

Bergen Community College

Division of Health Professions

Respiratory Care Program

RSP-110, Respiratory Care Pharmacology

Course Information

Semester and Year:

Course and Section Number: RSP-110-001

Meeting Times and Locations:

Instructor:

Office Location:

Departmental Secretary:

Office Hours:

Contact information:

Course Description

This course introduces the student to the medications utilized in the treatment of patients with acute and chronic cardiopulmonary disorders.

Credits: 2 (2 lectures hours)

Prerequisites: None

Corequisites: RSP-119 and RSP-121

Student Learning Outcomes: As a result of meeting the requirements in this course, the student will

1. Select the correct medication for treating various respiratory diseases.
2. Select the appropriate methodology for medication delivery.
3. Compare the indications and contraindications for select respiratory medications.
4. Employ key patient teaching points for medication administration.
5. Describe the mechanism of action, common hazards, adverse reactions, and side effects of select respiratory medications.

Means of Assessment

A student in this course is assessed through:

- Three (3) quizzes that contain multiple choice, short answer, or calculation questions that will be used to assess competency.

- Complete a medication table to organize pharmacodynamics of the medication assigned in the course.

Course Content

Module Learning Outcomes

Module 1 – Basic Concepts and Principles in Pharmacology

1. Define key terms related to pharmacologic principles.
2. Utilize drug reference sources of information.
3. Discuss advantages and disadvantages of different routes of administration.
4. Describe the processes of drug absorption, distribution, metabolism, and elimination.
5. Explain differences in pharmacokinetics, pharmacodynamics, and adverse effects of drugs in pediatric, geriatric, pregnant, and breastfeeding patients.
6. Discuss factors that may alter a patient's response to a drug.
7. Describe the terminology associated with pharmacology in respiratory care.

Module 2 – Adrenergic bronchodilators, Anticholinergic bronchodilators, and Xanthines

1. Define key terms relative to bronchodilator pharmacotherapy.
2. Describe the neurologic control of bronchial smooth muscle, including the sympathetic and parasympathetic nerves, their chemical mediators, and how bronchodilation is achieved.
3. Differentiate bronchospasm and bronchoconstriction.
4. Describe three pharmacologic methods for bronchodilation (sympathomimetic, anticholinergic, and methylxanthine) and the mode of action of each.
5. State the indications, contraindications, adverse reactions, onset of action, and dosage range for each bronchodilator.
6. Recommend appropriate bronchodilator therapy for various patient situations, including drug, dosage, frequency, and route of delivery.
7. Describe appropriate techniques for monitoring the patient's response to bronchodilator therapy.

Module 3 – Mucus-controlling drug therapy

1. Define key terms related to mucokinetic and surfactant agents.
2. State the indications for bland aerosols and mucolytic agents.
3. Compare and contrast the mechanisms of action of bland aerosols and mucolytic agents.

Module 4 – Corticosteroids

1. Discuss the physiology of corticosteroids.
2. Define hypothalamic-pituitary-adrenal axis, suppression, and steroid dependency.
3. Be able to describe the pharmacotherapy of oral, parenteral, and inhalational corticosteroids.

Module 5 – Calculate drug dosages

1. Perform conversions of units of measurement within the metric system.
2. Calculate strength of solutions in percentage forms.
3. Perform drug dosage calculations.

Module 6 – Smoking cessation medications

1. Recognize the importance of treatment guidelines in the management COPD.

2. Use the 5 "A's" and 5 "R's" when discussing a smoking cessation program.
3. Identify the signs of a strong physical addiction to nicotine.
4. Determine a score by using the Fagerstrom test for nicotine dependence.
5. Compare the various nicotine replacement agents used for treatment.

Module 7 – Antimicrobial agents

1. Understand the differentiation between broad- versus narrow -spectrum antibiotics.
2. Discuss implications of antimicrobial sensitivities and resistance patterns.
3. Understand basic concepts of anti-infective therapy.
4. Identify the basic classifications of antibiotic, antiviral, antitubercular, and antifungal drugs.
5. Describe the role of aerosol anti-infective agents that may be administered directly into the lungs.

