



STARK STATE COLLEGE

GENERAL SYLLABUS

Course Information

Course Name: Cardiopulmonary Anatomy & Physiology
Course Number: RCT220

Required Materials

Textbook(s): Des Jardins, T., & Burton, G. G. (2024). *Clinical manifestations and assessment of respiratory disease* (9th ed.). Elsevier.

Chang, D. W., White, G. C., Waugh, J. B., & Restrepo, R. D. (2021). *Respiratory critical care*. Jones & Bartlett Learning.

Des Jardins, T. (2020). *Cardiopulmonary Anatomy & Physiology: Essentials of Respiratory Care* (7th ed.). Cengage Learning. (Includes MindTap instant access)

Sills, J. R. (2020). *The Comprehensive Respiratory Therapist Exam Review, 7th edition*. Elsevier.

Stoller, J. K., Heuer, A. J., Vines, D. L., Chatburn, R. L., & Mireles-Cabodevila, E. (2025). *Egan's fundamentals of respiratory care* (13th ed.). Elsevier.

Required Readings: See weekly calendar below.
Additional Materials: Additional materials available on the College LMS.

Course Outline/Calendar

The date of coverage and order of coverage may be modified based on the faculty member and events beyond the control of faculty members that interfere with class times and teaching.

Semester Week	Topic/Chapter (Review PPT and read assigned textbook chapter(s))	Scheduled Events
Week 1	<p>Read:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Chapter 3-Modes of Mechanical Ventilation by Chang <input type="checkbox"/> Chapter 46- Mechanical Ventilators in Egan's <input type="checkbox"/> Chapter 53- Discontinuing Ventilatory Support in Egan's <input type="checkbox"/> 2-Rob Chatburn articles on LMS <p>Review ahead of lecture:</p> <ul style="list-style-type: none"> <input type="checkbox"/> PPT 1 <input type="checkbox"/> Syllabus review of RCT220 	<p>Lecture plan:</p> <ul style="list-style-type: none"> • In class- PPT 1- Advanced Modes of Mechanical Ventilation
Week 2	<p>Read:</p> <ul style="list-style-type: none"> <input type="checkbox"/> (Review) Chapter 5-Blood Gas Assessment in the Disease's book, Des Jardins <input type="checkbox"/> (Review) ABG interpretation rules for ventilation/oxygenation corrections <p>Review ahead of lecture:</p> <ul style="list-style-type: none"> <input type="checkbox"/> PPT 2 	<p>Lecture plan:</p> <ul style="list-style-type: none"> • In class- PPT 2- APRV and NBRC ventilator adjustment guidelines <p>In class activities:</p> <ul style="list-style-type: none"> • HFOV video • ABG examples and vent adjustments- use VentiSIM
Week 3	<p>Read:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Chapter 1- The A&P of the Respiratory System, A&P book, Des Jardins <input type="checkbox"/> Laryngectomy guide on LMS <p>Review ahead of lecture:</p> <ul style="list-style-type: none"> <input type="checkbox"/> PPT 3 	<p>Lecture plan:</p> <ul style="list-style-type: none"> • In class- PPT 3- Anatomy & Physiology Part 1 <p>In class activities:</p> <ul style="list-style-type: none"> • Croup symptoms baby video • Laryngectomy video
Week 4	<p>Read:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Chapter 1- The A&P of the Respiratory System, A&P book, Des Jardins cont. <p>Review ahead of lecture:</p> <ul style="list-style-type: none"> <input type="checkbox"/> PPT 4 voice over- Anatomy & Physiology Part 2 (1 hr 40 mins) 	<p>Lecture plan:</p> <ul style="list-style-type: none"> • In class- PPT 3- Anatomy & Physiology Part 1 cont.
Week 5	<p>Read:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Chapter 2- Ventilation, A&P book, Des Jardins (Omit pages 130-135- we will cover this later) <p>Review ahead of lecture:</p> <ul style="list-style-type: none"> <input type="checkbox"/> PPT 5 	<p>Lecture plan:</p> <ul style="list-style-type: none"> • In class- PPT 5- Ventilation
Week 6	<p>Read:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Chapter 5- The A&P of the Circulatory System, A&P book, Des Jardins <p>Review ahead of lecture:</p> <ul style="list-style-type: none"> <input type="checkbox"/> PPT 6 voice over- The A&P of the Circulatory System (1 hr 54 mins) 	<p>Lecture plan:</p> <ul style="list-style-type: none"> • In class- PPT 5- Ventilation cont. <p>In class activities:</p> <ul style="list-style-type: none"> • Homework examples • Time constant exercises

