Columbus State Community College
Allied Health Department
Respiratory Care Technology

COURSE: RESP 1230 Respiratory Pharmacology

CREDITS: 2 Hours  CLASS HOURS PER WEEK: 2  PREREQUISITES: RESP 1110 (RESP 100)

DESCRIPTION OF COURSE:
This course provides an introduction to the basic principles of therapeutic drug administration and classification of drugs. Included are bronchodilators, anti-inflammatory agents, anti-asthma agents, mucus controlling agents, surfactants, antimicrobial agents, and other drugs used in the treatment of cardiopulmonary patients. Special emphasis will be directed to safety issues with the application to respiratory care practice.

STUDENT LEARNING OUTCOMES:
At the completion of this course, the learner will be able to:
1. discuss of the general concepts of pharmacology.
2. describe various drug delivery methods and select appropriate method for given patient situation
3. calculate drug dosages
4. describe the role and function of the autonomic nervous system in the regulation of cardio-pulmonary physiology
5. describe and discuss concepts related to the use of Sympathomimetic, Anticholinergic and Xanthine bronchodilators in the treatment of pulmonary disorders
6. describe the role of inflammation in disease and the pharmacologic control of the process
7. describe and discuss concepts related to the use of anit-inflammatory agents and anti-asthma drugs in treatment of pulmonary disorders
8. describe and discuss concepts related to the use of wetting agents and mucolytics in treatment of cardio-pulmonary disorders
9. describe and discuss concepts related to the use of surface active agents in the treatment of cardio-pulmonary disorders
10. describe and discuss concepts related to the use of antimicrobial agents in the treatment of pulmonary infection
11. describe and discuss concepts related to the use of various drugs used in treatment of cardio-pulmonary disorders
12. describe the role and function of narcotics and non-narcotic analgesics in the management of pain, sedation and paralysis
13. describe the classification and mechanism of action of the peripheral-acting skeletal muscle relaxants.
GENERAL EDUCATION OUTCOMES
Columbus State Community College's general education outcomes are an integral part of the curriculum and central to the mission of the college. The faculty at Columbus State has determined that these outcomes include the following competencies:

- Quantitative Literacy
- Scientific and Technological Effectiveness
- Information Literacy

COURSE MATERIALS REQUIRED:
The student will be required to maintain a course notebook throughout the term. This notebook will be evaluated using a rubric for completeness and organization.

TEXTBOOK, MANUALS, REFERENCES, AND OTHER READINGS:

GENERAL INSTRUCTIONAL METHODS:
Lecture, Discussion, Assignments

INSTRUCTOR
Sue Donohue, MEd, RRT, RCP
Phone: 287-2633
Office: Union Hall 477
Email: sdonohue@cscc.edu
Office Hours: Mon: 12-2; Tues-Fri: 12-1

ASSESSMENT
Columbus State Community College is committed to assessment (measurement) of student achievement of academic outcomes. This process addresses the issues of what you need to learn in your program of study and if you are learning what you need to learn. The assessment program at Columbus State has four specific and interrelated purposes: (1) to improve student academic achievements; (2) to improve teaching strategies; (3) to document successes and identify opportunities for program improvement; (4) to provide evidence for institutional effectiveness. In class you are assessed and graded on your achievement of the outcomes for this course. You may also be required to participate in broader assessment activities.

STANDARDS AND METHODS FOR EVALUATION
Exams, Quizzes, Assignments, Homework, and Course Notebook

Course Notebook
Each student is required to develop and maintain a course notebook in a three-ring binder. Dividers must separate the notebook into the following sections:

- Syllabus, Projected Course Schedule, Course Objectives
- Units of Instruction – one section for each unit of instruction
- Miscellaneous
The notebook should include all class materials, notes, handouts, assignments, journal articles, etc. Notebooks are graded on completeness, organization and neatness. See the Course Notebook grading rubric on the course Blackboard site.

