

**MINERAL AREA COLLEGE**

**PARAMEDIC TECHNOLOGY PROGRAM**

**Summer 2016**

**COURSE NUMBER: PAR-2100-AA01**

**TITLE: Anatomy and Physiology for the Pre-Hospital Professional**

**CREDIT HOUR: 4 Credit Hours**

**PREREQUISITES / COREQUISITES:**

Must hold current EMT license

Be accepted into Paramedic Technology Program or consent of Director of EMS Education.

A minimum reading ACT score of 13 or Compass score of 60.

Student must have access to high speed internet.

Student must possess basic computer and internet skills.

Student must have an email address. (one should be provided through MAC)

Student must have a Canvas Account (we will set up the first day)

**INSTRUCTOR:** Andrew Helle

E-Mail: TBA (as soon as it is set up through MAC)

Best form of contact through Canvas inbox

**TEXTBOOK:** VanPutte, et al. (2013) Seeley's Essentials of A&P, 8th Edition. Upper New York, New York: McGraw-Hill. [ISBN #:978-0-07-337826-8]

**ONLINE RESOURCES**

**Canvas Learning Management System** - We will use this system for homework assignments, practice quizzes, discussions and exams.

**Connect Plus™** access card for VanPutte, (2013).

Seeley's Essentials of Anatomy & Physiology, 8

th Edition. New York: McGraw-Hill Higher

Education. [ISBN #:0073250775]

**REQUIRED MATERIALS:** Computer with internet access, 500 unruled index cards, notebook, folder, pen, pencil and colored pencils.

**COURSE PACING:** Please note the pace of this course will move QUICKLY. The quantity that we will cover in one 8 week session is an overview of what many colleges cover in TWO semesters. You will need to spend a great deal of time in individual study/reading on your own time to be successful at this pace. It is likely that you will need to spend 2 hours of study/reading time for every hour of class time to be successful.

**ATTENDANCE:**

The maximum number of absences for this course is two (2). Any student missing more than 2 class days without instructor arrangement will be dropped from the course.

Class will not be in session on **Monday, June 20th** and **Thursday, June 23rd** as I will be on vacation.

There will still be coursework to complete online while I am gone, and you can still contact me through Canvas inbox with questions that I will answer once a day.

**COURSE DESCRIPTION/OVERVIEW:**

This course is designed specifically for the graduate EMT/pre-Paramedic student to provide a basic understanding of the structure and function of the human body. The course includes an overview of each body system. In addition, the pathophysiology of common diseases and traumatic injury will be emphasized as a major objective of the program. Application of A&P is an objective of every class day.

### **COURSE OBJECTIVES/GOALS:**

1. Develop a fundamental knowledge of the basic terminology concerning the body systems.
2. Identify the anatomical terms pertaining to position, planes, cavities, and membranes of the human body.
3. Demonstrate competence in the understanding of fluid compartments and basic chemical relationships (electrolytes, pH, and carbohydrate metabolism).
4. Identify the essential structure and function associated with the major organ systems of the human body.
5. Demonstrate understanding of A&P through application.
6. Demonstrate correct medical language communication using positional terms and clinical terminology.
7. Display a concentration of knowledge of selected body systems that are of particular importance for emergency care (cardiovascular, skeletal, respiratory, and peripheral nerves).
8. Understand the pathophysiology of common acute and chronic disease and trauma injuries.
9. Identify major structures (using models) of:
  - a. The Skeletal system
  - b. Muscular system

- c. Cardiovascular system
- d. Digestive system
- e. Integumentary system
- f. Renal system
- g. Respiratory system
- h. Nervous system
- i. The Endocrine system
- j. Structures of the Eye
- k. Structures of the Ear

**METHOD OF INSTRUCTION:**

Most class hours will be utilized for presentation, discussion, and application of core content.

Presentations, models, and handouts will be utilized to clarify the material. Practical application will be implemented when possible. Anatomical models will be utilized when possible. Online student resources will be a major component of this course as well.

**METHODS OF EVALUATION FOR GRADE:**

Written exams may contain, but are not limited to multiple-choice, matching, true/false, listing, diagrams, model labeling, and/or essay items.

**Grade Components:**

Homework, Classwork etc. 30%

Chapter Exams & Quizzes 50%

Final Exam 20%

\*\*These percentages are only an estimate and are subject to change per instructor discretion.

