I. Course Number: PAR 209

Course Title: Medical Emergencies II

Department: Allied Health & Biological Sciences
Date of review/revision: Spring 2015
Date of last review/revision: Fall 2011
Applicable Programs: Emergency Medical Technician-Paramedic (PAR)
Required in: Emergency Medical Technician-Paramedic (PAR)
SUNY Gen Ed Appendix: Non Applicable

2 Lec. 2 Lab 3 Cr. Hrs.

II. Course Description

a. Description
   This course focuses on the pathophysiology, assessment techniques and treatment modalities for illness and injury in the area of gynecology, obstetrics, neonates, pediatrics and geriatrics. Complex cognitive theory and psychomotor skills that are necessary for the practice of professional out of hospital emergency care are covered in the lecture and lab component of this course.

b. List of pre-requisites: PAR205 with a grade of C or better.
c. List of co-requisites: PAR 230

III. DCC Institutional Student Learning Outcomes

   6. Critical Analysis and Reasoning Outcome: Students will formulate or evaluate arguments, problems or opinions and arrive at a solution, position or hypothesis based on carefully considered evidence.

IV. Student Learning Outcomes

1. The student will identify the anatomy and physiology of the female reproductive system.
2. The student will outline menstrual and ovarian cycles.
3. The student will list symptoms and assessment findings of the female reproductive system.
4. The student will discuss the anatomy, physiology, pathophysiology, assessment findings, management and transport decisions for the following gynecological conditions: (ISLO #6)
   A. Vaginal bleeding
   B. Sexual assault
   C. Infection
   D. Ovarian cyst/rupture
   E. Ovarian torsion
   F. Endometriosis
5. The student will outline the general physiology, proper assessment and management of the obstetrical patient throughout pregnancy as well as prior to, during and post labor.

6. The student will discuss complications related to pregnancy and childbirth.

7. The student will discuss complications and proper assessment of high risk pregnancy patients. (ISLO #6)

8. The student will explain proper management techniques for the following complications:
   A. Precipitous labor and delivery
   B. Post term pregnancy
   C. Meconium staining
   D. Fetal macrosomia
   E. Multiple gestation
   F. Intrauterine fetal death
   G. Amniotic fluid embolism
   H. Hydramnios
   I. Premature rupture of membranes
   J. Preterm labor
   K. Uterus rupture
   L. Fetal distress.

9. The student will discuss the complications of delivery including pathophysiology, assessment, and management of the following:
   A. Cephalic presentation
   B. Breech presentation
   C. Shoulder dystocia
   D. Nuchal cord
   E. Prolapse of cord.
   F. Inverted uterus
   G. Hemorrhage
      1. Early
      2. Late
   H. Embolism
   I. Postpartum depression.

13. The student will list the definitions of newborn and neonate.

14. The student will demonstrate the general assessment and management of a newborn and neonate. (ISLO#6)

15. The student will discuss the epidemiology, anatomy, physiology, pathophysiology, assessment findings, management considerations, transport considerations, psychological support and communications strategies for the following:
   A. Meconium stained amniotic fluid
   B. Apnea
   C. Diaphragmatic hernia
   D. Bradycardia
   E. Premature infants
   F. Respiratory distress/cyanosis
   G. Seizures
   H. Fever
I. Hypothermia
J. Hypoglycemia
K. Vomiting
L. Diarrhea
M. Common birth injuries.

16. The student will account for anatomical and assessment variations in the pediatric patient as compared to an adult.

17. The student will identify landmarks for growth and development from birth thru adulthood.

18. The student will discuss the epidemiology, anatomy and physiology, assessment and management of the following diseases/conditions that occur in pediatrics. (ISLO#6)

A. Respiratory compromise
   1. Upper airway obstructions
   2. Lower airway obstructions
   3. Pneumonia
   4. Foreign body airway obstruction
   5. Pertussis
   6. Cystic fibrosis
   7. Bronchopulmonary dysplasia