Quizzes
A 10 item quiz will be posted online each Wednesday and will cover the content discussed in class that week. Quiz must be completed by the beginning of the next class meeting. The lowest quiz score will be dropped.

Assignments
Students will be responsible for completing a variety of activities such as workbook assignments, In class work, Drug Cards and Wiki development.

Midterms
Two midterms will be given during the lecture period. Learners will be given one opportunity to complete the test. There will be no make-up tests. If a test is missed, the score on the final exam will be substituted. See class schedule for test dates.

Final Examination
There will be a multiple-choice, comprehensive exam administered during the scheduled final examination time for courses meeting on Monday at 10 AM.

GRADE COMPONENTS
Course Notebook 5%
Quizzes 10%
Assignments 20%
  Workbook 5%
  Drug Cards 10%
  Assignments 5%
Midterm Exams 30%
Final Exam 35%

GRADING SCALE
A 100 - 93%
B 92 - 84%
C 83 - 76%
D 75 - 68%
E 67 - 0%

The student must achieve a score of at least 76% to pass the course and continue to the next term in the program sequence.

Professional Behavior Evaluation
A Professional Behavior Evaluation, not included in the final grade calculation, will be conducted both at the midpoint and end of the Semester. A rubric will be used to evaluate the student’s classroom behavior including the following criteria: attendance, punctuality,
preparation, participation and respect for others. A copy of the rubric will be distributed to the student for their review and kept in the students permanent course file. Any student receiving a score of less than 85 must meet with the course instructor to discuss strategies for improvement.

Focus
This course is part of FOCUS--a student success tool (powered by Starfish®) at Columbus State. Throughout this term, you may receive emails from FOCUS@cscc.edu regarding your grade or performance in the class. The emails and recommended actions are designed to help you be successful.

In addition, your instructor may request a meeting with you, or request that you visit other Columbus State services, including tutoring, the learning center, student services, or the retention specialist. You may also be contacted directly by one of these services, or an advisor, as a result of the notifications.

While you do not need to log in to the FOCUS system to receive the notifications, you may do so to change how you receive the messages, or to view contact information in your student profile. To log in to FOCUS, you should log in to Blackboard and click on the FOCUS link. If you have any questions, please contact your instructor.

SPECIAL COURSE REQUIREMENTS
1. **No make-up tests or examinations will be given.** The weight of the missed test or examination will be added to the final examination.
2. All assignments must be typed and should be grammatically correct. Your assignments will not be returned so please make copies of work BEFORE you submit them. Your graded assignments are always available for your review. Please contact your instructor for access to this work.
3. Please be sure to check your email and the course Blackboard site each week for any announcements or postings.
4. All assignments, unless otherwise instructed, are to be completed independently without collaboration with other students. Suspicion of collaboration will result in charges of academic dishonesty and will be reported as stated in the CSCC Student Handbook.
5. Should a student wish to review an exam, he/she must make an appointment with the course instructor. It is recommended to do so within one week after the date the exam is taken.
6. Cell phones are to be turned off while on campus in the classroom or laboratory and during all clinical rotations. Cell phones may only be used during breaks in non-instructional and non-patient care areas. Emergency calls during class time can be made to the CSCC Public Safety department @ 614-287-2525.
7. It is the student’s responsibility to be familiar and abide by the Student Policies and Procedures stated in the CSCC Student Handbook. Any suspicion of a breech in these policies will be reported to the appropriate college department.
8. In order to provide an environment that is conducive to the teaching-learning process, it is requested that only one person talk at a time. Please do not ask your peers for assistance during class. If you need to have a point reviewed, please direct your questions to the instructor.
9. Students are expected to actively participate during class and lab sessions. All of the
following behaviors are considered acts of unprofessional behavior: arriving late, leaving early, sleeping in class or other acts of inattiveness, talking while someone else is speaking, lack of preparation or disturbing the class in any way. Students exhibiting these behaviors will be notified in writing and expected to modify their actions.

