MOHAWK VALLEY COMMUNITY COLLEG UTICA AND ROME, NEW YORK

**Course Name: Human Anatomy and Physiology 2 BI217 Course Credit Hours: C - 3, P - 3, CR - 4**

**Course Prerequisites/Corequisites:** BI216 (or BI106) Human Anatomy & Physiology 1, or permission of the Dean for Mathematics and Natural Sciences. Students enrolled in Health Sciences programs are recommended to complete this course before beginning their specialized program coursework. Students with transfer credit for BI216 Anatomy and Physiology 1 must complete an orientation to the use of prosected human cadavers before participating in the BI217 Human Anatomy and Physiology 2 laboratory on the Utica campus. Transfer students must contact the A&P course coordinator not later than one week before beginning this course.

# Catalog Description

This course continues the study of structure, function, and regulation in the human organism that was begun in BI216, Human Anatomy & Physiology 1. Topics include the endocrine system, the reproductive system, the digestive system and metabolism, the cardiovascular system, blood, the lymphatic system, the respiratory system, and the excretory system. Laboratories involve vertebrate dissection, 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.

Nitrile Dissection gloves

1. ***Student Learning Outcomes:*** *(verified by Assessment Liaison on: )*
   1. **The student will be able to demonstrate knowledge of the anatomy and physiology of the male and female reproductive systems and their roles in the perpetuation of the human and nonhuman species 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.**
   2. **The student will be able to demonstrate knowledge of the endocrine system with emphasis being placed on its role in the regulation of bodily processes 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.**
   3. **The student will be able to demonstrate knowledge of the digestive system and its role in the procurement and processing of ingested organic matter 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.**
   4. **The student will be able to demonstrate knowledge of the basic structure of biomolecules and apply this knowledge in the study of cellular metabolism through the completion of a variety of assessments.**
   5. **The student will be able to demonstrate knowledge of the components of blood and lymphatic fluid and the role of these substances in the maintenance of homeostasis through the completion of a variety of assessments.**
   6. **The student will be able to demonstrate knowledge of the structural and functional interrelationships between the circulatory and respiratory systems and their importance in the procurement and movement of gases to and from the**

**body’s tissues 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.**

* 1. **The student will be able to demonstrate knowledge of the anatomy and physiology of the cardiovascular system and its role in delivering nutrients, regulatory chemicals and heat to all regions of the body 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.**
  2. **The student will be able to demonstrate knowledge of the anatomy and physiology of the urinary system and its importance in the regulation of the body’s internal fluid, electrolyte, and acid-base balance 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.**
  3. **The student will collect and analyze data and evaluate quantitative information relating to physiological processes. This outcome will be addressed in lab using hands on inquiry based lab exercises.**
  4. **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.**
  5. **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.**

* 1. **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.**

* 1. **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.**

# Detailed Course Outline:

Week 1 Anatomy and Physiology of the Reproductive System Week 2 Reproductive System (continued)

Week 3 Pregnancy & Development

Week 4 Anatomy and Physiology of the Endocrine System

Week 5 First Hour Exam (subject to change), Anatomy and Physiology of the Digestive System

Week 6 Digestive System (continued)

Week 7 Digestive System (continued), Metabolism

Week 8 Metabolism (continued), Second Hour Exam (subject to change)

Week 9 Anatomy and Physiology of the Heart

Week 10 The Heart (continued), Anatomy and Physiology of Circulation

Week 11 Anatomy and Physiology of Circulation (cont’d), Third Hourly Exam

Circulation

Week 12 Blood, Lymphatic System & Immunity, Anatomy and Physiology of the Respiratory System

Week 13 Anatomy and Physiology of the Respiratory System (continued) Anatomy and Physiology of the Urinary System

Week 14 Urinary System (continued), Fourth Hourly Exam 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.

# Detailed Practicum Outline\*:

1. Anatomy of Human Reproductive System-1
2. Anatomy of Human Reproductive System-2
3. Anatomy of Endocrine anatomy Effect of Reproductive Hormones on the Pituitary Gland and Gonads
4. Anatomy of the digestive system-1
5. Anatomy of the digestive system-2
6. Digestive physiology: Vending machine nutrition
7. Blood vessels of systemic circulation-1
8. Blood vessels of systemic circulation-2
9. Blood: Types, hematocrit, bleeding times
10. Anatomy of the heart
11. Cardiac physiology: ECG, heart sounds
12. Anatomy of the respiratory system and Anatomy of the urinary system
13. Respiratory physiology
14. Graded aerobic exercise
15. 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.

1. 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.
2. You should leave outer coats, sweaters, etc. in the cubicles that are set aside for this purpose.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.

1. 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.
2. 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.
3. 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.
4. 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.*

**Date Course Outline Was Approved:**

6/7/18