**MOHAWK VALLEY COMMUNITY COLLEG**

**UTICA AND ROME, NEW YORK**

**CWCC Course Syllabus**

**Course Name:** **Human Anatomy and Physiology 1 BI216**

**Course Credit Hours: C -** **3, P -** **3, CR -** **4**

**Course Prerequisites/Corequisites:** One year of high school chemistry or equivalent preparation or permission of the Dean for the Mathematics and Natural Sciences Department. Students enrolled in Health Sciences programs are recommended to complete this course before beginning their specialized program coursework.

1. ***Catalog Description***

This course covers the structure of the human organism at the macroscopic and microscopic levels, its function, and the regulatory processes that operate within a living system. It introduces general anatomical, physiological, and chemical organization, and includes discussions of the integumentary (skin), skeletal, muscular, and nervous systems. Laboratories involve vertebrate dissection, the use of human skeletal materials, non-invasive human experimentation, and possibly animal experimentation. In addition, lab exercises will involve the use of a variety of human body representations which could include reference to cadavers, models, histology, plastinated specimens, and videos.

1. ***Course Texts or Bibliography:***

Marieb, E. & K. Hoehn, Human Anatomy and Physiology, 10th ed., Pearson Education Inc. 2016.

1. ***Other Required Course Materials:***

Bush, Eileen and Perrotti, William, Inquiry-Based Exercises in Human Anatomy & Physiology, Part 1, 1st ed., Morton Publishing Company, 2017.

Nitrile or vinyl dissection gloves

1. ***Student Learning Outcomes:*** *(verified by Assessment Liaison on:* *)*

**A. The student will be able to demonstrate knowledge of the historical bases of anatomy and physiology as a natural and applied science by describing the scientific contribution(s) of selected significant individuals from the past.**

**B. The student will be able to correctly and accurately use anatomical terminology when describing the human and nonhuman structural plan through the completion of a variety of assessments. This outcome will be addressed in lab using human or animal specimens, or anatomical models while completing hands on inquiry based lab exercises.**

**C. The student will be able to demonstrate knowledge of homeostasis by completing a variety of assessments that involve organ systems and their role in the maintenance of a stable internal environment.**

**D. The student will be able to demonstrate knowledge of atomic structure and its relationship to living matter by completing a variety of assessments.**

**E. The student will be able to demonstrate knowledge of basic cellular structure and how it contributes to the four basic tissue types along with the integument by completing a variety of assessments.**

**F. The student will be able to demonstrate knowledge of cellular electrophysiology including membrane potential, local potentials, action potential and related topics by completing a variety of assessments.**

**G. The student will be able to demonstrate knowledge of the anatomy and physiology of the nervous system through the completion of a variety of assessments. This outcome will be addressed in lab using human and animal specimens, or anatomical models while completing hands on inquiry based lab exercises.**

**H. The student will be able to demonstrate knowledge of the anatomy and physiology of the musculoskeletal system and its contribution to the production of movement by completing a variety of assessments. This outcome will be addressed in lab using human and animal specimens, or anatomical models while completing hands on inquiry based lab exercises.**

**I. The student will be able to demonstrate the ability to collect and analyze data in lab and evaluate quantitative information relating to musculoskeletal physiology.**

**J. The student will participate in the processes of anatomical observation, anatomical exploration, and anatomical discovery through the completion of a variety of assessments. This outcome will be addressed in lab using human and animal specimens, or anatomical models while completing hands on inquiry based lab exercises.**

**K. The student will observe and recognize the significance of the structural**

**changes associated with aging and various selected pathologies. This outcome will be addressed in lab using human and animal specimens, or anatomical models while completing hands on inquiry based lab exercises.**

**L. The student will observe and verify the anatomical bases for selected**

**clinical procedures. This outcome will be addressed in lab using human**

**specimens or anatomical models while completing hands on inquiry based**

**lab exercises.**

**M. The student will compare human morphology between same sex and opposite sex individuals. This outcome will be addressed in lab using human specimens, or anatomical models while completing hands on inquiry based lab exercises.**

1. ***Detailed Course Outline:***

Week 1 Introduction: Definitions, Planes of Reference,

Anatomical Terminology, Structural Organization, Organ Systems, Feedback Regulation, Homeostasis Introduction

Week 2 Chemical Level of Organization: Basic Chemistry and Biochemistry

Week 3 Chemical Level of Organization (cont'd) Fluid, Electrolyte, and Acid-Base Balance

Week 4 Fluid, Electrolyte, and Acid-Base Balance (cont’d) First Hour Exam (subject to change)

Week 5 The Cellular Level of Organization: Plasma membrane, Cytoplasm, and Nucleus

Week 6 The Cellular Level of Organization (cont'd), Tissues: Epithelial, Connective, Muscle, Nervous, Embryonic; Membranes, Gland Tissues

