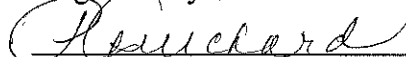



City College of San Francisco
Course Outline of Record

I. GENERAL DESCRIPTION

- A. Approval Date October 2013
B. Department Health Care Technology
C. Course Number EMTP 120
D. Course Title Human Systems and Pt Asmt
E. Course Outline Preparer(s) Megan Gorry .
F. Department Chairperson


Peggy Guichard

G. Dean


Terrance Hall

Terry Hall, Dean
John Adams Campus/
School of Health & P.E.

II. COURSE SPECIFICS

- A. Hours Lecture – 96 total
B. Units 5.0
C. Prerequisites EMT 100 or equivalent
Corequisites None
Advisories None
D. Course Justification The course content reflects the preparatory material for paramedic education programs as outlined in the National EMS Education Standards.
E. Field Trips No
F. Method of Grading Letter
G. Repeatability 0

III. CATALOG DESCRIPTION

This course reviews the fundamentals of human anatomy, physiology and pathophysiology and the language and terminology of medicine. Each organ system will be reviewed along with clinical case studies related to dysfunction of the various organ systems. Emphasis will be placed on application of physiology and pathophysiology to the assessment of patients with various emergency medical conditions and the documentation and reporting skills used in the delivery of emergency medical care.

IV. MAJOR LEARNING OUTCOMES

Upon completion of this course a student will be able to:

- A. Define anatomy, physiology and pathophysiology.
B. Describe the structure and function of the human cell and organelles.
C. Apply knowledge of cellular physiology to clinical case studies.
D. Integrate anatomical and medical terminology into verbal and written communication with colleagues.
E. Apply knowledge of cellular physiology to the pathophysiology of shock in review of clinical case studies.
F. Demonstrate knowledge of the normal function of the organ systems, including: integumentary, skeletal, muscular, nervous, sensory, endocrine, cardiovascular, urinary, respiratory, immune, digestive and reproductive.

- G. Apply knowledge of physiology of the organ systems to organ system dysfunction in review of clinical case studies.
- H. Integrate knowledge of life span development into the practice of an EMS professional during simulated patient scenarios.
- I. Demonstrate written and verbal communication skills used to report patient assessment findings relevant to the clinical situation during various simulated patient scenarios.

V. CONTENTS

- A. Foundational knowledge: Anatomy, Physiology and Pathophysiology for Paramedics
 - 1. Organization of the body
 - 2. Anatomical directions, planes and medical terminology
 - 3. Basic Chemistry
 - 4. Cells, cellular structure and organelles
 - a. Movement of substances through the cell membrane
 - b. Cellular respiration
 - c. Protein Synthesis
 - d. Cell replication and division
 - 5. Tissues and Membranes
 - a. Epithelial tissue
 - b. Connective tissue
 - c. Muscle tissue
 - d. Nerve tissue
 - e. Body Membranes
 - 6. Membrane physiology
 - a. Resting membrane potential
 - b. Action potentials
 - 7. Overview of the organ systems and their functions
 - a. Integumentary system
 - b. Skeletal system
 - c. Muscle system
 - d. Nervous system
 - e. Respiratory system
 - f. Cardiovascular system
 - g. Urinary system
 - h. Endocrine system
 - i. Digestive system
 - j. Lymphatics and Immune system
 - k. Reproductive system
 - 8. Integumentary system
 - a. Functions
 - b. Layers of the integumentary systems, structures and functions
 - c. Clinical case review of emergencies involving the integumentary system
 - 9. Skeletal system
 - a. Functions

- b. Types of bone
 - c. Microscopic anatomy of bone
 - d. Divisions of the Skeleton
 - e. Joints
 - f. Clinical case review of emergencies involving the skeletal system
10. Muscular system
- a. Functions
 - b. Types of muscle cells
 - 1. Smooth
 - 2. Skeletal
 - 3. Cardiac
 - c. Structure of skeletal muscle tissue
 - d. Microscopic anatomy and physiology of the muscle cell
 - e. Major muscle groups and functions
 - f. Types of Movements produced by skeletal muscle contraction
 - g. Clinical case review of emergencies involving the muscular system
11. Nervous system
- a. Functions
 - b. Cellular anatomy
 - c. Cellular Physiology: Action potentials
 - d. Nerves and Nerve tracts
 - e. Reflex Arcs
 - f. Central Nervous System: Brain and Spinal cord
 - 1. Mapping the brain: functional areas
 - 2. Circulation of the brain
 - 3. Cross sectional anatomy of the spinal cord
 - g. Peripheral Nervous System
 - 1. Cranial and spinal nerves
 - 2. Autonomic nervous system: anatomy, physiology and neurochemical functions
 - h. Clinical case review of emergencies involving the nervous system
12. The Senses
- a. General Sensory Pathway
 - b. Classification of receptor by type of stimulus
 - c. Cutaneous senses
 - d. Visual pathway
 - e. Hearing
 - f. Smell and taste
13. Respiratory system
- a. Functions
 - b. Gross anatomy
 - c. Cellular anatomy
 - d. Physiology of Gas exchange
 - e. Mechanics of breathing
 - f. Pulmonary volumes
 - g. Regulation of Respiration

