

9-2013

# AHRC 243T.01: Perinatal and Pediatric Respiratory Care

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**The University Of Montana  
Missoula College  
Respiratory Care Program**

AHRC 243T – 01 - Moseley  
Perinatal & Pediatric Respiratory Care (formerly RES 241)  
Fall 2013 (rev. 07/2013)

**MUTTS**

**CLASS MEETS:**

Monday 0910 – 1200 in Griz Hut 02  
Thursday 1010 – 1300 in Griz Hut 02 (only until clinicals begin)

**FACULTY:**

Mary Anne Moseley, BA, RRT  
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243-7806 (office)  
Office: Griz Hut 4  
Office Hours: Tuesdays 1000 – 1200, and by appointment

**COURSE DESCRIPTION:** The student will study perinatal and pediatric respiratory care through lecture, reference reading, group discussion and demonstration. Emphasis is on prenatal development, newborn assessment, and the resuscitation and mechanical ventilation of neonatal and pediatric patients. The theory behind NRP is presented without certification; and a PEARS certification course will be offered.

**PREREQUISITES:** RES 260T, RES 265T

**CREDITS:** 3

**REQUIRED TEXTS:**

Title: Perinatal and Pediatric Respiratory Care, 3<sup>rd</sup> edition  
Author/Publisher: Walsh, et al/Mosby

Title: Clinical Assessment in Respiratory Care, 6th edition  
Author/Publisher: Wilkins, et al/Mosby  
Readings: Chapter 12, Neonatal & Pediatric Assessment

Title: Egan's Fundamentals of Respiratory Care, 9<sup>th</sup> ed  
Author: Wilkins, et al  
Publisher: Mosby  
Readings: Chapter 48; Neonatal & Pediatric Respiratory Care

## COURSE REQUIREMENTS:

**Attendance:** In order to increase your understanding of, and in order to be fully engaged with the course content, you are expected to attend every class unless you are in a clinical rotation. Missing a class substantially affects your understanding of the subject and your ability to be successful in the course. Those missing class for any reason are encouraged to meet with a classmate to review the material and copy notes.

**Quizzes & Worksheets:** Worksheets are collected and quizzes may be given at the beginning or end of any class period. There is no make-up for missed quizzes. It is the student's responsibility to turn in worksheets on the due date, or prior to the due date if an absence is planned. Late worksheets earn a maximum of half-credit.

### Semester Grades will be determined by:

Five Unit Exams of 100 points each	approx. 60%	
Assignments/Worksheets and Pop Quizzes	approx. 30%	**Missed Pop Quizzes cannot be made up
Attendance and participation	approx. 10%	

**Exams:** Five exams constitute about 60% of the final grade. There is no cumulative final exam.

## GRADING SCALE:

A =	4.0	95-100%	C =	2.00	74-76%
B+ =	3.33	87-89%	D+ =	1.33	67-69%
B =	3.00	84-86%	D =	1.00	64-66%
B- =	2.67	80-83%	D- =	.667	60-63%
C+ =	2.33	77-79%	F =	0.00	

Students in the Respiratory Care Program must have a "B-" (80% or greater) final grade in order to progress within the program.

## COURSE POLICIES:

**Professional Behavior:** I expect each student to show professional academic behavior during class time: be on time, be prepared; be awake and attentive; participate in demonstrations and discussions. Above all, I expect each student to be respectful to classmates and to me as the instructor. If you behave in an unprofessional manner during class, I will ask you to meet with me individually. Also, during this course, we discuss what Professionalism means in the medical field. This class, and its co-requisites are good opportunities for students to practice all aspects of academic and medical professionalism.

**Academic Honesty & Integrity:** As students of higher education, there is an expectation of high academic integrity. Students are expected to perform to the utmost of their ability in an honest and ethical manner. Academic misconduct is subject to an academic penalty by the instructor and/or a disciplinary sanction by The University of Montana. Please refer to the Student Conduct Code in the Respiratory Care Program Student Handbook, along with the University's Student Conduct Code at [http://life.umt.edu/vpsa/student\\_conduct.php](http://life.umt.edu/vpsa/student_conduct.php).