Week 7 Integument: Structure, Function, and Response to Injury, The Skeletal System: Bone Types, Development, Growth, Hormonal Regulation, Response to

Mechanical Stress, Repair

Week 8 Skeletal System (cont'd), Second Hour Exam (subject to change)

Week 9 The Muscular System: Muscle Tissue, Terminology, Physiology, Energetics

The Muscular System (cont'd)

Week 10 The Muscular System (cont'd)

Week 11 The Nervous System: Cell Types and Functions, Organization, Basic Concepts

Week 12 The Nervous System (cont’d)

Week 13 The Autonomic Nervous System

Week 14 The Autonomic Nervous System (cont’d), Third Hourly Exam (subject to change)

Week 15 Comprehensive Final Exam

Note: The preceding topic outline provides a general roadmap of what will be covered in lecture during the semester. The actual time devoted to specific topics and the grouping of various chapters for hourly exams will be determined by individual instructors.

1. ***Detailed Practicum Outline\*:***

Week 1 - CA-1 Themes in Anatomy-1 Introduction to Dissection: Freestyle

 Exploration of Mammalian Heart

Week 2 - CA-2 Themes in Anatomy-2 Language of Anatomy: Serous Membranes,

 Abdominal Quadrants, Abdominopelvic Regions & Anatomical Sections

Week 3 - CA-3 Themes in Anatomy-3 Human Cadaver Exploration: Anatomy as a

 Science

Week 4 - CA-4 Histology: An Introduction to Tissues

Week 5 - CA-5 Human Skeletal System

Week 6 - CA-6 Bony Articulations: Shoulder, Hip, Knee

Week 7 - CA-7 Muscles: Anterior and Posterior Thorax

Week 8 - P-1 Electromyography (EMG)

Week 9 - CA-8 Anatomy of Special Sensory Structures: The Eye and the Ear

Week 10 - P-2 Physiology of the Special Sensory Structures: Audition & Vision

Week 11 - CA-9 Anatomy of the Brain: Sheep Brain with Human Comparisons

Week 12 - CA-10 Anatomy of the Peripheral Nervous System: Dural Partitions &

 Sinuses, Cranial Passages & Cranial Nerves

Week 13 - CA-11 Anatomy of the Central Nervous System: Spinal Cord

Week 14 - CA-12 Peripheral Nervous System: Brachial Plexus

1. ***Potential Course Assessments:***

Hourly Exams, Quizzes, Reports, Evaluations, Lab Check-off Work, Supplemental online assignments, In-class assignments (such as Making Connections worksheets and Concept Mapping), and Out-of-Class assignments (such as Retrieval sheets and Case Scenarios)

1. ***Sample Grading Scheme, Parameters, or Policies:***

Lecture is 2/3 of the overall course grade based on:

Hourly Exams, Quizzes, Supplemental online assignments, In-class assignments (such as Making Connections worksheets and Concept Mapping), and Out-of-Class assignments (such as Retrieval sheets and Case Scenarios)

Lab is 1/3 of the overall course grade and is based on:

Quizzes, Reports, Evaluations, and Check-off Work

1. ***Course Policies:***

Individual instructor classroom policies may vary for the lecture portion of the course with reference to attendance and assignment of points for grading scheme. All instructors will follow college policies concerning:

1) Policy on use of Technological Devices in the Classroom

College policy prohibits student use of technologies not relevant to classroom, laboratory, studio, or clinical settings. This includes, but is not limited to computers, cell phones, electronic communicating devices, MP3 players, and video/photo capture devices. These mentioned devices should be out of site upon entering the classroom for instruction. It is expected that you will use a pencil or pen to add to the printed out class notes. Students will be asked to put computers and phones away during lecture. Instructor discretion may be exercised to determine if the technology is a component of the learning environment.

2) Accommodating Students with special needs:

I would appreciate hearing from anyone in the class who has any type of disability (e.g., physical, learning, psychiatric, vision, hearing, etc.) which may require some special accommodation. Please see me during my office hours so that we can discuss your needs. Before services can begin, you must also contact the Office of Accessibility Resources (formally called Disability Services Office), 792-5644, in Room 104H of the Payne Hall Building on the Utica Campus. (For classes on the Rome Campus, students should be referred to the Student Services Office, PC A30, 334-7744). Staff members will review your documentation, determine your eligibility for accommodations, and decide what those accommodations will be.

3) Sustainability Statement:

Mohawk Valley Community College is committed to development and implementation of a comprehensive sustainability plan. To that end, we are beginning by asking students, faculty, and staff to actively participate in energy conservation measures and proper recycling on campus. The blue bins located in classrooms, and offices are for paper and paper products only. All plastic, metal and glass containers should be placed in the proper recycling bins located in the hallways. Please remember to empty them before depositing them. Any materials that cannot be recycled should be place in garbage cans. It is also important to turn off lights and computers when leaving a room. Together we can make an impact on conserving our resources. Remember to reduce, reuse and recycle!

