

UNIVERSITY OF SOUTH ALABAMA
PAT CAPPS COVEY COLLEGE OF ALLIED HEALTH PROFESSIONS
DEPARTMENT OF CARDIORESPIRATORY CARE

CRC 428 - Cardiorespiratory Diseases

Summer 2017

3 semester hours

Course Masters: Bill Wojciechowski, RRT and Bill Pruitt, RRT
Contact: (251) 445-9284
Office hours: Monday and Friday 8:00 AM to 4:00 PM unless in class
(Schedule an appointment.)
Location: HAHN 3137, Department of Cardiorespiratory Care
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DESCRIPTION

This course will discuss the pathophysiology, signs and symptoms, laboratory data, and respiratory therapeutic interventions of common pulmonary, cardiac, and cardiovascular diseases and conditions. Review of electrocardiography and Advanced Cardiac Life Support are included. The role of the respiratory therapist during bronchoscopy is also presented.

COURSE CONTENT

The following topics will be presented in this course:

- Module I. COPD (chronic bronchitis and emphysema), Asthma, Bronchiectasis, Obstructive Sleep Apnea (OSA)
- Module II. Neuromuscular Diseases (myasthenia gravis, Guillain-Barré syndrome, and amyotrophic lateral sclerosis)
- Module III. Chest Wall Deformities and Chest Trauma (kyphoscoliosis, pneumothorax, flail chest)
- Module IV. Respiratory Failure (hypoxemic and hypercapnic)
- Module V. Acute Respiratory Distress Syndrome (ARDS)
- Module VI. Coronary Artery Disease and Congestive Heart Failure
- Module VII. Infectious Lung Diseases (pneumonia, fungal infections, tuberculosis) and Pneumoconioses
- Module VIII. Electrocardiography and Advanced Cardiac Life Support
- Module IX. Bronchoscopy

CLASS SCHEDULE

Classes will meet Thursdays and Fridays from 8:00 AM - 10:00 AM in HAHN 3093, unless otherwise indicated for accommodating the schedule of guest lecturers. ACLS will be taught in the Education and Outreach Bldg (former Cancer Bldg) on the fourth floor on Wednesday, July 5th and Thursday, July 6th.

EVALUATION

1. **Examinations:** Exams will be comprised of multiple choice, short answer, fill-in-the-blank, and short essay questions. Lecture material and reading assignments will comprise the content of the exams. Absence from an exam will result in a score of zero. However, students absent from an exam must provide to the course master a valid reason in a timely manner to justify the absence, and for scheduling a make-up exam. Make-up exams will be given at the discretion of the course master. Make-up exams must be scheduled with the instructor as soon as possible after an exam is missed.

2. **ACLS:** Successful completion of ACLS will be required to pass this course. ACLS will be graded on a pass/fail basis.

GRADES

The final course grade will be comprised of the following components:

- Three exams and a comprehensive final exam. All exams will be equally weighed.
- ACLS must be successfully completed for this course. Students who fail ACLS will not pass this course, regardless of their scores on the course exams.

ATTENDANCE & TARDINESS

Absence resulting from illness or unforeseen circumstances **must be reported to the CRC office by phone** in advance of the start time of the class, or at the first available opportunity. All other absences will be considered unexcused. Do not schedule personal appointments to conflict with class times. **Each unexcused absence will result in a 2% reduction of the final course grade. Each tardy arrival will result in a 1% deduction from the final course grade.** Tardiness is arriving less than 30 minutes after the scheduled start time of the class. Arriving 30 minutes or more after the start of the class constitutes an unexcused absence.

STUDENTS WITH DISABILITIES

In accordance with the Americans with Disabilities Act, students with bona fide disabilities will be afforded reasonable accommodation. The Office of Student Disability Services (OSDS) will certify a disability and advise faculty members of reasonable accommodations. If you have a specific disability that qualifies you for academic accommodations, please notify the instructor/professor and provide certification from Student Disability Services. OSDS is located at 320 Alumni Circle, Educational Services Building, Suite 19 (460-7212).

ACADEMIC DISRUPTION and STUDENT ACADEMIC CONDUCT POLICY

As a community of students and scholars, the University strives to maintain the highest standards of academic integrity. All members of the community are expected to exhibit honesty and competence in academic work. This responsibility can be met only through earnest and continuing effort on the part of all students and faculty. Any dishonesty related to academic work or records constitutes academic misconduct including, but not limited to, activities such as giving or receiving unauthorized aid in tests and examinations, improperly obtaining a copy of an examination, plagiarism, misrepresentation of information, altering transcripts or university records. Academic misconduct is incompatible with the standards of the academic community. Such acts are viewed as moral and intellectual offenses and are subject to investigation and disciplinary action through appropriate University procedures. Penalties may range from the loss of credit for a particular assignment to dismissal from the University. Degree revocation may be warranted in cases involving academic misconduct by former students while they were students at USA.