Course Texts

Required

- Colbert, B. Integrated Cardiopulmonary Pharmacology, 6th ed. BVT Publishing, 2022. ISBN 978-1-5178-1389

Recommended

- Kacmarek R. Egan's Fundamentals of Respiratory Care, 12th ed. Elsevier, 2021. ISBN: 9780323811217

Quiz and Medication Table Requirements

Quizzes may consist of multiple-choice questions, fill-in, or true-false questions based on select module’s readings and class presentations. The spelling of medical terms and medication names may weigh differently. Each quiz contains questions for two or more modules.

Each student is expected to submit a medications table. The medication table will include, at a minimum and where appropriate, these categories: brand name; dosage and strength; onset, peak, and duration; contraindications and adverse effects; and patient or family teaching.

Grading Policy

Assessments	Points
Quiz 1	25
Quiz 2	25
Quiz 3	20
Medication list	20

Total points	150
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Grade Scheme

Letter	Description	Range
A	The student must show superior theoretical knowledge.	93 – 100
B+	The student must merit high-quality classroom work and theoretical knowledge.	88 – 92.9
B	The student must show above-average knowledge.	83 – 87.9
C+	The student meets the standard of achievement with reasonable knowledge.	78 – 82.9
F	The student fails to meet minimum course standards.	<78

Missed Quizzes and Late Work

Missed quizzes and late work will be penalized with a grade being no greater than seventy-eight percent (78%). In-class activities cannot be reconciled because of the evaluation method participatory and will be recorded as zero (0). Quizzes are scheduled during the last two weeks of the semester but before the last scheduled class. All late coursework must be completed before the last scheduled class. A grade of zero (0) will be recorded if a quiz is not completed before the last scheduled day of the class day.

Academic Integrity Policy and Attendance Policy

Academic Integrity

Academic dishonesty is a serious violation of BCC policy and personal ethics and will be treated as such if the reason for suspicion should arise. Students should be careful to avoid plagiarism, falsification, and compliance. Academic integrity is vital to an academic community and for fair evaluation of student assessments. All assessments submitted must be your own, completed in accordance with the college's academic policies and the student code of conduct. You may not engage in unauthorized collaboration or make use of any artificial intelligence (AI) composition systems. Academic dishonesty also includes cheating on examinations. Refer to the BCC student code of conduct, student handbook for additional information, and the statement on plagiarism (<https://catalog.bergen.edu/content.php?catoid=4&navoid=163#academic-dishonesty>).

BCC Attendance Policy

All students are expected to attend punctually every scheduled meeting of each course in which they are registered. Attendance and lateness policies and sanctions are to be determined by the instructor or program policy. The instructor will keep attendance for administrative and counseling purposes. Class attendance and student participation are essential to the successful completion of this course.

Course Attendance Policy

Attendance and punctuality in all class sessions is required. Attendance for lectures is factored into the total grade for the course. Two (2) points are deducted for every absence. One (1) point is deducted if

the student arrives after the attendance is recorded. If you are late, be sure to see the professor in that class so the absence can be corrected to a lateness.

Departmental Policy Statements

- Acceptable quality of work and mature behavior is always expected from every student. Students are regarded as professionals and are expected to conduct themselves accordingly.
- High standards of professional performance demand that students maintain good academic progress throughout their course of study in the program.
- Students demonstrating chronic tardiness or absenteeism will be placed on academic warning or probation and may be subjected to termination from the program.
- Absence from a class during a scheduled exam will be subject to the policy of the instructor for that specific course. If the student is going to miss a scheduled exam, it is expected that the student will contact the instructor ahead of time by email or phone to the department office.
- All students are required to adhere to the policies and procedures of the school as outlined in the college catalog.
- Additional department policies are in the Student Policies and Procedures Manual.
- Remediation
 - The program's defined process for addressing deficiencies in a student's knowledge, skills, professional behavior, and competencies so that the correction of these deficiencies can be ascertained and documented. The program must conduct these evaluations equitably and with sufficient frequency to facilitate prompt identification of learning deficiencies and the development of a means for their remediation within a suitable time frame.
 - The remediation process is initiated by faculty when any student is at risk of failing a course due to difficulty accomplishing course objectives and / or requirements. At risk behaviors include academic deficiency (non-passing quiz, examination, laboratory competency), lack of clinical competency (not abiding by policy and procedures, unsafe behavior), and lapses in professional conduct.