B. Non-cardiogenic shock

C. Cardiac
   1. Congestive heart failure
   2. Congenital heart disease
   3. Arrhythmias

D. Neurologic
   1. Meningitis
   2. Seizures
   3. Hydrocephalus
   4. Closed head injury
   5. Ventricular shunts

E. Endocrinology
   1. Hyperglycemia
   2. Hypoglycemia

F. Hematologic/Oncologic/Immunologic
   1. Sickle cell
   2. Bleeding disorders
   3. Leukemia/Lymphoma
   4. Immunocompromised

G. Gastrointestinal
   1. Vomiting
   2. GI bleeding
   3. Neonatal jaundice

H. Toxicological
   1. Ingestion
   2. Inhalation

I. Abuse and neglect

J. Sudden Infant Death Syndrome

20. The student will differentiate normal and abnormal changes associated with aging.

21. The student will define normal sensory changes associated with aging.
22. The student will account for the pharmacokinetic changes associated with aging.
23. The student will describe difficulties associated with Polypharmacy.
24. The student will outline psychosocial and economic aspects of aging.
25. The student will discuss the definitions, epidemiology, pathophysiology, risk factors, medications, associated signs and symptoms, changes in physical assessment, assessment tools, treatment and transport considerations of the following diseases or conditions that occur more frequently in the elderly.
   (ISLO#6)
   A. Myocardial infarction
   B. Congestive heart failure
   C. Aortic dissection
   D. Syncope
   E. Hypertension
   F. Pneumonia
   G. Pulmonary embolism
   H. Asthma
   I. Emphysema and chronic bronchitis
   J. Stroke
   K. Transient Ischemic Attack
   L. Alzheimer’s disease
   M. Dementia
   N. Delirium
   O. Gastrointestinal bleeding
   P. Biliary disease
   Q. Chronic renal failure
   R. Urinary tract infection
   S. Diabetes mellitus
   T. Diabetic ketoacidosis
   U. Nonketotic Hyperglycemic Hyperosmolar Coma
   V. Hypothyroidism
   W. Inflammatory arthritis
   X. Osteoporosis
   Y. Osteoarthritis
   Z. Rheumatoid arthritis
   AA. Immunological system
   BB. Pressure ulcers
   CC. Herpes zoster
   DD. Shock

V. Course Outline:
   a) Topics Covered:

   Lecture Topics:

   1. Anatomy and Physiology
   2. Gynecology
   3. Obstetrics
   4. Normal and complicated childbirth
   5. Care of the newborn
   6. Neonatal assessment and management
   7. Neonatal resuscitation
8. Pediatric assessment and management
9. Pediatric resuscitation
10. Geriatric assessment and management
11. Clinical decision making

Lecture Outline:

**Gynecology**

I. The student will list female reproductive system anatomy.
   A. External genitalia
   B. Internal organs and structures
II. The student will outline menstrual and ovarian cycles.
III. The student will list symptoms and assessment findings of the female reproductive system.
   A. Abdominal pain or vaginal pain
   B. Vaginal bleeding
   C. Vaginal discharge
   D. Fever
   E. Nausea and vomiting
   F. Syncope
G. General management
   1. Privacy
   2. Communications techniques
   3. Pregnancy/sexually transmitted diseases
   4. Treatment
IV. The student will discuss the:
   A. Anatomy and physiology
   B. Epidemiology
   C. Pathophysiology
   D. Psychosocial impact
   E. Assessment findings/presentation
   F. Prognosis
G. Management
   1. Pharmacological
   2. Non-pharmacological
H. Age-related variations
I. Communication
J. Documentation
K. Transport decisions of the following conditions.
   1. Vaginal bleeding
   2. Sexual assault
   3. Infection
   4. Ovarian cyst/rupture
   5. Ovarian torsion
   6. Endometriosis
   7. Dysfunctional uterine bleeding
   8. Prolapse uterus
   9. Vaginal foreign body
Obstetrics

I. The student will identify the anatomy and physiology of the female reproductive system.
   A. Anatomy
   B. Female reproductive cycle
   C. Cultural values affecting pregnancy
   D. Special considerations of adolescent pregnancy

II. The student will discuss the physiology of pregnancy.
   A. Normal anatomical, physiological and psychological changes in pregnancy.
   B. Identify normal events of pregnancy
   C. Conception and fetal development
   D. Development and functions of the placenta

