Las Positas College
3000 Campus Hill Drive
Livermore, CA 94551-7650
(925) 424-1000
(925) 443-0742 (Fax)

Course Outline for EMS 54

EMT-P ABD AND NEURO SYSTEMS

Effective: Fall 2010

I. CATALOG DESCRIPTION:
EMS 54 — EMT-P ABD AND NEURO SYSTEMS — 4.00 units

Overview of the abdominal, genitourinary, gastrointestinal, hematological, nervous, and endocrine systems of the human body for the field paramedic. Discussion of the emergencies that affect the systems and how to manage them in the prehospital environment. Supervised clinical sessions at a hospital emergency department, labor and delivery suite, pediatric clinic, to include exposure to emergency, cardiac, surgical, obstetric, and pediatric patients with a clinical preceptor. Prerequisite Emergency Medical Services (complete with a grade of "C" or higher). 3 hours lecture, 3 hours laboratory.

3.00 Units Lecture 1.00 Units Lab

Prerequisite
EMS 53 - EMT-P Medical Syndromes
with a minimum grade of C

Grading Methods:
Letter Grade

Discipline:

	MIN
Lecture Hours:	54.00
Lab Hours:	54.00
Total Hours:	108.00

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 1

III. PREREQUISITE AND/OR ADVISORY SKILLS:
Before entering the course a student should be able to:

A. EMS53
1. develop a treatment plan using knowledge of the pathophysiology of infectious medical diseases
2. develop a comprehensive treatment/disposition plan for a patient with a medical complaint of toxicological poisoning
3. summarize how principles of body substance isolation relate to the following topics: Infection implications on human anatomy and physiology, Epidemiology of infectious diseases, pathophysiology of infectious diseases, and psychosocial impact of infectious diseases
4. summarize the presentations, prognosis, and management of the following toxidromes and poisonings: Cholinergics , Anticholinergics, Sympathomimetics , Sedative/hypnotics, Opiates, Alcohol intoxication and withdrawal, Over-the-counter and prescription medications, Carbon monoxide, Illegal drugs, Herbal preparations
5. explain how the paramedic will manage the following diseases outside of the hospital in an emergent and non-emergent patient: HIV-related disease, Hepatitis, Pneumonia, and meningococcal meningitis
6. demonstrates a comprehensive knowledge of: Tuberculosis, Tetanus, Viral diseases, Sexually transmitted disease, Gastroenteritis, Fungal infections, Rabies, Scabies and lice, Lyme disease, Rocky Mountain Spotted Fever, Antibiotic resistant infections
7. demonstrate a comprehensive knowledge of the following topics: Hypersensitivity, Allergic and anaphylactic reactions
8. demonstrate a comprehensive knowledge of: Collagen vascular disease, Transplant related problems

IV. MEASURABLE OBJECTIVES:
Upon completion of this course, the student should be able to:

A. discuss the underlying anatomy, physiology, epidemiology, pathophysiology, psychosocial impact, presentations, and prognosis of the following topics: emergent disease conditions of the cerebral circulation, Seizure disorders, and headache
B. demonstrate knowledge of the following topics: Dementia, neoplasms, demyelinating disorders, Parkinson's disease, Cranial nerve disorders, Movement disorders, Neurologic inflammation/infection, Spinal cord compression, Hydrocephalus, Wernicke's encephalopathy
C. discuss the underlying anatomy, physiology, epidemiology, pathophysiology, psychosocial impact, presentations, and prognosis of the following topics: Acute and chronic gastrointestinal hemorrhage, Liver disorders, Peritonitis, Ulcerative diseases
D. differentiate the symptoms and treatment plans of the following topics Irritable; bowel syndrome, Inflammatory disorders, Pancreatitis, Bowel obstruction, Hernias, Infectious disorders, Gall bladder and biliary tract disorders
E. demonstrate knowledge of the following topics: Rectal abscess, Rectal foreign body obstruction, Mesenteric ischemia

F. discuss the underlying anatomy, physiology, epidemiology, pathophysiology, psychosocial impact, presentations, and prognosis of diabetic emergencies
G. differentiate the pathology and treatment of the following topics: Adrenal disease, Pituitary and thyroid
H. discuss the underlying anatomy, physiology, epidemiology, pathophysiology, psychosocial impact, presentations, and prognosis of Sickle cell disease
I. demonstrate knowledge of the following topics: Blood transfusion complications, Haemostatic disorders, Lymphomas, Red blood cell disorders, White blood cell disorders
J. discuss the underlying anatomy, physiology, epidemiology, pathophysiology, psychosocial impact, presentations, and prognosis of acute and chronic renal failure
K. describe the process of dialysis
L. demonstrate knowledge of: Acid base disturbances, fluid and electrolyte fluctuations in the renal illness patient, infection, and genital tract conditions of the male and female
M. demonstrate knowledge of: Blood sampling, thrombolytic initiation