Support Services

- The program faculty maintains office hours for counseling and is available to provide tutorial assistance to students.
- Students must make appointments in advance to meet with the respective instructors.
- Students may also obtain assistance from the [College Tutoring Center](#). Appointments must be made in advance through this center.
- The College has a [personal counseling center](#) for those students who may need personal assistance. Appointments are made directly through this center.
- Any problems, concerns, or questions should be directed to the course instructor or the student's advisor.
- Statement on Civility
 - Refer to the [Standards of Conduct](#) Subsection found in the Student Judicial Affairs Policies & Procedures Section found in the Student Handbook.
- Academic Integrity
 - Refer to the Academic Integrity Subsection; found in the [Academic Regulations](#).

- Other possible College, Divisional, or Departmental Policy Statements to be referenced.
 - ADA statement.
 - Students with documented disabilities who require accommodations by the American with Disabilities Act (ADA) can request support services from the Office of Specialized Service of Bergen Community College located in room L-115 of the Pitkin Learning Center. (www.bergen.edu/oss)
 - Sexual Harassment statement.
 - Statement on acceptable use of [BCC technology](#).
- Student and Faculty Support Services
 - List support services, e.g., the [Writing Center](#), the [Math Lab](#), the Tutorial Center, [Online Writing Lab](#) (OWL), [Office of Specialized Services](#), etc.
- BCC Library
 - The [Sidney Silverman Library](#) is committed to providing a quiet, welcoming, respectful atmosphere conducive to study and research in an environment that is comfortable, clean, and safe. The use of the library will be beneficial in providing resources on researching topic information, citation styles, finding current articles among many other media services available.

General Course Expectations

Students are expected to:

- Use their BCC email address when emailing the instructor and fellow students.
- Interact during class and complete in-class activities.
- Review and follow the course calendar concerning module discussions and material.
- Submit assignments in Canvas according to the syllabus deadlines.
- Utilize the discussion forum to post questions for the instructor.
- Purchase the course textbooks.

Faculty are expected to:

- Respond within 24 hours of a communication request (except Thursdays, weekends or holidays).
- Ensure all assignments are available and complete.
- Monitor discussion boards and replies, as necessary.
- Adhere to the course calendar.
- Include grading rubrics for key class assignments (posted within Canvas).

Course Schedule

Class Meetings	Topic	Readings and Pre-Class Activities	Class Activities and Assessments
Module 1	Introduction Basic Concepts and Principles in Pharmacology	General Pharmacologic Principles Review lecture presentation	Complete syllabus acknowledgement form
	Basic Concepts (cont.)		Group assignment: Understanding Drug and Food Interactions, Interpreting Medication Orders.
	Administration of Aerosolized Agents	Review lecture presentation	
Module 2	Adrenergic bronchodilators, Anticholinergic bronchodilators, and Xanthines	Bronchodilators Review lecture presentation	
	Bronchodilators (cont.)		Develop a medication table for bronchodilators. Case Studies - 5.1, 5.2, and 5.3
Module 3 & 4	Mucus-controlling drug therapy Corticosteroids	Mucokinetics and Surfactants Anti-Inflammatory and Anti-asthmatic Agents Review lecture presentation	Develop a medication table for mucolytics and corticosteroids. <i>Medication list 1 due</i>
	Quiz 1 Corticosteroids (cont.)		<i>Quiz 1 – Basic Concepts and Bronchodilators</i>
	Putting things together		Review of medications
Module 5	Calculating drug doses	The Metric System and Drug Dosage Calculations Review lecture presentation	<i>Medication list 2 and 3 due</i>
	Quiz 2		<i>Quiz 2 – Mucoytics, Anti-Inflammatory agents, Calculating drug doses</i>
Module 6	Smoking cessation medications	Online resources Review lecture presentation	Develop a medication table for smoking cessation agents.
	No class – Thanksgiving Break		
Module 7	Antimicrobial agents	Anti-Infective Agents Review lecture presentation	Develop a medication table for antimicrobial agents.
	Putting things together	Pharmacologic Management of Obstructive Pulmonary Disease	

		Review lecture presentation	
			<i>Quiz 3 – Smoking cessation medications and antimicrobial agents.</i> <i>Medication list 4 due</i>
	New respiratory medications	New medications our patients are being prescribed	Research the new medications

Note to Students: This course schedule is subject to change depending upon the progress of the course. All material will be covered, and students are responsible for the content.