III. The student will outline the
   A. General system physiology
   B. Assessment
   C. Management of the obstetrical patient.
      1. Premonitory signs of labor
      2. Stages of labor and delivery
         a. First stage
         b. Second stage
            i. Spontaneous birth
            ii. Positional changes of the fetus
         c. Third stage
         d. Maternal response to labor
         e. Fetal response to labor
   D. Assessment of the pregnant patient
      1. Obstetrical history
      2. Evaluating gestational age
      3. Fetal movement
      4. Fetal heart tones
      5. Inspect for crowning
   E. Management of a normal delivery
      1. Treatment modalities
         a. Oxygen
         b. Non-pharmacological intervention
         c. Pharmacological intervention
   F. Postpartum care
      1. Assessment of fundus
      2. Quality of lochia
      3. Signs of hemorrhage

IV. The student will discuss complications related to pregnancy.
   A. Abuse
   B. Substance abuse
   C. Supine hypotensive disorder
   D. Diabetes mellitus
   E. Cardiac disorders
   F. Bleeding related to pregnancy
      1. Pathophysiology
      2. Assessment
      3. Complications
      4. Management of:
a. Abortion
b. Ectopic pregnancy.

G. Placental problems
1. Pathophysiology
2. Assessment
3. Management of:
   a. Abruptio placenta
   b. Placenta previa.

H. Hyperemesis gravidum
1. Pathophysiology
2. Assessment
3. Management

I. Hypertensive disorders
1. Pathophysiology
2. Assessment
3. Management of:
   a. Pregnancy induced hypertension
   b. Preeclampsia
   c. Eclampsia.

J. Rh sensitization

K. Infections
1. HIV
2. TORCH
   a. Toxoplasmosis
   b. Rubella
   c. Cytomegalovirus
   d. Herpes
3. Urinary tract
4. Vaginal
5. Sexually transmitted infections

V. The student will discuss high risk pregnancy.
   A. Pathophysiology
   B. Assessment
   C. Complications
   D. Management of:
      1. Precipitous labor and delivery
      2. Post term pregnancy
      3. Meconium staining
      4. Fetal macrosomia
      5. Multiple gestation
      6. Intrauterine fetal death
      7. Amniotic fluid embolism
      8. Hydramnios

VI. The student will describe the complications of labor.
   A. Pathophysiology
   B. Assessment
   C. Complications
   D. Management of:
      1. Premature rupture of membranes
      2. Preterm labor
3. Uterus rupture
4. Fetal distress.

VII. The student will discuss the complications of delivery.
   A. Pathophysiology
   B. Assessment
   C. Complications
   D. Management of:
      1. Cephalic presentation
      2. Breech presentation
      3. Shoulder dystocia
      4. Nuchal cord
      5. Prolapse of cord.

VIII. The student will discuss postpartum complications.
   A. Pathophysiology
   B. Assessment
   C. Complications
   D. Management of:
      1. Inverted uterus
      2. Hemorrhage
         a. Early
         b. Late
      3. Embolism
      4. Post-partum depression.

**Neonatal Care**

I. The student will list the definitions of:
   A. Newborn
   B. Neonate

II. The student will explain the general
   A. Pathophysiology
   B. Assessment
   C. Management of the neonate.
   D. Epidemiology
      1. Incidence
      2. Morbidity/mortality
      3. Risk factors
         a. Antepartum factors
         b. Intrapartum factors
      4. Treatment strategies
   E. Pathophysiology
      1. Transitions from fetal to neonatal circulations
      2. Respiratory system must suddenly initiate and maintain oxygenation
      3. Very sensitive to hypoxia
      4. Permanent brain damage due to hypoxemia
      5. Apnea in newborns
      6. Congenital anomalies
         a. Diaphragmatic hernia
         b. Choanal atresia
         c. Pierre Robin syndrome
         d. Cleft lip
         e. Other craniofacial defects
f. Spina bifida  
g. Exposed abdominal contents  
h. Other conditions  

F. Assessment of the newborn  
1. Time of delivery  
2. Normal/abnormal vital signs  
3. Airway and ventilation  
4. Circulation  
   a. Heart rate  
   b. Color  
   c. End organ perfusion  
5. APGAR  