**GRADING SCALE:**

A = 90-100%

B = 80-89%

C = 75-79%

F = Below 75%

No score will be rounded up to the next higher score.

**EXAMS:**

Exams and quizzes will be taken online and exam results will be published on Canvas for student review immediately thereafter. Exam questions are property of the EMS program and must not be copied in any way. Any student who copies/photographs/saves a copy of program material without permission will be subject to dismissal. Copying materials without permission is considered an academic integrity violation.

Organize your time well. Waiting until the last minute to take online quizzes or complete assignments

usually results in missing the due date or being interrupted by life events. You also must have backup plan in case your internet access is interrupted. It is your responsibility as a student to make sure you have reliable access to high speed internet to complete your assignments on time. Not having a back-up plan to complete your assignments when your primary high speed internet source or computer fails is not acceptable and will result in 0 points for the

assignment, quiz, or exam.

**LATE WORK POLICY:** Assignments turned in after the time that they are due will be docked 25%.

## **BLENDED CLASSROOM**

Since a portion of our course is online and a portion is in person, this is considered to be a blended learning environment. Since classroom time is static, every content objective will not be covered in class. The role of the instructor is to facilitate learning, not to cover “every bit” of information found in the reading. The instructor’s role is to guide your learning, help you find weaknesses and deficiencies in your understanding, clarify information, and help you apply what you have learned.

### **LearnSmart™?\***

LearnSmart™ is a learning system with diagnostic capabilities that has been developed by Area9 for the US market for McGraw-Hill. The system trains students and intelligently develops a learning path adapted to what the student has learned and retained. Students learn faster and study more efficiently because the system forms a profile based on their level of understanding and self-perception and then feeds them appropriate content. LearnSmart™ is also able to recommend additional study resources that will help students master their course content.

Additionally, LearnSmart™ has features for instructors that allow them to see students' progress within the assigned modules as well as assess graded assignments. Students and instructors can access LearnSmart™ anywhere via a web browser.

Students are required to complete each assigned LearnSmart™ chapter(s) prior to the scheduled class day with at least an 80% competency. Successful completion of the assigned LearnSmart™ chapters applies toward the homework grade, but LearnSmart™ allows you to complete the chapters as many times as you desire to reach your goal. This will allow you to actively engage in the classroom and group learning activities. Students that do

not complete the assigned chapter(s) with a 70% or higher prior to the scheduled class day will receive no points toward their homework grade for that assignment day. You will access

LearnSmart™ through Connect™.

\*These LearnSmart™ requirements are subject to change per instructor, and will not begin with our first week of class.

## **COURSE EXPECTATIONS**

### **PARTICIPATION:**

Since adult learners develop cognitive thought & critical thinking through application, interaction,

synthesis, and evaluation, it is an expectation that each student will be an active participant in group and classroom discussions as well as small group exercises. Students are expected to come to class prepared to engage in group and classroom activities.

### **STUDENT CONDUCT:**

Professional and adult behavior is expected at all times throughout the program. Inappropriate or

unprofessional behavior reflects upon yourself, the program, your classmates and your instructor. It is essential that you conduct yourself in a manner that reflects the high standards that represent this program and the EMS profession. A student who violates this provision is subject to disciplinary action, up to and including dismissal from the A&P for the Pre-Hospital Professional course. Students are expected to come prepared for class with required reading completed and ready to engage in classroom discussions and group learning exercises.

## **ASSIGNMENTS**

Unless assignment instructions dictate group participation and/or classmate collaboration, assignments of all kinds must be your own work. For example, self

evaluations are usually considered open to group and class collaboration, while homework assignments are expected to reflect individual work product.

## **COMMUNICATION**

Students are required to set up and utilize their Mineral Area College e-mail accounts. An e-mail account is provided to you free at the time of registration. Your user name is usually the first initial of your first name and your last name. Most communication should take place within the Canvas LMS. If you need to email me for some reason, please use your MAC email. On most class days the last 10 minutes of class will be reserved for individual instructor communication.