- h. Clinical case review of emergencies involving the respiratory system:
airway obstruction, obstructive lung disease, pulmonary embolism
- 14. Cardiovascular system
 - a. Functions
 - b. The Heart: Anatomy
 - c. Bloodflow through the heart
 - d. The Electrical Conduction System
 - e. The Cardiac Cycle
 - f. Circulation and major blood vessels
 - g. Blood pressure regulation
 - h. Blood components
 - i. Clinical case review of emergencies involving the cardiovascular system
- 15. Urinary system
 - a. Functions
 - b. Glomerular Filtration
 - c. Reabsorption
 - d. Secretion
 - e. Fluid and Electrolyte balance
 - f. Acid-base balance
 - g. Clinical case review of emergencies involving the urinary system
- 16. Endocrine system
 - a. Endocrine glands
 - b. Hormones: gland and functions
 - c. Clinical case review of emergencies involving the endocrine system
- 17. Digestive system
 - a. Functions
 - b. Alimentary canal
 - c. Accessory organs of digestion
 - d. Nutrition and Metabolism
 - e. Clinical case review of emergencies involving the digestive system
- 18. Lymphatics and Immune system
 - a. Functions
 - b. Structure of the lymphatic circulatory system
 - c. Formation and reabsorption of lymph
 - d. Immunity
 - e. Clinical case review of emergencies involving the lymphatics and immune system
- 19. Reproductive system
 - a. Functions
 - b. Gamete production
 - c. Male Reproductive system
 - d. Female Reproductive system
 - e. Fertilization
 - f. Lifespan development
 - g. Clinical case review of emergencies involving the reproductive system

- B. Applied Physiology and Pathophysiology: Reporting and Documenting Assessment Findings
 - 1. The SOAP narrative: subjective, objective, assessment and plan
 - 2. Verbal Reporting
 - a. Radio
 - b. In person "hand over" report
 - 3. Trauma patient reporting format
 - 4. Medical patient reporting format

VI. INSTRUCTIONAL METHODOLOGY

A. Assignments

- 1. In-class Assignments
 - a. Worksheets: Students work in groups and complete worksheet packets related to subject matter studied in class. Exercises include combination of multiple choice, true/false and short answer critical thinking plus diagram labeling and clinical application examples related to coursework.
 - b. Case review: Students work in small groups and review case studies involving prehospital medical and trauma emergencies and discuss application of patient presentation to underlying pathophysiology. For each case review the student completes a SOAP narrative document to summarize the clinical findings and treatment plan.
 - c. Simulated cases: students participate in simulated patient scenarios designed to practice integrating knowledge of physiology into clinical situations. Students practice verbal reporting as they would to medical staff of an emergency department.
- 2. Out-of-class Assignments
 - a. Chapter reading as assigned on the course syllabus to be completed before the class session.
 - b. Online assignments
 - 1. Review of posted slides and outlines
 - 2. Take online multiple choice quizzes associated with each Chapter before coming to class.
 - 3. Forum discussion: participate in message board discussions online related to the topics discussed in class as method of communicating in medical terminology and as method of continuous study.

B. Evaluation

- 1. Worksheet packets completed in class are points are awarded for completion and content.
- 2. Written narratives: points are awarded for completion and accuracy on written SOAP patient narratives corresponding to case studies.
- 3. Written examinations including multiple-choice, true/false, short answer critical thinking questions within each topic area designed to assess foundational knowledge, application and analytical skills in the cognitive domain.
 - a. Weekly quizzes to assess cognitive skills on subject matter discussed in the previous week of class.

- b. Comprehensive final examination covering all assigned chapters and additional materials provided by the instructor.
 4. Online participation: grading for quality of discussion on forum and completion of online quizzes by deadline.
 5. Class participation: points are awarded for preparedness and quality of contributions during case review discussions and simulations. Students are expected to demonstrate basic knowledge of physiology and apply principles to the case review of patients in various clinical situations.
- C. Textbooks and other instructional materials
 1. Structure and Function of the Human Body, 13th Edition; Mosby/Elsevier publishing, St. Louis, Missouri, 2008.
 2. Structure and Function of the Human Body, Student workbook, 13th edition; Mosby/Elsevier publishing, St. Louis, Missouri, 2008.
 3. Insight Learning Management System (Moodle), City College of San Francisco, 2011.
 4. Handouts provided by the instructor of patient scenarios taken from various clinical case studies textbooks or journals.

VII. TITLE 5 CLASSIFICATION

CREDIT/DEGREE APPLICABLE (meets all standards of Title 5. Section 55002(a)).