ATTENDANCE POLICY
This course focuses on learning, which occurs during class time. Attendance at all class meetings is expected. Students are expected to attend classes and labs as scheduled and arrive and be prepared to start on time. Failure to attend classes adversely affects your course grade as follow: 2 or more absences or tardies = 2.0% reduction in final course grade for each occurrence.

GROUND FOR DISMISSAL FROM THE PROGRAM
Students are expected to meet minimum safety and performance standards in both the classroom and the clinical setting. Failure to do so may result in dismissal from the course. The following demonstrate evidence of inappropriate actions or unsafe practice and may be grounds for dismissal from the course:

1. Plagiarism.
2. Breaching patient confidentiality.
3. Falsification of any required documentation.
4. Collaborating with others on any assignments unless specifically allowed by the course instructor.
5. Absences that exceed 25% of the scheduled course meetings (combination of lecture, lab and clinical).
6. Performing therapy or skills for which the student has not properly been trained and approved.
7. Failure to observe safety precautions, such as but not limited to, universal precautions, proper aseptic technique, isolation techniques, patient identification, verification of medications.
8. Failure to perform therapies according to the procedure identified in the clinical competency evaluations or hospital policy.
9. Failure to follow the directions of the clinical instructor or preceptor.
10. Any student asked to leave a clinical setting due to any problems with clinical skills or behavior will receive an unsatisfactory grade in the course.

STUDENT CODE OF CONDUCT
As an enrolled student at Columbus State Community College, you have agreed to abide by the Student Code of Conduct as outlined in the Student Handbook. You should familiarize yourself with the student code. The Columbus State Community College expects you to exhibit high standards of academic integrity, respect and responsibility. Any confirmed incidence of misconduct, including plagiarism and other forms of cheating, will be treated seriously and in accordance with College Policy and Procedure 7-10.

AMERICANS WITH DISABILITIES ACT (ADA) POLICY
It is Columbus State policy to provide reasonable accommodations to students with documented disabilities. If you would like to request such accommodations because of physical, mental or learning disability, please contact the Department of Disability Services, 101 Eibling Hall, 614.287.2570 (V/TTY). Delaware Campus students may also contact an advisor in the Student Services Center, first floor Moeller Hall, 740.203.8000. Ask for Delaware Campus advising, or www.cscc.edu/delaware, for assistance.

INCLEMENT WEATHER OR OTHER EMERGENCIES

In the event of severe weather or other emergencies that could force the college to close or to cancel classes, such information will be broadcast on radio stations and television stations. Students who reside in areas that fall under a Level III emergency should not attempt to drive to the college even if the college remains open.

Assignments due on a day the college is closed will be due the next scheduled class period. If an examination is scheduled for a day the campus is closed, the examination will be given on the next class day. If a laboratory is scheduled on the day the campus is closed, it will be made up at the next scheduled laboratory class. If necessary, laboratory make-up may be held on a Saturday. If a clinical is missed because of weather conditions, please contact the Clinical Coordinator.

Students who miss a class because of weather-related problems with the class is held as scheduled are responsible for reading and other assignments as indicated in the syllabus. If a laboratory or examination is missed, contact me as soon as possible to determine how to make up the missed exam or lab. Remember! It is the student’s responsibility to keep up with reading and other assignments when a scheduled class does not meet, whatever the reason.

In the event the college is forced to close during Final Examination Week, please contact the course instructor and refer to the course Blackboard site.

FINANCIAL AID ATTENDANCE REPORTING

Columbus State is required by federal law to verify the enrollment of students who participate in Federal Title IV student aid programs and/or who receive educational benefits through the Department of Veterans Affairs. It is the responsibility of the College to identify students who do not commence attendance or who stop attendance in any course for which they are registered and paid. Non-attendance is reported each semester by each instructor, and results in a student being administratively withdrawn from the class section. Please contact the Financial Aid Office for information regarding the impact of course withdrawals on financial aid eligibility.