Semester Week	Topic/Chapter (Review PPT and read assigned textbook chapter(s))	Scheduled Events
Week 7	Read: <ul style="list-style-type: none"> <input type="checkbox"/> Chapter 4- The Diffusion of Pulmonary Gases, A&P book, Des Jardins Review ahead of lecture: <ul style="list-style-type: none"> <input type="checkbox"/> PPT 7 	Lecture plan: <ul style="list-style-type: none"> • In class- PPT 7- Diffusion of Pulmonary Gases In class activities: <ul style="list-style-type: none"> • Homework examples- partial pressure
Week 8	<ul style="list-style-type: none"> <input type="checkbox"/> Come prepared with questions for the mid-term exam review. 	Lecture plan: <ul style="list-style-type: none"> • Midterm review
Week 9	Read: <ul style="list-style-type: none"> <input type="checkbox"/> Chapter 6- Oxygen and Carbon Dioxide Transport, A&P book, Des Jardins Review ahead of lecture: <ul style="list-style-type: none"> <input type="checkbox"/> PPT 8 	Lecture plan: <ul style="list-style-type: none"> • In class- PPT 8- Oxygenation Equilibrium and Transport In class activities: <ul style="list-style-type: none"> • Homework examples- CaO₂, CvO₂, PaO₂/FiO₂, PaO₂/PAO₂, DO₂, VO₂ • Oxygenation scenarios (in groups if times allows)
Week 10	Read: <ul style="list-style-type: none"> <input type="checkbox"/> Chapter 6- Oxygen and Carbon Dioxide Transport, A&P book, Des Jardins cont. <input type="checkbox"/> Chapter 2- Ventilation, A&P book, Des Jardins pages 130-135 Review ahead of lecture: <ul style="list-style-type: none"> <input type="checkbox"/> PPT 9 voice over- Carbon Dioxide Equilibrium and Transport <input type="checkbox"/> PPT10 	Lecture plan: <ul style="list-style-type: none"> • In class- PPT 8- Oxygenation Equilibrium and Transport cont. • In class- PPT 10- Ventilation (Aveolar and Deadspace)
Week 11	Read: <ul style="list-style-type: none"> <input type="checkbox"/> Chapter 8- Ventilation-Perfusion Relationships, A&P book, Des Jardins Review ahead of lecture: <ul style="list-style-type: none"> <input type="checkbox"/> PPT 11 	Lecture plan: <ul style="list-style-type: none"> • In class- PPT 11- Ventilation-Perfusion Relationships In class activities: <ul style="list-style-type: none"> • Homework examples- Calculations for alveolar ventilation, alveolar deadspace, anatomic deadspace, VD/VT, PA-aO₂ • Review portable ETCO₂ unit, ETCO₂ cannula, main/side stream ETCO₂ analyzers • NICO monitor • Review capnography examples using VentiSIM if time permits
Week 12	Read: <ul style="list-style-type: none"> <input type="checkbox"/> Chapter 9- Control of Ventilation, A&P book, Des Jardins <input type="checkbox"/> Chapter 7- Acid-Base Balance and Regulation, A&P book, Des Jardins Review ahead of lecture: <ul style="list-style-type: none"> <input type="checkbox"/> PPT 12 <input type="checkbox"/> PPT 13 	Lecture plan: <ul style="list-style-type: none"> • In class- PPT 12- Control of Ventilation • In class- PPT 13- Acid Base Regulation

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Week 13	<p>Read:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sills- modules A&B, pages 151-160 <input type="checkbox"/> Chapter 11- Respiratory Insufficiency, Respiratory Failure, and Ventilatory Management Protocols, Diseases book, Des Jardins <p>Review ahead of lecture:</p> <ul style="list-style-type: none"> <input type="checkbox"/> PPT 14 	<p>Lecture plan:</p> <ul style="list-style-type: none"> • In class- PPT 14- Respiratory Failure and Mechanical Ventilation <p>In class activities:</p> <ul style="list-style-type: none"> • Review chronic and acute on chronic respiratory failure ABG examples and vent adjustments- use VentiSIM • Review Optimal PEEP examples
Week 14	<p>Read:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Chapter 11- Respiratory Insufficiency, Respiratory Failure, and Ventilatory Management Protocols, Diseases book, Des Jardins cont. <p>Review ahead of lecture:</p> <ul style="list-style-type: none"> <input type="checkbox"/> PPT 15 <p>Review on own/take notes</p> <ul style="list-style-type: none"> <input type="checkbox"/> PPT 15 (Clinical Assessment of Acid-Base and Oxygenation Status) 	<p>Lecture plan: Online work- see LMS for directions</p>
Week 15	<p>Read:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Chapter 11- Respiratory Insufficiency, Respiratory Failure, and Ventilatory Management Protocols, Diseases book, Des Jardins cont. <p>Review ahead of lecture:</p> <ul style="list-style-type: none"> <input type="checkbox"/> PPT 16 <input type="checkbox"/> Come prepared with questions for the final exam review. 	<p>Lecture plan:</p> <ul style="list-style-type: none"> • In class- PPT 16- Physiological Basis for Oxygenation and Mechanical Ventilation Strategies • Final review
Week 16	Final Comprehensive Exam	