4) Civility Statement:

Mohawk Valley Community College is committed to civility in and out of the classroom. MVCC believes everyone has the right to an environment that creates the safe opportunity for educational, professional and social development. MVCC recognizes its responsibility to model and encourage a culture of civil behavior.

5) Approved Title IX Statement:

Title IX states that no person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving federal financial assistance. Protections also extend to sexual harassment and sexual assault or violence that impairs or interferes with access to equitable educational and employment opportunities. For more information, please visit the Title IX website at www.mvcc.edu/IX

6) Academic Integrity Policy:

See college handbook

Basic operating rules specific to the anatomical donor (anatomy) lab:

Obviously, the lab must be maintained in a neat and clean condition by all who are allowed to use the facility. You are responsible for always acting in a manner that is in compliance with these rules.

A. The Drogo Anatomy & Physiology Laboratory, including the anatomical donor facility, is a NO CELL PHONE, NO PHOTOGRAPHY zone. Failure to abide by this policy could result in expulsion from BI216 or BI217.

B. You should leave outer coats, sweaters, etc. in the cubicles that are set aside for this purpose.

C. You must always wear protective gloves (vinyl or nitrile) when working with the anatomical donors or preserved organs. We recommend nitrile gloves because of its effectiveness as a barrier to preserving chemicals. If you have previously been diagnosed with any kind of allergy to powder or latex, talk to your instructor for advice about possible options.

D. You must always wear a rubberized apron when working with specimens. The college provides these. When done with lab, spray the exposed surface with the available cleaner (70% ethanol) and wipe it dry before you hang it up at the end of a session. This prevents the exposed surface of one apron from soiling the undersurface of another apron.

E. When performing dissections, we require that all tools (scalpels, scissors, forceps, probes, clamps, etc.) be kept and transported in a small tray. This minimizes the risk of accidental injury. After use, you must rinse such tools and set them aside to air dry. In general, no dirty tools or clean but wet tools should be placed in storage drawers.

F. You must always exercise care in examining and exploring human specimens. Many of the structures on which you will be working are very delicate and can be easily damaged. This is especially true for structures such as serous membranes and many small vessels and nerves. In general, look and think before you touch, and when you touch, be very gentle. If unsure, seek guidance or assistance from your instructor before proceeding.

G. Whenever biological materials are used for study, there are different types of waste that must be handled. This is doubly true when working with human materials. In general, three different types of waste material are created in an anatomical donor facility. Receptacles for each type are clearly marked and easily identified. You must be careful not to mix these up.

1) One container (red plastic flip-top containers) are designated by table number to hold ONLY human tissue from the anatomical donor of the same number. It is clearly identified with that anatomical donor's specific designation. This tissue will eventually be returned to the medical school from which the donor was obtained for cremation. It is very important that no paper or other material be put into these containers.

2) A second category of waste relates to materials that have been significantly soiled by preservative or body fluids from a specimen. These materials can include soiled paper towels, soiled tissue wipes, soiled protective gloves, soiled protective clothing, etc. Such material is treated as biomedical waste and placed in the large green receptacle with the red biohazard plastic liner bag. Paper or non-paper waste that has not been soiled by such fluids should not be put into these containers.

3) Lastly, there is unsoiled refuse (paper towels from handwashing, used masks or face shields, relatively clean disposable protective clothing, and any other relatively clean paper or non-paper waste material). Place this material in the gray general use waste receptacles so it can be processed as part of the institution’s general waste stream.

H. At the conclusion of a lab session, specimens are generally returned to a normal position and all internal organs carefully repositioned into their proper locations and their body walls closed up. Then the specimens are typically moistened with the available wetting solution. You should then cover and/or wrap the specimens as they were found at the start of the session. Usually any cloth covering is soaked with wetting solution at the end of a session. Your instructor may provide additional guidance regarding the desired packaging and storage of the bodies.

I. Also at the end of a session and before leaving the lab, spray countertops and other surfaces or handles that may have become soiled during the lab with 70% ethanol or other available cleaner and wipe them dry.

J. After gloves have been removed and discarded in the soiled trash container, you should wash your hands and forearms with soap and water before leaving the lab.

K. Pregnant female students will inform his or her instructor and consult with her physician regarding participation in the anatomical donor experience. That is our policy. The decision to participate (or continue to participate) in the lab experience can only be made by the student in consultation with her physician. Based on the recommendation of her physician, it may be that an alternative approach to the anatomy experience can be devised. It may also be the case that the only available option is for the student to wait until after delivery to resume her A&P studies.

*\* For courses that include Practicum time separate than Course time, provide as detailed a description or timeline of what the practicum will entail, e.g. laboratory schedules, internship expectations, etc.*

**Course Outline Contributors:**

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**Date Course Outline Was Approved:**

10/5/17