V. CONTENT:

A. Introduction—overview of neurological conditions
    1. Epidemiology,
    2. Pathophysiology
B. Central Nervous System
    1. Brain
    2. Spinal cord
    3. Autonomic and peripheral nervous systems
C. Neurological assessment- normal and abnormal findings
    1. General Appearance
    2. Speech
    3. Skin
    4. Posture/Gait
    5. Mental Status
    6. Mood, thought, perception, judgment, memory and attention
    7. Cranial nerve assessment
    8. Glasgow coma scale
D. General management considerations
    1. Airway, ventilation, respiration, circulation
    2. Emotional support
    3. Transport decisions
E. Neurological conditions
    1. Altered mental status
    2. Stroke, intracranial hemorrhage, and Transient Ischemic Attacks (TIA)
    3. Seizures
    4. Headache
    5. Dementia
    6. Central nervous system neoplasm
    7. Demyelinating Neurological Disorders
    8. Parkinson's disease
    9. Cranial nerve disorders
    10. Movement disorders-- dystonia
    11. Neurological infections/inflammation
    12. Spinal Cord Compression
    13. Hydrocephalus
    14. Wernicke's Encephalopathy
F. Age-related variations
    1. Pediatrics
    2. Geriatrics- stroke risk high in this age group
G. Communication and documentation
H. Transport decisions
I. Patient education and prevention of complications or future neurological emergencies.
J. Introduction to abdominal disorders
    1. Epidemiology
K. General pathophysiology, assessment and management
    1. Pathophysiology of abdominal pain
    2. Assessment findings
    3. Management/ treatment plan
L. Specific Injuries/ illness: causes, assessment findings and management for each condition
    1. Upper gastrointestinal bleeding
    2. Lower gastrointestinal bleeding
    3. Liver Diseases
    4. Infectious Disorders
    5. Ulcerative Disorders
    6. Irritable bowel syndrome
    7. Inflammatory bowel disease
    8. Bowel obstruction
    9. Hernias
    10. Rectal foreign body obstruction
    11. Rectal Abscess
    12. Mesenteric Ischemia
M. Consider age-related variations
    1. Pediatrics
    2. Geriatrics
N. Communication and documentation
O. Endocrine Disorders
    1. Anatomy and Physiology-- Endocrine Glands
    2. Hormones
P. Pathophysiology, causes, Incidence, morbidity, and mortality, assessment findings, management for endocrine conditions
    1. Pancreas disorders--Diabetes mellitus--
    2. Thyroid disorders
    3. Adrenal disorders
    4. Other endocrine disorders
Q. Consider age-related variations
    1. Pediatric

