DATE OF LAST REVIEW: 02/2013

CIP CODE: 51.0908

SEMESTER: Departmental Syllabus

COURSE NAME: CARDIOPULMONARY CARE & DIAGNOSTICS III

COURSE NUMBER: RSCR0285

CREDIT HOURS: 4

INSTRUCTOR: Departmental Syllabus

OFFICE LOCATION: Departmental Syllabus

OFFICE HOURS: Departmental Syllabus

TELEPHONE: Departmental Syllabus

PREREQUISITES: Admission to the Respiratory Therapy Program, Program Sequence

REQUIRED TEXT AND MATERIALS:
Please check with the KCKCC bookstore, http://www.kckcebooksotre.com/, for the required texts for your particular class

COURSE DESCRIPTION:
In this applications oriented class, students put lecture content and lab competencies to use on clinical rounds. Students become familiar with cardiopulmonary diseases and diagnostic symptoms. Bedside testing, patient monitoring, and pharmacologic interventions are key components of this course.

METHOD OF INSTRUCTION:
A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, and panels, conferencing, learning experiences, and performances outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE:

I. Advanced Cardiovascular Life Support
   A. BLS primary survey
   B. ACLS secondary survey
   C. roles of team members
   D. respiratory arrest cases
   E. ventricular fibrillation cases
   F. pulseless ventricular tachycardia cases
   G. pulseless electrical activity cases
   H. asystole cases
   I. acute coronary syndrome cases
J. bradycardia cases
K. unstable tachycardia cases
L. stable tachycardia cases
M. acute stroke cases
N. advanced airway management
O. ACLS rhythm identification
P. ACLS pharmacology

II. Hemodynamic Monitoring
   A. types of catheters
   B. arterial pressure monitoring
   C. CVP monitoring
   D. PAP monitoring
   E. PCWP monitoring
   F. preloads
   G. afterloads
   H. mixed venous oxygenation

III. Critical Care Concepts
   A. shock
   B. intra aortic balloon pumps
   C. ventilator wave forms
   D. nutrition
   E. metabolic studies

IV. Metabolic Measurement
   A. cardiac reserve
   B. respiratory reserve
   C. oxygen pulse
   D. respiratory exchange ratio
   E. work rate and capacity
   F. V02 and VC02
   G. anaerobic threshold
   H. differential diagnosis of cardiac and pulmonary limitations

V. Nutrition Assessment
   A. indirect calorimetry
      a. resting energy expenditure
      b. substrate mix
      c. respiratory quotient
      d. metabolic rate
      e. metabolic equivalents of oxygen
   B. laboratory values
      a. electrolytes
      b. ionized calcium
      c. hemoglobin
      d. white blood cell count
      e. lymphocytes
      f. albumin
      g. prealbumin
C. Anthropometrics
   a. ideal body weight
   b. calipers
   c. arm circumference

D. pulmonary effects
   a. increased RQ increases WOB
   b. increased RQ increases PC02
   c. increased V02 increases ventilator dependence
   d. recommendations for COPD patients

E. Diagnosis
   a. catabolism
   b. lipogenesis
   c. anabolism
   d. Marasmus
   e. Kwashiorkor
   f. protein calorie malnutrition

VI. Special Procedures Related to Mechanical Ventilation
    A. chest tubes
    B. fibrotic bronchoscopy
    C. transporting mechanically ventilated patients

VII. Neonatal Positive Pressure Ventilation
    A. surfactant therapy
    B. nasal CPAP
    C. volume ventilation
    D. pressure ventilation
    E. high frequency ventilation
    F. extracorporeal membrane oxygenation
    G. risk factors that lead to neonatal resuscitation program support

VIII. Home Mechanical Ventilation
    A. indications
    B. negative pressure
    C. positive pressure
    D. non-invasive

EXPECTED LEARNER OUTCOMES
    A. The student will be able to recommend ACLS standards.
    B. The student will be able to recommend treatment for cardiac arrhythmias.
    C. The student will be able to recommend and interpret hemodynamic monitoring.
    D. The student will be able to adjust cardiopulmonary care to respond to changing metabolic status.
    E. The student will be able to discuss special procedures related to mechanical ventilation.
    F. The student will be able to recommend neonatal positive pressure ventilation.
COURSE COMPETENCIES:

The student will be able to recommend ACLS and NRP standards.