We expect students to be cordial, courteous, and respectful of faculty members and fellow students. Cell phones and other communications devices are not to be used during class. Text messaging and similar communication are not permitted during class. Any audio/video recording during class must be approved by the faculty. Photographic records of course materials or faculty must be approved by the faculty. Use of portable computers (laptop, netbook, notebook, tablet, etc.) and any web-based devices must be approved by the faculty.

The University's Academic Conduct Policy and the student appeal process can be found at:

<http://www.southalabama.edu/lowdown/academicconductpolicy.shtml>

PRIMARY REFERENCES

- Des Jardins, et al., *Clinical Manifestations and Assessment of Respiratory Disease*, 7th ed., Elsevier.
- Kacmarek, et al., *Egan's Fundamentals of Respiratory Care*, 11th ed., Elsevier.

OBJECTIVES

Through written assessment, the student will be able to:

Module I: COPD (chronic bronchitis and emphysema), Asthma, Bronchiectasis, Obstructive Sleep Apnea

1. Discuss the pathophysiology of the following obstructive lung diseases:
 - chronic bronchitis
 - emphysema
 - asthma
 - bronchiectasis
 - obstructive sleep apnea
2. List the signs and symptoms of the diseases in this module.
3. Interpret the laboratory data and diagnostic data pertinent to the lung diseases in this module.
4. Explain the respiratory therapeutic interventions used to treat the diseases discussed in this module.

Module II: Neuromuscular Diseases (myasthenia gravis, Guillain-Barré syndrome, and amyotrophic lateral sclerosis)

1. Discuss the pathophysiology of the following neuromuscular lung diseases:
 - myasthenia gravis
 - Guillain-Barré syndrome
 - amyotrophic lateral sclerosis
2. List the signs and symptoms of the diseases in this module.
3. Interpret the laboratory data and diagnostic data pertinent to the lung diseases in this module.
4. Explain the respiratory therapeutic interventions used to treat the diseases discussed in this module.

Module III: Chest Wall Deformities and Chest Trauma (kyphoscoliosis, pneumothorax, flail chest)

1. Discuss the pathophysiology of the following chest wall deformities and chest trauma:
 - kyphoscoliosis
 - pneumothorax
 - flail chest
 - diaphragmatic fatigue
2. List the signs and symptoms of the diseases in this module.
3. Interpret the laboratory data and diagnostic data pertinent to the lung diseases in this module.
4. Explain the respiratory therapeutic interventions used to treat the diseases discussed in this module.

Module IV: Respiratory Failure (hypoxemic and hypercapnic)

1. Discuss the pathophysiology of respiratory failure:
 - hypoxemic respiratory failure
 - hypercapnic respiratory failure
2. List the signs and symptoms of respiratory failure.

3. Interpret the laboratory data and diagnostic data pertinent to respiratory failure.
4. Explain the respiratory therapeutic interventions used to treat respiratory failure.

Module V: Acute Respiratory Distress Syndrome

1. Discuss the pathophysiology of acute respiratory distress syndrome (ARDS).
2. List the signs and symptoms of ARDS.
3. Interpret the laboratory data and diagnostic data pertinent to ARDS.
4. Explain the respiratory therapeutic interventions used to treat ARDS.

Module VI: Coronary Artery Disease and Congestive Heart Failure

1. Discuss the pathophysiology of the following cardiac conditions:
 - coronary artery disease (CAD)
 - congestive heart failure (CHF, i.e., left ventricular failure)
2. List the signs and symptoms of CAD and CHF.
3. Interpret the laboratory data and diagnostic data pertinent to CAD and CHF.
4. Explain the respiratory therapeutic interventions used to treat CAD and CHF.

Module VII: Infectious Lung Diseases (pneumonia, fungal infections, tuberculosis) and Pneumoconioses

1. Discuss the pathophysiology of the following infectious lung diseases (ILDs):
 - pneumonia
 - fungal infections
 - tuberculosis
 - pneumoconioses (asbestosis, silicosis, coal worker's pneumoconiosis)
2. List the signs and symptoms of these ILDs.
3. Interpret the laboratory data and diagnostic data pertinent to these ILDs.
4. Explain the respiratory therapeutic interventions used to treat ILDs.
5. Describe the classifications and actions of various cardiac and pulmonary medications encountered in the PBL cases, including those used for anti-arrhythmia, hypertension, anticoagulation, β blockers and calcium channel blockers, hypotension, fibrinolytics, diuretics, bronchodilators, ACE inhibitors, ARBs, sedatives, and analgesics.