## **COURSE OUTLINE**

### **An Introduction to the Structure and Function of the Body**

Structural Levels of Organization

Anatomical Positions and Anatomical Directions

Body Cavities and Body Regions

The Balance of Body Functions

### **Overview of the Organ Systems of the Body**

Integumentary

Skeletal

Muscular

Nervous

Endocrine

Cardiovascular

Lymphatic

Respiratory

Digestive

Urinary

Reproductive

## **Chemistry of Life**

Atomic structure and chemical bonding

Macromolecules and ATP

Metabolism

pH scale

## **Cells and Tissues**

Cells

Movement of Substances through Cell Membranes

Cell Reproduction and Heredity

Tissues

## **The Integumentary System and Body Membranes**

Classification of Body Membranes

The Skin

## **The Skeletal System**

Functions of the Skeletal System

Types of Bones

Structure of Long Bones

Microscopic Structure of Bone and Cartilage

Divisions of Skeleton

Differences between a Man's and Woman's Skeleton

Joints (Articulations)

## **The Muscular System**

Muscle Tissue

Structure and Function of Skeletal Muscle

Fatigue

Role of Other Body Systems in Movement

Motor Unit

Muscle Stimulus

Types of Skeletal Muscle Contraction

Effects of Exercise on Skeletal Muscle

Skeletal Muscle Groups

Movement Produced by Skeletal Muscle Contractions

## **The Nervous System**

Organs and Divisions of the Nervous System

Cells of the Nervous System

Nerves, Reflex Arcs, and Nerve Impulse

Central Nervous System

Peripheral Nervous System

Autonomic Nervous System

## **The Senses**

Classification of Sense Organs

Converting a Stimulus into a Sensation

General Sense Organs and Special Sense Organs

## **The Endocrine System**

Mechanisms of Hormone Action

Regulation of Hormone Secretion

Prostaglandins

Pituitary Gland

Hypothalamus

Thyroid Gland

Parathyroid Gland

Adrenal Glands

Pancreatic Islets

Female Sex Glands

Male Sex Glands

Thymus

Placenta

Pineal Gland

Other Endocrine Structures

## **Blood**

Blood Components

Blood Types

## **The Circulatory System**

Heart

Blood Vessels

Circulation

Blood Pressure

Pulse

## **The Lymphatic System**

The Lymphatic System

The Immune System and Immune System Molecules

## **The Respiratory System**

Structural Plan

Respiratory Tracts

Respiratory Mucosa

Nose

Pharynx

Larynx

Trachea

Bronchi, Bronchioles, and Alveoli

Respiration

Regulation of Respiration

Types of Breathing

## **The Digestive System**

Wall of the Digestive Tract

Mouth, Teeth, and Salivary Glands

Pharynx

Esophagus

Stomach

Small and Large Intestines

Liver and Gallbladder

Pancreas

Appendix

Peritoneum

Digestion

Absorption

## **The Urinary System**

Kidneys

Formation of Urine

Ureters and Urinary Bladder

Urethra

Micturition

Fluid and Electrolyte Balance

Body Fluid and Body Fluid Compartments

Mechanisms that Maintain Fluid Balance and Fluid Imbalances

## **Acid-Base Balance**

pH of Body Fluids

Mechanisms that Control pH of Body Fluids

pH Imbalances

## **The Reproductive Systems**

Common Structural and Functional Characteristics between the Sexes

Male Reproductive Systems

Female Reproductive Systems

## **FERPA**

Mineral Area College strictly follows the Family Educational Rights and Privacy Act (FERPA). Information regarding a student's performance will not be released to any third party without expressed written consent of the student. Staff and Faculty of MAC expect students participating in group assignments and discussions to honor their fellow classmates' privacy and adhere to published guidelines concerning others performance or grades in a given class. Non-compliance with this may result in suspension or expulsion from the program.

## **NON-DISCRIMINATION POLICY**

Mineral Area College does not discriminate on the basis of race, color, national, origin, gender, disability, age, religion, creed, or marital or parental status. For more information, call the Title VI, Title IX, Sec. 504 and ADA coordinator at (573)-431-4593 or U.S. Dept. of Education, Office of Civil Rights.

## **SPECIAL NEEDS:**

If you have a special need as addressed by the Americans with Disabilities Act and need any test or course material provided in an alternative format, contact the ACCESS Office for information about eligibility. The ACCESS Office is located in Room 103 of the Arts & Sciences building. Reasonable efforts will be made to accommodate your special needs. Information regarding the Americans with Disabilities Act and the procedures to request accommodations is also posted on the Access Office web site that details the process for requesting

accommodations at the college -

<http://www.mineralarea.edu/students/studentResources/disabilitySupportServices.aspx>  
(Links to an external site.)Links to an external site.