

Parkland College RTT 213 Syllabus

Respiratory Therapy VI: Management of the Critically Ill Patient

I. Catalog Description

RTT 213 Respiratory Therapy VI 3-0-3

Hemodynamic monitoring: cardiovascular anatomy and physiology, fluid-filled monitoring, pulmonary artery pressure, central venous pressure monitoring, cardiac output, intubation, anatomy of the airway, equipment hazards. Prerequisites: RTT 136, RTT 211, and concurrent enrollment in RTT 213, RTT 215, ENG 102, and BIO 123. F

II. Course Information

Instructor: Gina Mason, RRT, RPFT
Parkland Office Room L260
(217) 351-2284 or (217) 972-4311
gmason@parkland.edu

Office hours: Tuesdays 9-11 and Wednesdays 1-4 and by appointment
** Office visits can be made in person or virtually using Adobe Connect and webcam **

Textbooks: Egan's Fundamentals of Respiratory Care, 9th ed.
DesJardin's Cardiopulmonary Anatomy and Physiology, 5th ed.
Oakes' Clinical Practitioner's Pocket Guide to Respiratory Care. 7th ed.
Variety of Online Resources

Attendance: Students are expected to attend all sessions of the classes in which they are enrolled. Attendance will be taken but will not count toward your course grade. However, you are responsible for all material that is presented in class. Should you be absent for any reason, it is your responsibility to obtain the missed material or assignment(s).

Grading and Assessments:

I realize everyone has a different learning style. Many of you do well with lecture based courses. Others enjoy and benefit from hands-on projects. I strive to meet the needs of all learners and will utilize a variety of methods to assess and enhance learning.

Grading Scale
90 to 100% = A
83 to 89% = B
75 to 82% = C

Exams (35%) and Quizzes (15%): Standard assessments will be given during this course to assess your mastery and understanding of the course material. These will be computer based. There will be THREE exams worth approximately 80-100 points each. The Final Exam will be comprehensive and will be worth approximately 150 points. Due to the comprehensive nature of Respiratory Therapy, it will be essential to continually review material already covered and tested in previous exams. FIVE quizzes worth approximately 20 points are also scheduled.

1. NO makeup quizzes will be provided for absent or late arriving students.
2. Failure to take a scheduled exam will result in a grade of zero. Exceptional circumstances will be considered.
3. If the student is sick or for some reason cannot make a scheduled exam, the student must contact the instructor by voice mail or e-mail prior to the scheduled exam time.
4. Failure to make contact by noon of the scheduled exam date will result in a test grade reduction of 10% when the test is finally given.
5. The make-up exam must be taken the next day you are in school. This make-up exam will not necessarily be the same test administered to the other students.
6. The second (and beyond) missed - and excused - scheduled exam will result in an automatic reduction of 10% when the exam is finally taken regardless of the reason missed.

Homework (20%): There will be Homework due each day. Only 8 assignments (your choice) must be handed in for grading. Many assignments will come from the Egan workbook. All assignments are posted on Angel. Each assignment is designed to enhance your understanding of the course material and you are encouraged to complete all of them. Assignments are due prior to the beginning of class on the due date via email or in person. Late assignments will not be accepted. Self-study of end of the chapter questions in DesJardins and Egan will be helpful.

Project (15%): Three Critical Care Worksheets. These are based on a real ICU patient from your clinical experience. Data will be gathered at the clinical site. A trend showing improvement in critical thinking and analysis skills over the course of the semester is expected. *Credit for these worksheets is also given toward your clinical grade.*

Extra Credit (<4%):

- Up to four additional homework assignments may be turned in for 5 extra points each. They must be turned in by the listed due date.
- I will also offer *up to* 20 points extra credit for an oral summary of an article published in Respiratory Care journal. The article must be pre-approved by me in advance no later than Nov. 17th. The presentation must cover a topic related to management of the critically ill patient. These presentations will be given December 1st and 8th.

Final Exam (15%): A comprehensive final exam will be given during finals week.

