Describe the general functions of each part of the male and female reproductive systems.
- Outline the process of spermatogenesis.
- Describe semen production and its exit from the male body.
- Outline the process of oogenesis.
- Explain how hormones control the activities of the female reproductive organs.
- Describe the major events of a reproductive cycle.
- Review the structure of mammary glands.
- Describe several methods of birth control including the relative effectiveness of each method.
- List the general symptoms of sexually transmitted infections.

Learn:

- **Read:** Chapter 19
  - Due Tuesday
  - 10 points
- Learning Resources Week 8
- Supplemental Resources Week 8

Apply:

- Practice Activities for Week 8
  - Due: Tuesday
  - Points: 19
- Quiz for Week 8
  - Due: Tuesday
  - Points: 19

- Lab Activities for Week 8
  - Due: Tuesday
  - Points: 27
- Module 8 Discussion
  - Initial post due Saturday; Reponses due Tuesday
  - Points: 12 (6 points for the initial post and 3 points for each response post)
- Final Exam
  - Due Tuesday
  - Points: 100

SECTION 4: ASSESSMENTS

Reading Assignments

Description

Accessed through McGraw Hill Connect. Students will review the assigned chapters from the SmartBook through an adaptive learning experience. The SmartBook will measure what the student knows and prompts students to answer questions based on the text. The student gets to measure how much they know about a concept/if they know it at all and will be redirected to the part of the book that corresponds to what they are learning at the moment.

Total Possible Points

140 points (10 points per chapter)

Grade Weight

15%

Practice Assignments

Description

Completed through McGraw Hill's Connect. You have unlimited attempts and unlimited time with the practice assignment. This assignment is graded for completion. If you are unclear on the answer, you can select the eBook link and it will take to the portion of the textbook that contains information pertaining to the question. If you have not submitted the assignment before the due date, it will be automatically submitted no matter how much progress you have made. Late assignments will not be accepted. Once the due date passes, you will still have access to the practice assignments so that you can use these as a study tool for the mid-term and final. However, you will not be able to submit for credit.

Total Possible Points

152 points (19 points per practice assignment)

Grade Weight

15%

Quizzes

Description

Completed through McGraw Hill's Connect. You will have weekly quizzes. It is recommended that you read and review the chapter notes and complete the practice assignment for that week before taking the quiz. You will only have one attempt at the quiz and you will not have access to your eBook during the quiz. The quiz is graded for correctness.

Total Possible Points

152 points (19 points per quiz)

Grade Weight

15%

Discussion

Description

Completed on MyFIRE. The forum is a thinking exercise where you will be prompted to expand and apply knowledge gained from the weekly chapter content. Each week, students will need to address a prompt by posting their initial response to the question and participate in group discussion by posting two follow-up responses to comments made by classmates.

Total Possible Points

96 points (12 points possible per discussion: 6 points for initial post, 3 for points for each response post)

Grade Weight

10%

Laboratory Exercises (Learn Smart)

Description

Completed through McGraw Hill's Connect. LearnSmart Labs is a highly realistic simulated lab environment where students can conduct experiments, collect and analyze data and draw conclusions based on your experiments. The selected lab activities for each week complement the concepts learned from each week's topic and help students assess their learning by applying it in the form of experiments or health-based labs (Blood Pressure, eye and vision tests etc.)

Total Possible Points

216 points (27 points per assignment)

Grade Weight

25%

Exams

Description

Completed through MyFIRE. Students will be required to complete a mid-term exam before the end of week 4 and a final exam before the end of week 8. The mid-term will cover material from weeks 1-4 and the final will cover material from weeks 5-8. Exams will include multiple-choice type, true or false, and matching questions.

200 points (100 points per exam)

Grade Weight

20%