2. Geriatric

R. Communication and documentation
S. Transport decisions
T. Patient education and prevention
U. Introduction to Hematological Emergencies
    1. Epidemiology
    2. Anatomy and physiology review
V. General assessment findings and symptoms
    1. Level of consciousness
    2. Skin
    3. Visual disturbances
    4. Gastrointestinal
    5. Skeletal
    6. Cardiorespiratory
    7. Genitourinary
W. General management for a patient with a hematological condition or emergency
    1. Airway, ventilation, and circulation
    2. Pharmacological
    3. Non-pharmacological
    4. Transport considerations
    5. Psychological/ communication strategies
X. Sickle Cell Disease
    1. Definition, pathophysiology, epidemiology, mortality and morbidity
Y. Hematological conditions
    1. Definitions, Pathophysiology, epidemiology , mortality and morbidity, and complications
    2. Specific assessment findings and symptoms
    3. Specific management considerations
    4. Conditions
A@. Blood Transfusion Complications
    1. Hemolytic
    2. Febrile
    3. Allergic
    4. Transfusion-related lung injury
    5. Circulatory overload
    6. Bacterial infection
AA. Consider age-related variations in pediatric and geriatric patients
AB. Patient education and prevention
AC. Review of Genitourinary System
    1. General anatomy
    2. Functions of the urinary system
AD. Renal Diseases
    1. Overview of renal conditions
    2. Assessment findings and symptoms for renal failure
    3. Dialysis
    4. Management for a patient with acute renal condition, chronic renal conditions with acute exacerbations or dialysis problems, or end stage renal disease.
AE. Urinary System Conditions
    1. Urinary retention—pathophysiology, incidence, causes
    2. Urinary tract infection (UTI)-- pathophysiology, incidence, causes
    3. Renal calculi (kidney stones) - pathophysiology, incidence, causes.
    4. Acid base disturbances- pathophysiology, incidence, causes.
    5. Fluid and electrolyte- pathophysiology, incidence, causes.
    6. Infection- pathophysiology, incidence, causes.
AF. Male genital tract conditions
    1. Review of male reproductive system anatomy and physiology.
    2. Blunt trauma to external genitalia
    3. Epididymitis or orchitis-- pathophysiology, incidence, causes
    4. Fournier’s gangrene- pathophysiology, incidence, causesEducation Standard
AG. Introduction to gynecology
    1. Female reproductive system anatomy review
AH. Physiology
    1. Menstrual and ovarian cycles
AI. Symptoms and Assessment findings
    1. Abdominal pain or vaginal pain
    2. Vaginal bleeding
    3. Vaginal discharge
    4. Fever
    5. Nausea and vomiting
    6. Syncope
AJ. General management
    1. Protect privacy and modesty
    2. Communication techniques
    3. Consider pregnancy and/or sexually transmitted diseases
    4. Oxygen and IV fluids if needed
AK. Vaginal Bleeding
    1. Anatomy and physiology
    2. Epidemiology
    3. Pathophysiology
    4. Psychosocial impact
    5. Assessment findings/presentation
    6. Prognosis
    7. Management
AL. Sexual Assault
    1. Anatomy and physiology,
    2. Epidemiology
    3. Pathophysiology
    4. Psychosocial impact
    5. Assessment findings/presentations
    6. Prognosis
    7. Management

AM. Infection (including Pelvic inflammatory disease, Bartholin's abscess, and vaginitis/vulvovaginitis)
1. Pathophysiology
2. Assessment findings/presentation
3. Prehospital Management

AN. Ovarian cyst and ruptured ovarian cyst
1. Pathophysiology
2. Assessment findings/presentation
3. Prehospital Management

AO. Ovarian torsion
1. Pathophysiology
2. Assessment findings/presentation
3. Prehospital Management

AP. Endometriosis
1. Pathophysiology
2. Assessment findings/presentation
3. Prehospital Management

AQ. Dysfunctional uterine bleeding
1. Pathophysiology
2. Assessment findings/presentation
3. Prehospital Management

AR. Prolapsed uterus
1. Pathophysiology
2. Assessment findings/presentation
3. Prehospital Management

AS. Vaginal foreign body
1. Pathophysiology
2. Assessment findings/presentation
3. Prehospital Management

AT. Age-related variations
1. Pediatrics—menarche could be cause of bleeding
2. Geriatrics—menopausal women can get pregnant

VI. METHODS OF INSTRUCTION:

A. **Lecture** -
B. **Discussion** - Group Discussion
C. **Lab** - Skills Laboratory
D. **Audio-visual Activity** - Selected Video and AV Aids
E. Preceptor monitored medical procedure training in a clinical settings
F. Oral and written reports
G. Reading Assignments
H. Learning Resource Center use
I. Simulated problem solving

VII. TYPICAL ASSIGNMENTS:

A. Complete workbook exercises after completing lecture readings.
B. Present simulated patient case history reports.
C. Prepare a class presentation on assigned lecture topics related to course.

VIII. EVALUATION:

A. **Methods**

1. Other:
   a. Multiple Choice Examinations, including a Midterm and Final Examination
   b. Short Essay Examinations
   c. Midterm Examination
   d. Final Examination
   e. Oral Presentations
   f. Skills Laboratory Evaluation using standardized NREMT scoring sheets

B. **Frequency**

1. Recommend weekly examinations.
2. Homework assigned for each topic completed
3. Midterm and Final Examination at end of Course

IX. TYPICAL TEXTS:

1. Bryan E. Bledsoe et. al. *Paramedic Care; Principles & Practice, Vol. 1-5.* 3rd ed., Brady-Prentice Hall Health, 2008.
2. Bryan E. Bledsoe et. al. *Student Workbook for Paramedic Care; Principles & Practice, Vol. 1-5.* 3rd ed., Brady-Prentice Hall Health, 2008.

X. OTHER MATERIALS REQUIRED OF STUDENTS:

A. Stethoscope
B. Penlight
C. Clinical Rotation garment approved by Clinical site