Other Needs

Angel

Daily homework assignments and lecture materials are posted on Angel. You can log on to our Angel class site through the Parkland Connection. You may need to download material from this site during the semester. Please become familiar with Angel if you are not already.

E-Mail and text messages: Please feel free to email me with any questions or concerns and I will get back to you in a timely manner. I am also available via text message for those nagging questions during a study session. However, be aware that I may not respond immediately depending on the time of day/night and other engagements. Keep all routine questions via email.

Center for Academic Success

If you find yourself needing assistance of any kind to complete assignments, stay on top of readings, study for tests, or just to stay in school, please contact one of the following staff at the Center for Academic Success:

Anita Taylor
Room: D120
Phone: 353-2005

Sue Schreiber
Room: D120
Phone: 351-2441

You may also email the CAS at CenterForAcademicSuccess@parkland.edu.

Office of Disability Services

If you believe you have a disability for which you may need an academic accommodation (i.e. an alternate testing environment, use of assistive technology, or other classroom assistance), please inform the instructor as soon as possible and/or contact one of the following for assistance.

Becky Osborne, Coordinator

Room X-148

phone 353-2082

bosborne@parkland.edu

III. Course Objectives

Upon satisfactory completion of the course, the student will be able to define the following topics, describe how they are related to management of the critically ill patient, and utilize the knowledge in real patient assessment situations.

What do I need to know? Why do I need to know it? How will I use it?

Reading Assignments: All page numbers are for EGAN unless otherwise marked.

Module 1: Cardiopulmonary Anatomy and Physiology (*Review of DesJardins Ch. 1-8*)

- Review of Pulmonary Principles (*DesJ Ch 3*)
 - Ventilation, Distribution, Diffusion, Transport
- Oxygenation Status calculations (*DesJ Ch. 6*)
 - Arterial oxygen content
 - Oxygen delivery : DO_2
 - Oxygen consumption: V_{O_2}
 - Venous oxygen content
 - Arterial to mixed venous oxygen content difference: $C(a-v)O_2$
 - Oxygen extraction ratio: O_2ER
 - Shunt Equation: Q_s/Q_T
- Structures found in the cardiopulmonary system. (*197-204*)
- Review of Cardiovascular Principles (*DesJ 188-205*)
 - Cardiac cycle (*212-214*)

Module 2: Hemodynamic Monitoring (*Egan Ch. 9, DesJardins Ch. 5, 15*)

- Terminology and Formulas
 - Afterload (*1147*)
 - Cardiac Output (CO), Cardiac Index (CI)
 - Factors influencing cardiac output
 - Central Venous Pressure (CVP)
 - Mean Arterial Pressure (MAP)
 - Preload
 - Pulmonary Artery Pressure (PA Pressure)
 - Pulmonary Capillary Wedge Pressure (PCWP or PAWP)
 - Pulmonary Vascular Resistance (PVR)
 - Right Ventricular Pressure (RV Pressure)
 - Stroke Volume (SV), Stroke Index (SI)
 - Systemic Vascular Resistance (SVR)
- Obtaining Hemodynamic Measurements
 - Fluid filled monitoring systems
 - Systemic artery catheterization
 - Central venous pressure (*1138*)
 - Arterial line (*372-373*)
 - Pulmonary artery catheterization (*1147*)

- Pulmonary artery pressure (1138-1139)
 - Cardiac output measurement
- IABP (www.cprworks.com/iapb.html)
- Noninvasive assessment of Cardiac Output (http://en.wikipedia.org/wiki/Impedance_cardiography)
- Cardiac pharmacology (see Oakes)(also Egan Table 34-2)
- Clinical Application (what in the ____ do I do with all these numbers???)
- Extra help: http://www.rnceus.com/course_frame.asp?exam_id=46&directory=hemo

Module 3: Monitoring (Egan Ch 46, 18)