For the purposes of financial aid reporting, a student meets the participation and attendance criteria if s/he has actively engaged in the class and demonstrated a meaningful attempt toward completion of the course. Examples of active engagement may include, but are not limited to: completing a graded course assignment (e.g., homework, quiz, essay, project, or lab); actively participating in studio or practicum sessions; making content-related contributions to an online discussion forum (including responses both to prompts and to student/instructor posts).
<table>
<thead>
<tr>
<th>WEEK</th>
<th>UNIT OF INSTRUCTION</th>
<th>LEARNING OBJECTIVES/GOALS</th>
<th>ASSESSMENT METHODS</th>
<th>ASSIGNMENTS</th>
<th>ASSIGNMENT DUE DATE</th>
</tr>
</thead>
</table>
| Aug 26| General Pharmaceutical Concepts     | 1. Define pharmacology and its disciplines within the area of pharmacological study.  
2. Describe how to locate detailed and up-to-date information about drugs.  
3. Define essential terms to the study of pharmacology.  
4. Describe and discuss essential general principles of pharmacology, including routes of administration, absorption, cellular and chemical factors, distribution, metabolism, and excretion.  
5. Describe factors that alter drug effects. | Quiz; Exams; Assignments, Notebook | Rau, Chapter 1-2 Workbook, Chapter 1-2 Weekly Quiz | WB and Quiz Due Sept 9 |
6. Describe aspects of governmental control of abuse of prescription drugs and generally know the significance of the five schedules of drugs as defined by the federal Comprehensive Drug Abuse Prevention and Control Act of 1970.

<table>
<thead>
<tr>
<th>Sept 9</th>
<th>Methods of Drug Delivery</th>
<th>1. List four advantages of drug administration by the aerosol route.</th>
<th>Quiz; Exams; Assignments, Notebook</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2. Describe the disadvantages and limitations of drug administration by the aerosol route.</td>
<td>Rau, Chapter 3 Workbook, Chapter 3 Weekly Quiz</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Describe the equipment used for aerosol administration of drugs by small-volume nebulizer (SVN) and the procedure that should be followed.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Describe equipment</td>
<td></td>
</tr>
</tbody>
</table>

WB and Quiz Due Sept 16
used for aerosol administration of drugs by metered-dose inhaler (MDI).
6. Describe patient instructions for taking an effective dose of medication by metered-dose inhaler, including the use of a spacer.
7. Define drug administration by instillation and list three indications (or clinical settings) for its use.
8. Describe the disadvantages or hazards of drug administration by instillation.
10. When given a patient case study, be able to recommend the appropriate method for medication delivery.

| Sept 16 | Drug Calculations | 1. Calculate an appropriate dosage of medication in both weight (mg) and volume (ml): convert Quiz; Exams; Assignments, Notebook | Rau, Chapter 4 Workbook, Chapter 4 Weekly Quiz | WB and Quiz Due Sept 23 |
medication dosages from one system to the other.