**Recording of Classes:** Recording of lectures is not allowed without prior consent of the instructor. Any recorded lectures are not allowed to be re-broadcast in any way. Any material discussed in face-to-face classes or in on-line discussion groups is considered confidential. If a student breaks this policy, it is considered academic mis-conduct.

**Disability Accommodation:** Eligible students with disabilities will receive appropriate accommodations in this course if requested in a timely manner. I require documentation of any disabling condition prior to providing substantive accommodations (those that involve changes in deadlines, activities, or products) in this course. Students are responsible to arrange for such accommodations with Disability Services for Students (DSS). Please refer to the UM Catalog, page 334.

**Cell Phones & Electronic Devices:** Electronic devices (such as cell phones, iPods, mp3s, pagers, etc.) must be turned off and put away before class. The use of and the noises from such devices are disruptive to the learning environment. However, if your cell phone or pager must be on due to a business or an emergency issue, please inform the instructor prior to class and set it to vibrate. If you must leave class, please do so quietly. If a student is

seen breaking the above rules with an electronic device, the device will be taken away until the end of class. During exams, all electronic devices must be off and put away.

**Make-up of Quizzes, Worksheets and Tests:** There is no make-up for missed quizzes. If the student is planning an absence (e.g. a clinical rotation day) when a worksheet is due, the student must either arrange for a classmate to turn it in on time, or the student should turn it in early. Late worksheets earn a maximum of half-credit. Make-up exams will be given only under extreme circumstances that must be approved by the instructor. Make-up exams must be completed within one week of the original test date. The student is responsible for contacting the Academic Support Center (243-7826) to schedule the make-up. Failure to do so will result in a zero grade for that test.

**Internet Access:** The student should have internet access and is expected to check emails daily. Course material is posted on Moodle (<http://umonline.umt.edu>). You must have access to this site to complete the requirements of this course. Computers are available in the library if needed. Students are expected to log-on daily to check for email updates, view Moodle assignments, and check links to websites.

**FOR FURTHER POLICIES & PROCEDURES, PLEASE REFER TO THE RESPIRATORY CARE PROGRAM STUDENT HANDBOOK AND THE UNIVERSITY OF MONTANA STUDENT CONDUCT CODE ONLINE AT: [http://life.umt.edu/vpsa/student\\_conduct.php](http://life.umt.edu/vpsa/student_conduct.php).**

### **COURSE OBJECTIVES:**

- List 5 stages of fetal development and the gestational age at which they occur.
- Identify several conditions that lead to abnormal development and lung injury.
- Discuss the role of the TP
- type II Pneumocyte in surfactant production.
- Discuss the various functions of surfactant.
- Discuss the identifiable stages of the heart and chamber development.
- Identify the origin of congenital heart anomalies named after the developmental structures that occur during heart development
- Name the 3 fetal shunts and discuss their role during fetal circulation.
- Explain the direction of blood flow and relative vascular pressures in the placenta, umbilical vein, three fetal shunts, right heart chambers, pulmonary artery, lungs, aorta and umbilical arteries.
- Describe cardiac and pulmonary sequences of events that occur when transitioning from fetal to extra-uterine life, including the changes in fetal shunts.
- Identify various high risk conditions and their adverse effects on pregnancy.
- Explain preterm labor and post term pregnancy evaluation and management.
- List steps for initial assessment of the newborn to determine the need for neonatal resuscitation.
- List steps to be taken in the first 30 seconds for an infant who requires resuscitation.
- Describe the APGAR scoring system and how and when it is performed on the newborn.
- List 3 means for delivery of positive-pressure ventilation to the newborn and the advantages and disadvantages of each.
- Demonstrate proper technique for delivery of positive-pressure ventilation.
- Describe the neonatal / pediatric ventilator modes, their difference from adult modes, and why.
- List the circumstances under which a newborn will require intubation.
- Describe proper delivery room treatment of an infant with suspected diaphragmatic hernia.
- List circumstances under which external chest compressions will be required for a newborn and demonstrate the two techniques for delivery of external chest compressions.
- Provide an overview of neonatal resuscitation, to include: medications, their purpose, dosages and routes of administration.