- Overview of the bedside monitor display
- Lung and chest wall mechanics (1125-1126)
 - Review pulmonary mechanics
 - Indications for ventilation (Table 41-3)
 - Liberation from ventilation (Table 47-1)
- Work of breathing (1126-1127)
- Respiratory Gas Assessment
 - Co-Oximetry (386-387)
 - Fixing dyshemoglobins
 - In-vivo ABG (384-85)
 - Pulse oximetry (387-391)
 - Transcutaneous monitoring (381-384)
 - Capnography (391-395, 1123)
- Intake vs Output (suggest review DesJardins Ch 16)
- Neuro
 - Brain and tissue oxygenation monitors (article on Angel)
 - EEG (<http://en.wikipedia.org/wiki/Electroencephalography>)
 - Brain Death Testing (Article on Angel)
 - Intracranial Pressure Monitoring (1144)
 - Glasgow scale
 - Neurologic monitoring (1142-1144)

Module 4: Bedside Diagnostics and Therapeutic Interventions

- Pleural
 - Thoracentesis (546)
 - Chest Drainage Systems (545-553)
 - Function of components
 - Indications
 - Hazards and complications
 - Set-up and trouble shooting
- Ventilation (Egan Ch 33)
 - Intubation
 - Tracheotomy
 - Tube Review
 - Bronchoscopy
 - Types of bronchoscopes
 - Indications
 - Hazards and complications
 - Role of respiratory care practitioner
- Difficult to Manage
 - Prone Positioning (Egan 587, 1079-80, DesJ 206-209)

- Advanced Ventilation Topics
 - Heli-Ox (897-899)
 - Nitric oxide (895-897)
 - HFOV
- Cardiac (<http://heartsite.com/index.html>)
 - Cardiac Cath
 - Echocardiogram
 - Electrocardiogram

Module 5: Laboratory Tests (*Egan Ch 16, Oakes, DesJ Table 5-1*)

- Hematology
- Chemistry
- Microbiology cultures
- Goals: Why test is done, What it tells you about patient, How it relates to RT status

Module 6: Thoracic Imaging (*Egan Ch 20*)

- Techniques
 - Chest radiograph
 - Computed tomography
 - Magnetic resonance
 - Ultrasound
 - Angiogram
 - V/Q Scan
- Structures (Pleura, Parenchyma, Mediastinum)

Module 7: Nutrition Assessment (*Egan Ch 21*)

Module 8: ACLS Principles (*Egan Ch 34*)

Module 9: Comprehensive Patient Assessment

- Apache (1147)

Week	Class Dates	Topic	Quiz/Test	Homework (due on the day listed) See Angel for Details	Reading Assignment (See Course Outline) Other Important Dates (listed below)
1	Aug 25	Module 1		N/A	
2	Sept. 1	Module 1	Quiz #1 in M222 (12-12:25)	Hwk #1 Oxygen Calc. Worksheet	
3	Sept. 8	Exam (Module 1)	Room M222 (12 to 3)	N/A	
4	Sept. 15	Module 2		Hwk #2 Egan WB 9	
5	Sept. 22	Module 2	Quiz #2 in D217 (12-12:25)	Hwk #3 Egan WB 46.1	
6	Sept. 29	Module 2		Hwk #4 Egan WB 46.2	
7	Oct. 6	Module 2		Hwk #5 Cardiac Pharmacology	
8	Oct. 13	Module 3	Quiz #3 in M222 (12-12:25)	Hwk #6 Hemo Worksheet	CC Worksheet #1 due
9	Oct. 20	Exam (Module 2)	Room M222 (12 to 3)	N/A	
10	Oct. 27	Module 4		Hwk #7 Egan WB 33	
11	Nov. 3	Module 4	Quiz #4 in M222 (12-12:25)	Hwk #8 http://heartsite.com/index.html Details on Angel	
12	Nov. 10	Exam (Modules 3-4)	Room M222 (12 to 3)		CC Worksheet #2 due
13	Nov. 17	Module 5-6		Hwk #9 Egan WB 20	Extra Credit Journal Proposal Due
14	Nov. 24	Module 7-8		Hwk #10 Egan WB 16	
15	Dec. 1	Module 9	Quiz #5 in M222 (12-12:25)	Hwk #11 Egan WB 34	
16	Dec. 8	Review		Hwk #12	CC Worksheet #3 due
Finals	Dec 16	Comprehensive Final	TBA		