| Sept 23 | Pharmacology of the Autonomic Nervous System | 1. Describe the overall function and list the anatomical differences among the somatic nervous system, the sympathetic division, and the parasympathetic division of the autonomic nervous system (ANS). 2. Describe the concept of neurotransmitters. 3. Indicate the site of action, neurotransmitter, and receptor type of the sympathetic, and the parasympathetic nervous systems. 4. Describe some of the characteristic physiological functions that are controlled by the sympathetic and parasympathetic divisions. | Quiz; Exams; Assignments, Notebook | Rau, Chapter 5 Workbook, Chapter 5 | WB Due Sept 30 |
5. Describe the overall effect of the sympathetic division and define the term *adrenergic*.
6. Describe the sympathetic nerve ending at the neuroeffector site, list the neurotransmitter involved and the names of the sympathetic receptors, and in general know the location of these receptors.
7. Describe the basic mechanism by which adrenergic drugs work at the neuroeffector site.
9. List and describe the main effects of *α*-adrenergic, *β*-adrenergic, *β*-blocking drugs; also indicate
<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>adverse effects.</strong></td>
<td><strong>10.</strong> Describe the overall function of the parasympathetic divisions and define the term <em>cholinergic.</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>11.</strong> Describe the parasympathetic nerve ending at the neuroeffector site, list the neurotransmitters and the name of the parasympathetic receptors, and in general know the location of these receptors.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>12.</strong> Describe the basic mechanism by which the cholinergic drugs work at the neuroeffector site.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>13.</strong> Describe the main effects and possible adverse effects to the following terms:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEPT 30</td>
<td>MIDTERM</td>
<td>Rau, Chapter 1-5</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>---------</td>
<td>------------------</td>
<td></td>
</tr>
<tr>
<td>Sept 30 &amp; Oct 7</td>
<td>Sympathomimetic, Anticholinergic and Xanthine Bronchodilators</td>
<td>Quiz; Exams; Assignments, Notebook</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Define bronchoconstriction.</td>
<td>Rau, Chapter 6-8 Workbook, Chapter 6-8 Weekly Quiz Drug Cards</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Describe the pharmacological routes of bronchodilation (relief of mucosal edema and/or bronchospasm).</td>
<td>WB Chapter 6-7 and Quiz Due Oct 7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Describe the neurochemical physiology of the bronchial smooth muscle (what chemicals are present, what nerve endings are stimulated, and how dilation is achieved).</td>
<td>WB Chapter 8, Drug Cards and Quiz Due Oct 14</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Define three categories of bronchodilators and describe the mode of action of bronchodilators in</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*choline esters, anticholinesterase, anticholinergic, and antimuscarinic.*
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>each category (sympathomimetic, anticholinergic, and xanthine).</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Define the dosage ranges and concentrations of each bronchodilator.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Describe the contraindications, hazards, and side effects of each bronchodilator.</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Describe drug interactions of sympathomimetic, anticholinergic, and xanthine bronchodilators with other prescribed drugs.</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Given a patient case study, be able to suggest the most appropriate bronchodilator therapy, including the drug of choice, route of delivery, and recommended dosage.</td>
<td></td>
</tr>
<tr>
<td>Oct 14</td>
<td>Pharmacology of the Endocrine System</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>-------------------------------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Describe the structure and location of the adrenal glands and list the hormones produced by the adrenal cortex, along with effects of the corticosteroids.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. List the overall effects, therapeutic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Quiz; Exams; Assignments, Notebook</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rau, Chapter 11 Workbook, Chapter 11 Weekly Quiz Drug Cards</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WB Chapter, Drug Cards and Quiz Due Oct 21</td>
<td></td>
</tr>
</tbody>
</table>
uses, and side effects of the glucocorticoids.
2. List the overall effects, therapeutic uses, and side effects of the mineralocorticosteroids.
3. Describe edema as it relates to difficulty breathing or respiratory distress.
4. List clinical conditions or diseases that may lead to bronchoconstriction caused by mucosal edema.
5. Describe the pathophysiology of bronchial asthma in the rationale for using multiple medications (i.e., “cocktail”) for control of asthmatic symptoms.
10. Describe the
Mechanism of action of corticosteroids used in the treatments of airway inflammation.

| Oct 21 | Anti-Inflammatory and Anti-Asthmatic Drugs | 1. List the primary corticosteroids used in the treatment of airway inflammation, including brand names.  
2. List the dosage range, side effects, contraindications, and any special considerations for the use of corticosteroid in the treatment of airway inflammation.  
3. Describe the mechanism of action of cromolyn sodium and list the brand names, dosage ranges, side effects, contraindications, and any special considerations for its use. |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quiz; Exams; Assignments, Notebook Drug Cards</td>
<td>Rau, Chapter 12 Workbook, Chapter 12 Weekly Quiz Drug Cards</td>
</tr>
<tr>
<td></td>
<td>WB Chapter, Drug Cards and Quiz Due Oct 28</td>
<td>---</td>
</tr>
</tbody>
</table>
4. Describe the mechanism of action of nedocromil sodium and list the brand name, dosage ranges, side effects, contraindications, and any special considerations for its use.