Module VIII: Electrocardiography and Advanced Cardiac Life Support

1. Discuss the conduction system of the heart.
2. Differentiate among the following leads:
 - bipolar leads
 - unipolar leads
 - precordial leads
3. Identify a normal electrocardiogram.
4. Interpret common electrocardiogram abnormalities.
5. Distinguish between defibrillation and cardioversion.
6. Demonstrate advanced cardiovascular life support.
7. Successfully complete advanced cardiac life support training.

Module IX: Bronchoscopy

1. Discuss the therapeutic role of bronchoscopy.
2. Differentiate between rigid and flexible fiberoptic bronchoscopy.
3. State the indications, contraindications, and hazards of bronchoscopy.
4. Explain the following aspects of bronchoscopy:
 - patient premedication
 - equipment preparation and cleaning
 - patient monitoring
5. Discuss the role of the respiratory therapist associated with the bronchoscopy procedure.

Advanced Cardiac Life Support - 2017

The dates and times for ACLS training are:

- Wednesday, July 5th from 8:00 AM to 5:00 PM
- Thursday, July 6th from 8:00 AM to 12:00 PM

ACLS training will occur at:

- Education and Outreach Bldg (formerly Cancer Bldg), 600 Clinic Drive on the 4th floor (Suite 400)

For information, call Scott Vanderkooi at 251-461-1832.

You must have a current AHA BLS card. BLS certification will be verified on the first day of ACLS training.

Purchase an ACLS Provider Manual from the USA bookstore for approximately \$40.75. You **must** have a current ACLS manual (2015 edition) **before** starting the ACLS training.

You must study the ACLS manual **before** the ACLS course is presented. Also, log-on to the website provided in the ACLS manual **before** attending this course. If you do not read and study the ACLS Provider Manual before the training begins, you will experience hardships and have difficulty passing.

Wear your scrubs to ACLS training because you will be practicing skills that will require stretching, bending, standing, and lifting.

The fee for ACLS training was included in the registration fee for CRC 428.

IMPORTANT.....

- **At the beginning of the ACLS course, you will be pre-tested on adult, 1-rescuer CPR and AED skills. Know these skills in advance of the ACLS course.**
- **You will also take pre-course assessment tests. Print your scores for these tests and bring them to the ACLS class. Complete and print the pre-course checklist provided in the ACLS Provider Manual. You will not be allowed to take the ACLS course without these documents.**

CRC 428 – Cardiorespiratory Diseases Course Schedule – Summer 2017

<u>Date</u>	<u>Time</u>	<u>Speaker</u>	<u>Topic</u>
June 1 st	10:00 AM – 12:00 PM	Mr. Wojciechowski	COPD (chronic bronchitis & emphysema) and bronchiectasis
June 2 nd	8:00 – 10:00 AM	Mr. Wojciechowski	Asthma & obstructive sleep apnea
June 8th	8:00 – 10:00 AM		Exam 1
June 9 th	8:00 – 10:00 AM	Mr. Wojciechowski	Neuromuscular diseases (myasthenia gravis, Guillain-Barré Syndrome, and amyotrophic lateral sclerosis)
June 15 th	8:00 – 10:00 AM	Mr. Wojciechowski	Chest wall deformities and chest trauma (kyphoscoliosis, pneumothorax, flail chest)
June 16 th	8:00 – 10:00 AM	Mr. Wojciechowski	Respiratory failure (hypoxemic & hypercapnic)
June 22nd	8:00 – 10:00 AM		Exam 2
June 23 rd	8:00 – 10:00 AM	Mr. Wojciechowski	Acute respiratory distress syndrome
June 29 th	8:00 – 10:00 AM	Mr. Pruitt	Coronary artery disease & congestive heart failure
July 30 th	8:00 – 10:00 AM	Mr. Pruitt	Pharmacology
July 5th	8:00 AM – 5:00 PM	Scott Vanderkooi	ACLS
July 6th	8:00 AM – 12:00 PM	Education and Outreach Bldg (formerly Cancer Bldg), 600 Clinic Dr; 4 th floor (Suite 400)	ACLS
July 7 th	8:00 – 10:00 AM	Mr. Wojciechowski	Infectious lung diseases
July 13th	8:00 – 10:00 AM		Exam 3
July 14 th	8:00 – 10:00 AM	Mr. Pruitt	ECG and bronchoscopy
July 20 th	8:00 – 10:00 AM	Mr. Wojciechowski	Pneumoconioses
July 21 st	8:00 – 10:00 AM	<u>To Be Announced</u>	<u>To Be Announced</u>
July 28th	8:00 – 10:00 AM		Comprehensive Final Exam