G. Treatment  
1. Prior to delivery  
2. During delivery  
3. After delivery  
   a. Airway and ventilation  
      i. Drying  
      ii. Warming  
      iii. Position  
      iv. Suction  
      v. Stimulation  
      vi. Oxygen  
      vii. Oral airways  
      viii. Bag valve mask ventilation  
      ix. Intubation  
   b. Circulation  
      i. Vascular access  
      ii. Chest compressions  
   c. Pharmacological  
   d. Non-pharmacological  
   e. Transport considerations  
   f. Psychological support/communication strategies with parent(s)  

H. The student will discuss the  
1. Epidemiology  
   a. Incidence  
   b. Morbidity/mortality  
   c. Risk factors  
2. Anatomy and physiology  
3. Pathophysiology  
4. Assessment findings  
5. Management considerations  
   a. Airway and ventilation  
   b. Circulation  
   c. Pharmacological  
   d. Non-pharmacological  
6. Transport considerations  
7. Psychological support/communication strategies for the following conditions:  
   a. Meconium stained amniotic fluid  
   b. Apnea
c. Diaphragmatic hernia
d. Bradycardia
e. Premature infants
f. Respiratory distress/cyanosis
g. Seizures
h. Fever
i. Hypothermia
j. Hypoglycemia
k. Vomiting
l. Diarrhea
m. Common birth injuries.

Pediatrics
I. The student will account for the anatomical and assessment variations in the pediatric patient compared to the adult.
   A. History may be taken from patients or responsible adult
   B. Present problem or illness
   C. Past medical history
      1. Maternal health during pregnancy
      2. Birth
         a. Duration of pregnancy
         b. Labor
         c. Complications
         d. Birth weight and condition
      3. Neonatal
         a. Congenital abnormalities
         b. Illness
         c. Feeding issues
         d. Developmental landmarks
      4. School age
         a. Growth
         b. Puberty
         c. Illnesses
         d. Immunizations
         e. Adolescents
            i. Risk taking behaviors
            ii. Self-esteem issues
            iii. Rebellion
            iv. Drug/alcohol use
            v. Sexual activity
   D. Family history
   E. Personal and social history
   F. Review of systems
   G. Head
      1. Proportion
      2. Surface area
      3. Fontanelles
      4. Implications for the provider
         a. Blunt trauma
         b. Heat loss
         c. Airway positioning
d. Fontanelles

H. Airway
1. Size
2. Tongue
3. Jaw
4. Nasal breathing
5. Vocal cord position
6. Cricoid cartilage
7. Epiglottis
8. Implications for the provider
   a. Suctioning
   b. Airway obstruction
   c. Intubation techniques

I. Chest and lungs
1. Ribs cartilaginous
2. Less muscle and fat
3. Diaphragmatic breathing
4. Lung tissue
5. Mediastinum
6. Chest wall thickness
7. Implications for the provider
   a. Breathing
   b. Blunt trauma
   c. Barotrauma
   d. Intubation

J. Abdomen
1. Muscles
2. Organs
3. Implications for the provider
   a. Insignificant force may cause serious injury

K. Extremities
1. Bones
2. Growth plates
3. Slipped femoral epiphysis (Non-traumatic musculoskeletal disorders)
4. Juvenile arthritis (Non-traumatic musculoskeletal disorders)
5. Implications for the provider

L. Skin and body surface area
1. Thickness
2. Surface area
3. Implications for the provider
   a. Skin damage
   b. Heat loss

M. Respiratory system
1. Tidal volume
2. Oxygen demand
3. Lung reserves
4. Implications for the provider
   a. Hypoxia
   b. Ventilation