5. Given a patient case study, be able to suggest the most appropriate drug therapy, including the drug(s) of choice, route of delivery, and recommended dosage(s).

| Oct 28 | Mucus Controlling Agents | 1. Define the terms **bland aerosol**, **mucolysis**, **mucolytic**, **hygroscopic**, **expectorant**, and **bronchorrhea**.  
2. Discuss the therapeutic indications for the use of bland aerosols and mucolytic agents in Quiz; Exams; Assignments, Notebook | Rau, Chapter 9-10 Workbook, Chapter 9-10 Drug Cards | WB Chapters 9-10, Drug Cards Due Nov 4 |
airway maintenance.
3. Compare and contrast the three major types of mucolytic aerosols.
4. Define the dosage ranges and concentrations of each mucolytic agent.
5. Describe the contraindications and hazards of each mucolytic agent.
6. Describe the nonrespiratory applications of acetylcysteine.
7. Given a patient case study, be able to suggest the most appropriate mucolytic therapy, including the drug of choice, route of delivery, and recommended dosage.

Surface Active Agents
1. Define surface

Quiz; Exams; Assignments,
1. Define surfactant, specifically pulmonary surfactant.
2. Describe clinical indications (or protocol) for the use of surfactant replacement drugs.
3. List surfactant replacement drugs currently in use in the United States including: brand names, indications, contraindications, side effects/adverse reactions, dosage and route of administration.
4. Define fulminant pulmonary edema and alveolar pulmonary edema.
5. Describe clinical signs and symptoms.
of fulminant alveolar pulmonary edema.

7. List surface-active drugs indicated for the treatment of fulminant alveolar pulmonary edema, including: indications, contraindications, side effects/adverse reactions, dosage and route of administration.

8. Given a patient case study, be able to suggest the appropriate surface-active agent, including dosage and method of delivery.

<table>
<thead>
<tr>
<th>Date</th>
<th>Subject</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov 4</td>
<td>MIDTERM</td>
<td>Rau, Chapters 6-12</td>
</tr>
<tr>
<td>Nov 4</td>
<td>Antimicrobial Therapy</td>
<td>1. Discuss general concepts in the use of antimicrobial agents and define the terms <em>antibacterial</em>, <em>antibiotic</em>, <em>antimicrobial</em>, Quiz; Exams; Assignments, Notebook</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rau, Chapter 13-14 Workbook, Chapter 13-14 Weekly Quiz Drug Cards</td>
</tr>
<tr>
<td>2.</td>
<td><strong>List and describe principles in the wide use of antibiotics.</strong></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td><strong>List and describe various causes of failure in the use of antibiotics.</strong></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td><strong>List the classification and categories of antibacterial drugs presented in the text.</strong></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td><strong>Describe the basic mechanism of action of the beta-lactam antibiotics.</strong></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td><strong>List and describe some miscellaneous antibiotics used in the treatment of gram-positive and gram-negative infections, including examples, spectrum, and adverse effects.</strong></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td><strong>List and describe broad-spectrum</strong></td>
<td></td>
</tr>
</tbody>
</table>
antibiotics, including examples and adverse effects.
8. List categories of antifungal drugs, along with examples and adverse effects.
9. Describe the overall approach to the treatment of viral infections and list examples of antiviral drugs, along with therapeutic uses and adverse effects.
10. Define indications for the use of antimicrobial agents by the aerosol route.
11. List several pulmonary infectious processes that may be appropriately treated by aerosolized antimicrobial agents. List the major categories of antimicrobial drugs.
<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>that are administered by aerosol, along with the disadvantages or limitations of these drugs.</td>
<td>13. Given a drug category, list drug(s) that may be administered by the aerosol route, including generic name, brand name, and dosage.</td>
<td>Describe contraindications and side effects of each drug that may be administered by aerosol as an antimicrobial agent.</td>
<td>15. Describe any special equipment required for aerosol administration of antimicrobial agents.</td>
</tr>
<tr>
<td>16. Given a patient case study, be able to suggest the most appropriate antimicrobial</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
therapy, including the drug of choice, route of delivery, and recommended dosage.

