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 126
D. Course Title	Neuroendocrine Emergencies
E. Course Outline Preparer(s)	Megan Corry
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 – 56 total Conference – 20 total
B. Units	4.0
C. Prerequisites	Acceptance into the Paramedic Program
Corequisites	None
Advisories	None
D. Course Justification	The course content reflects the material outlined in the National EMS Education Standards.
E. Field Trips	No
F. Method of Grading	Letter
G. Repeatability	0

III. CATALOG DESCRIPTION

Prehospital and in-hospital assessment and management of patients with altered mental status, seizures, strokes and other dysfunctions of the neuroendocrine systems.

IV. MAJOR LEARNING OUTCOMES

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

A. Demonstrate the systematic patient assessment used for patients with altered mental status, seizures and other neuroendocrine emergencies.
B. Identify the elements of the comprehensive prehospital neurological examination.
C. Describe the pathophysiology and clinical findings associated with stroke, seizures, altered mental status, diabetic emergencies, thyroid dysfunction and adrenal dysfunction.
D. Given a patient scenario, identify the most likely etiology of the patient's condition using information obtained from patient history, clinical findings and foundational knowledge of pathophysiology.
E. Given a patient scenario, use critical thinking skills to determine the preferred method of treatment for patients with neuroendocrine emergencies.
F. Demonstrate proper basic and advanced life support management of critical and stable patients with neuroendocrine emergencies within the scope of practice of a paramedic.

V. CONTENTS

A. Neurologic Emergencies
   1. Review of anatomy and physiology of the Nervous system
      a. Central nervous system (CNS)
         1. Mapping the brain
         2. Cerebral circulation
         3. CSF
      b. Peripheral nervous system (PNS)
   2. Neuropathophysiology
      a. Cerebral perfusion pressure
      b. Cerebral autoregulation
   3. Consciousness and responsiveness
      a. Role of the reticular activating system
      b. Role of bilateral cerebral hemispheres
      c. Spectrum of consciousness states to coma
      d. Evaluating responsiveness
         1. Glascow coma scale
         2. Reflex testing
         3. Other neurological tests of responsiveness and awareness
         4. Dementia and delirium
   4. Neurologic examination
      a. Initial assessment and respiratory patterns
      b. Vital signs and physical examination
      c. Pupillary reflexes
      d. Extraocular movements
   5. Pathophysiology, clinical finding and management of specific neurologic disorders
      a. Coma: Structural versus metabolic etiologies
      b. Stroke: ischemic and hemorrhagic
         1. Prehospital stroke scales
         2. ACLS algorithm for stroke
      c. Transient ischemic attack (TIA)
      d. Seizure disorders
         1. Types of seizures
         2. Syncope versus seizure
         3. Status epilepticus
      e. Headache
      f. Brain neoplasm and abscess
      g. Degenerative neurological diseases
         1. Parkinson's disease
         2. Dementia
         3. Demyelinating disorders
         4. Cranial nerve disorders
         5. Movement disorders
         6. Neurologic inflammation/infection
         7. Spinal cord compression

8. Hydrocephalus
9. Wernicke's encephalopathy

B. Endocrine Emergencies
   1. Review of Anatomy and Physiology of the endocrine system
      a. Glands
      b. Hormones and functions
      c. Regulation of hormone secretion
   2. Disorders of the Pancreas: Diabetes Mellitus
      a. Islets of Langerhans and pancreatic hormones: insulin, glucagon and growth hormone
      b. Regulation of glucose metabolism
      c. Pathophysiology of diabetes mellitus
         1. Type I: Insulin dependent
         2. Type II: Non-insulin dependent
      d. Diabetic emergencies
         1. Diabetic ketoacidosis
         2. Hyperosmolar hyperglycemic nonketotic coma
         3. Hypoglycemia (insulin shock)
   3. Disorders of the Thyroid Gland
      a. Anatomy and physiology of the thyroid gland
      b. Hyperthyroidism
      c. Thyrotoxicosis (thyroid storm)
      d. Hypothyroidism
      e. Myxedema
   4. Disorders of the Adrenal Glands
      a. Cushing's syndrome
      b. Addison's disease

C. Differential diagnosis of altered mental status/seizure
   1. Structural versus metabolic-toxicologic etiologies
   2. Scenarios of simulated patients with alterations in mental status/seizures
   3. Scenarios of simulated patients with neuroendocrine abnormalities

D. Integrated Simulation Lab Scenarios
   1. Team Leadership
   2. Team member roles

E. Clinical hospital rotations as assigned

VI. INSTRUCTIONAL METHODOLOGY

A. Assignments
   1. In-class Assignments include participation in interactive case review and discussions relating pathophysiology to actual case studies. Students will also participate as team leaders and members in the integrated simulation lab during simulated patient scenarios.
   2. Out-of-class Assignments
      a. Chapter reading from the textbooks as assigned on the course syllabus to be completed before the class session.
      b. Online assignments:

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    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 discussion related to topics discussed in class as method of continuous study and peer-guided learning.

B. Evaluation
1. In class assignments: students will be awarded points for quality of contributions during discussion and successful team leadership during simulated patient scenarios.
2. Written examinations include 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. In class quizzes: Weekly quizzes to assess the cognitive skills on subject matter discussed in previous week of class.
    b. Comprehensive final examination covering all assigned chapters and additional materials assigned by the instructor.
3. Online participation will be graded for quality of posted discussion items and completion of quizzes by deadline.
4. Clinical rotations as assigned with emphasis on clinical assessment and treatment associated with neuroendocrine patients.

C. Textbooks and other instructional materials
1. Mosby's Paramedic Textbook, revised 3rd edition. Mosby/Elsevier Publishing, St. Louis, Missouri, 2007.
2. 2010 Handbook of Cardiovascular Care for Healthcare Providers. American Heart Association Publisher, 2010.
3. Insight Learning Management System (Moodle), City College of San Francisco, 2011.
4. Handouts provided by the instructor of case studies and updated materials from EMS standards and guidelines.

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