N. Nervous system and spinal column
1. Continual development
2. Brain tissue
3. Cranial vault
4. Spinal column
5. Implications for the provider
   a. Hypoxia
   b. Cushioning in cranial vault
   c. Cervical and spinal injuries
O. Metabolic differences
   1. Glucose storage
   2. Hypothermia
   3. Implications for the provider
      a. Warmth
      b. Blood glucose levels
II. The student will identify landmarks of growth and development
   A. Physical development
   B. Cognitive development
   C. Emotional development
   D. Implications for the health care provider
      for specific developmental stages from birth thru adulthood.
      1. Birth-2 months
      2. 2-6 months
      3. 6-12 months
      4. 12-18 months
      5. 18-24 months
      6. 2-5 years (Preschool)
      7. 6-12 years (Middle childhood)
      8. 12-20 years (Adolescence).
III. The student will discuss the
   A. Epidemiology
   B. Anatomy and physiology
   C. Assessment
   D. Common diseases/conditions
   E. Management
   of the following diseases/conditions. (ISLO-6)
   1. Respiratory compromise
      a. Upper airway obstructions
      b. Lower airway obstructions
      c. Pneumonia
      d. Foreign body airway obstruction
      e. Pertussis
      f. Cystic fibrosis
      g. Bronchopulmonary dysplasia
   2. Non-cardiogenic shock
   3. Cardiac
      a. Congestive heart failure
      b. Congenital heart disease
      c. Arrhythmias
   4. Neurologic
      a. Meningitis
      b. Seizures
      c. Hydrocephalus
d. Closed head injury  
e. Ventricular shunts  
5. Endocrinology  
a. Hyperglycemia  
b. Hypoglycemia  
6. Hematologic/Oncologic/Immunologic  
a. Sickle cell  
b. Bleeding disorders  
c. Leukemia/Lymphoma  
d. Immunocompromised  
7. Gastrointestinal  
a. Vomiting  
b. GI bleeding  
c. Neonatal jaundice  
8. Toxicological  
a. Ingestion  
b. Inhalation  
9. Abuse and neglect  
10. Sudden Infant Death Syndrome  

IV. The student will discuss age related variations in the assessment and treatment of the Pediatric patient in shock.  
A. Common causes of shock  
B. Presentation  
1. Cardiovascular  
2. Skin signs  
3. Mental status  
4. Vital signs  
C. Anatomical and physiologic implications  
1. Unreliable indicators  
2. Indicators of shock  
a. Smaller absolute volume loss  
b. Tachycardia for age  
c. Weak distal pulses  
d. Delayed capillary refill time  
e. Cool mottled extremities  
f. Altered mental status  
D. Management  

Geriatrics  
I. The student will differentiate normal and abnormal changes associated with aging.  
A. Normal changes associated with deterioration of organ systems  
B. Pathological vs. normal changes often difficult to discern  
C. Airway  
1. Decreased cough reflex  
2. Cervical arthritis  
3. Loose dentures  
D. Cardiovascular  
1. Higher resting heart rate  
2. Irregular pulse  
3. Inability to tolerate dysfunctions
4. Degeneration of system
5. Decreases elasticity and flexibility
6. Difficulty tolerating hypotension
7. Beta-blocker and calcium channel blockers

E. Respiratory
1. Decreased elasticity/strength/endurance
2. Decreased efficiency
3. Higher resting rate
4. Lower tidal volume

F. Vital sign changes
1. Altered mental status
2. Hypoxia

G. Neurovascular
1. Atrophy of brain tissue
2. Deterioration of nervous system functional control
3. Delayed reflexes
4. Impaired balance

H. Gastrointestinal
1. Decreased efficiency
2. Sphincter muscle tone decrease
3. Decreased efficiency

I. Genitourinary
1. Decreased renal function
2. Decreased system efficiency
3. Sphincter muscle tone decrease

J. Endocrine
K. Musculoskeletal
1. Degenerative changes and bone loss

L. Integumentary
1. Skin changes
2. Hair loss
3. Healing changes

II. The student will define normal sensory changes associated with aging.
   A. Vision
      1. Acuity
      2. Colors
      3. Night vision
      4. Tears
      5. Cataracts
      6. Diseases
   B. Hearing
   C. Pain perception
   D. Consider functional assessment in a patient with apparent disability
      1. Mobility
      2. Upper extremity function
      3. Instrumental activities of daily living (IADL)
      4. Activities of daily living (ADL)

III. The student will account for the pharmacokinetic changes associated with aging.
   A. Physiological changes
      1. Decreased body water, fat and muscle mass
      2. Organ changes
3. Altered distribution  
B. Implications of altered pharmacokinetics  
   1. Drug sensitivities  
   2. Adverse reactions  
   3. Toxicity  
C. Compliance difficulty  
   1. Monetary issues  
   2. Memory issues  
   3. Medication issues  