## RES 241 COURSE OUTLINE:

There will be four major exams, no final exam, and a number of quiz/worksheets during the course. Specific dates of exams will depend upon our progress through the course material and will be announced well in advance. Each day's lecture will cover two or three chapters, and will approximately follow the order below. Course and exam content will be as follows:

Chapter 1	Fetal lung development
Chapter 2	Fetal gas exchange and Circulation
Chapter 3	Antenatal assessment and high-risk delivery
Chapter 5	Examination and assessment of the neonatal patient
Chapter 6	Examination and assessment of the pediatric patient
Chapter 4	Neonatal assessment and resuscitation
<b>EXAM 1</b>	<b>(date TBA)</b>
Chapter 10	Invasive blood gas analysis and cardiovascular monitoring
Chapter 11	Noninvasive monitoring in neonatal and pediatric care
Chapter 12	Oxygen administration
Chapter 13	Aerosols and administration of medication
Chapter 14	Airway clearance techniques and lung volume expansion
<b>EXAM 2</b>	<b>(date TBA)</b>
Chapter 15	Airway management
Chapter 16	Surfactant replacement therapy
Chapter 17	Mechanical ventilators
Chapter 18	Continuous positive airway pressure
Chapter 19	Mechanical ventilation of the neonate and pediatric patient
<b>EXAM 3</b>	<b>(date TBA)</b>
Chapter 20	Neonatal and pediatric high-frequency ventilation
Chapter 21	Noninvasive mechanical ventilation of the infant and child
Chapter 22	Administration of gas mixtures
Chapter 24	Pharmacology
Chapter 27	Neonatal pulmonary disorders
<b>EXAM 4</b>	<b>(date TBA)</b>
Chapter 29	Neonatal complications of respiratory care
Chapter 30	Congenital cardiac defects
Chapter 31	Sudden infant death syndrome and pediatric sleep disorders
Chapter 32	Pediatric airway disorders and parenchymal lung diseases
Chapter 33	Asthma
Chapter 35	Acute respiratory distress syndrome
<b>EXAM 5</b>	<b>(date TBA during finals week)</b>

## HOW TO ROCK THIS COURSE:

### Before Class:

- Read the chapter prior to class but don't read the entire chapter in one sitting. Instead, break it up into small chunks and take breaks.
- Read and study the Case Studies at the end of each chapter. If you don't know the meaning of all signs, symptoms, lab values, etc., look it up and notate it.
- When finished reading the chapter, review the Chapter Objectives at the beginning.
- When reading the chapter, write down vocabulary / concepts that are unclear and bring the list to class.
- Pertaining to each chapter's disease or condition, write notes on:
  - Vocabulary terms
  - Major concepts
  - Patterns of pathophysiology
  - Diagnostic signs and symptoms
  - Therapeutic interventions, their indications, contraindications and hazards

### During Class:

- Attend class! Turn in all homework on time.
- Practice active listening. That means your full attention is on the lecturer; anticipate what she is going to say and where she is going; search for concepts and patterns.
- Write notes from the PowerPoint *and* what the instructor says. Don't just copy, but put it in your own words and think about how it relates to the bigger picture.
- When the instructor says, "this is important," or "you should remember this," it is a strong indicator that the material may be on a quiz or an exam.
- Ask questions. Refer back to your textbook notes on areas that are unclear, and make sure you follow up.

### After Class:

- Review the chapter and re-read those sections that were unclear. Add to your notes to clarify them.
- Meet with a classmate to study concepts and review details together. It is good to use the end-of-chapter Key Points to test each other.
- I do not advocate the use of flash cards. It is much more effective to organize your notes into patterns and concepts... and re-organize again and again until it all becomes logical.
- When "working harder" doesn't work, "work smarter"!!