1. The student will be able to apply ACLS algorithm for respiratory arrest.
2. The student will be able to apply ACLS algorithm for ventricular fibrillation.
3. The student will be able to apply ACLS for pulseless ventricular tachycardia.
4. The student will be able to apply ACLS for pulseless electrical activity.
5. The student will be able to apply ACLS for asystole.
6. The student will be able to apply ACLS for bradycardia.
7. The student will be able to apply ACLS for unstable tachycardia.
8. The student will be able to apply ACLS for stable tachycardia.
9. The student will be able to apply ACLS for acute stroke.
10. The student will be able to apply ACLS standards for advanced airways.
11. The student will be able to apply ACLS standards for pharmacological interventions.
12. The student will be able to apply NRP standards.

The student will be able to recommend treatment for cardiac arrhythmias.

13. The student will be able to identify and recommend treatment for ventricular fibrillation.
14. The student will be able to identify and recommend treatment for ventricular tachycardia.
15. The student will be able to identify and recommend treatment for pulseless electrical activity.
16. The student will be able to identify and recommend treatment for asystole.
17. The student will be able to identify and recommend treatment for bradycardia.
18. The student will be able to identify and recommend treatment for first degree heart block.
19. The student will be able to identify and recommend treatment for second degree type I heart block.
20. The student will be able to identify and recommend treatment for second degree type II heart block.
21. The student will be able to identify and recommend treatment for third degree heart block.

The student will be able to recommend and interpret hemodynamic monitoring.

22. The student will be able to differentiate hemodynamic catheters.
23. The student will be able to recommend and interpret an arterial wave form.
24. The student will be able to recommend and interpret CVP values.
25. The student will be able to interpret PAP values.
26. The student will be able to interpret PCWP values.
27. The student will be able to assess preloads.
28. The student will be able to assess afterloads.
29. The student will be able to assess mixed venous oxygenation.
30. The student will be able to describe shock symptoms.
31. The student will be able to discuss types of shock.

The student will be able to adjust cardiopulmonary care to respond to changing metabolic status.

32. The student will be able to identify nutritional risks.
33. The student will be able to interpret nutritional assessment values.
34. The student will be able to explain respiratory quotient.
35. The student will be able to explain oxygen consumption.
36. The student will be able to recommend and interpret carbon dioxide production monitoring.
37. The student will be able to assess pulmonary reserve.
38. The student will be able to assess cardiac reserve.
The student will be able to discuss special procedures related to mechanical ventilation.

38. The student will be able to explain chest tube drainage.
39. The student will be able to describe fiberoptic bronchoscopy.
40. The student will be able to discuss transporting mechanically ventilated patients.

The student will be able to recommend neonatal positive pressure ventilation.

41. The student will be able to recommend neonatal resuscitation program support.
42. The student will be able to interpret neonatal assessment data.
43. The student will be able to explain surfactant therapy.
44. The student will be able to explain neonatal nasal CPAP.
45. The student will be able to recommend neonatal mechanical ventilation methods.

ASSESSMENT OF LEARNER OUTCOMES
Student progress is evaluated by means that include, but are not limited to, exams, written assignments, and class participation.

Students take a comprehensive, standardized NBRC RRT Secure Self Assessment Exam in this course. Students must score \( \geq 75\% \) on the NBRC RRT Secure Self Assessment Exam to be eligible to earn a grade of C or better in this course. Only students who are earning a grade of C or better in all other course work may be allowed to retake the standardized NBRC RRT Secure Self Assessment Exam one (1) time. No course grade higher than a C may be earned by students requiring a retake of the NBRC RRT Secure Self Assessment Exam. A grade of C or better is needed to meet program requirements.

Grading Scale beyond the standardized NBRC RRT Secure Self Assessment Exam is as follows.

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-93</td>
<td>A</td>
</tr>
<tr>
<td>92-84</td>
<td>B</td>
</tr>
<tr>
<td>83-75</td>
<td>C</td>
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<tr>
<td>74-60</td>
<td>D</td>
</tr>
<tr>
<td>&lt; 60</td>
<td>F</td>
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</tbody>
</table>

SPECIAL NOTES:

This syllabus is subject to change at the discretion of the instructor. Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the student’s progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome any time.

Kansas City Kansas Community College is committed to an appreciation of diversity with respect for the differences among the diverse groups comprising our students, faculty, and staff that is free of bigotry and discrimination. Kansas City Kansas Community College is committed to providing a multicultural education and environment that reflects and respects diversity and that seeks to increase understanding.

Kansas City Kansas Community College offers equal educational opportunity to all students as well as serving as an equal opportunity employer for all personnel. Various laws, including Title IX of the Educational Amendments of 1972, require the college’s policy on non-discrimination be administered without regard to race, color, age, sex, religion, national origin, physical handicap, or veteran status and that such policy be made known.
Kansas City Kansas Community College complies with the Americans with Disabilities Act. If you need accommodations due to a documented disability, please contact Director of the Academic Resource Center at: 913-288-7670.