IV. The student will describe difficulties associated with Polypharmacy.  
   A. Multiple medications for multiple problems  
   B. Dosage adjustments  
   C. Drug interactions  
   D. Cause of problems  

V. The student will outline psychosocial and economic aspects of aging.  
   A. Demographics  
   B. Psychosocial issues  

VI. The student will discuss the:  
   A. Definitions  
   B. Epidemiology  
   C. Pathophysiology through history, possible risk factors and medications  
   D. Associated signs and symptoms  
   E. Possible changes in physical assessment  
   F. Assessment tools  
   G. Treatment  
   H. Transport considerations  

of the following diseases or conditions that occur more frequently in the elderly.  
   1. Myocardial infarction  
   2. Congestive heart failure  
   3. Aortic dissection  
   4. Syncope  
   5. Hypertension  
   6. Pneumonia  
   7. Pulmonary embolism  
   8. Asthma  
   9. Emphysema and chronic bronchitis  
  10. Stroke  
  11. Transient Ischemic Attack  
  12. Alzheimer’s disease  
  13. Dementia  
  14. Delirium  
  15. Gastrointestinal bleeding  
  16. Biliary disease  
  17. Chronic renal failure  
  18. Urinary tract infection  
  19. Diabetes mellitus  
  20. Diabetic ketoacidosis  
  21. Nonketotic Hyperglycemic Hyperosmolar Coma  
  22. Hypothyroidism  
  23. Inflammatory arthritis  
  24. Osteoporosis
b) Instructional methods

The course consists of two hours per week of lecture and two hours per week of skills practice in the lab. Lectures may include the use of video, computer aided multimedia, and demonstration to achieve the didactic knowledge level desired. Labs will include the use of simulation equipment (SimMan), specialized medical equipment and technologically advanced diagnostic tools for applied activities in which students must show a mastery level of skills performance. In the lab students must show a mastery level of skills performance in the various skills of neonatal and pediatric advanced life support skills. Students will use the lab time to learn and master skills through practice and remediation. Students identified as needing more practice will use the lab at their convenience and the lab’s availability to reach mastery level performance before the final skills evaluation.

Students must achieve a final grade of “C” or better to progress to any course requiring this course as a pre-requisite. Satisfactory skills evaluation by a New York State Paramedic Certified Lab Instructor or Certified Instructor Coordinator is necessary to pass the lab component of this course. A separate skills exam is given for the American Heart Association Pediatric Advanced Life Support class. If successfully completed a course completion card will be issued.

c) Course Requirements

The course consists of two hours per week of lecture and two hours per week of skill proficiency in the lab. Attendance at all class periods is required and is in conformity with college policy. Quizzes will evaluate comprehension of each section of the course as the student progresses. Homework will support the learning process and evaluate effort. Written exams will be given to evaluate students’ cognitive development. Lab exams will be conducted to evaluate skills competency.

d) Grading practices

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab Attendance/Participation*</td>
<td>5%</td>
</tr>
<tr>
<td>Affective assessment</td>
<td>5%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>20%</td>
</tr>
<tr>
<td>Midterm (lecture/lab)</td>
<td>20%</td>
</tr>
<tr>
<td>Term Paper &amp; Presentation</td>
<td>15%</td>
</tr>
<tr>
<td>Comprehensive Final Exams (lecture/lab/progression)*</td>
<td>20%</td>
</tr>
<tr>
<td>Homework</td>
<td>15%</td>
</tr>
</tbody>
</table>

*Students must pass all critical skills proficiency sheets per National Registry and NYS requirements.

*Students must achieve at least an 88% on the pharmacology and calculations progression exams to receive a passing grade in the course.
e) Required text(s)

    American Heart Association. **PALS** Provider

    DCC Paramedic Lab Skills binder- created by EMS Programs Office, distributed by DCC Bookstore


g) Supplies and Required Technology
    Jones & Bartlett, NAVIGATE electronic platform.

VI. Additional Items of Importance: None

Prepared By: Bernadette Cekuta

<table>
<thead>
<tr>
<th>Name</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
</table>

Dept. Head: Karen Ingham

<table>
<thead>
<tr>
<th>Name</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
</table>