<table>
<thead>
<tr>
<th>Date</th>
<th>Subject</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov 11</td>
<td>Veteran’s Day No Class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Nov 18 | Cardiovascular and Renal Pharmacology | 1. Describe the conduction system of the heart and relate the electrical control to a normal electrocardiogram.  
2. Describe congestive heart failure (CHF) and coronary artery disease (the most common categories of heart disease).  
3. Define *cardiac glycoside* and describe the overall effect of these drugs in treating CHF.  
4. Describe the mechanism of action of the cardiac glycosides.  
5. Describe some of the pharmacological | Quiz; Exams; Assignments, Notebook | Rau, Chapter 19, 21, 22 Workbook, Chapter 19, 21, 22 Weekly Quiz Drug Cards | WB Chapters, Drug Cards and Quiz Due Nov 25 |
effects of digitalis as the prototype drug of the cardiac glycosides.

6. Define *arrhythmia* and list several types.

7. Describe classifications of anti-arrhythmic agents and indicate the overall mechanism of action of these drugs.

8. Describe the overall effect of the anti-anginal drugs and explain the effects of nitrates and nitrites.

9. Define *hypertension* and list several reasons for treatment. Also define *essential* and *secondary hypertension*.

10. Describe the current therapeutic approach to hypertension and list the five categories of drugs used to treat
hypertension.
11. Define diuretics and list several diseases that they are used to treat.
12. List five classes of diuretics, mechanism of action of each class, and at least one example of a drug from each class.
13. List the other categories of antihypertensive drugs.
14. Briefly review the process of coagulation and list three substances produced in each of the three stages of coagulation.
15. List two classes of anticoagulants used clinically, along with various diseases for which these agents are used.
<table>
<thead>
<tr>
<th>Nov 25</th>
<th>Skeletal Muscle Relaxants</th>
<th><strong>1.</strong> Describe the classification and mechanism of action of the peripheral-acting skeletal muscle relaxants.&lt;br&gt;<strong>2.</strong> List and describe the nondepolarizing peripheral muscle relaxants, including their therapeutic uses and adverse effects.&lt;br&gt;<strong>3.</strong> List and describe the depolarizing peripheral muscle relaxants, including their therapeutic uses and adverse effects.</th>
<th>Quiz; Exams; Assignments, Notebook</th>
<th>Rau, Chapter 18 Workbook, Chapter 18 Weekly Quiz Drug Cards</th>
<th>WB Chapter, Drug Cards Due Dec 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pharmacology of the Central Nervous System</td>
<td><strong>1.</strong> Describe the general characteristics of CNS drugs.&lt;br&gt;<strong>2.</strong> Describe as a group the sedative hypnotic/anti-anxiety drugs and define the terms <em>sedative, hypnotic,</em> and <em>anti-anxiety.</em></td>
<td>Quiz; Exams; Assignments, Notebook</td>
<td>Rau, Chapter 20 Workbook, Chapter 20 Drug Cards</td>
<td>WB Chapter, Drug Cards Due Dec 2</td>
</tr>
</tbody>
</table>
3. Discuss the nonbarbiturate sedative hypnotics, along with duration of action and clinical use.
4. Discuss the benzodiazepines as sedative hypnotics and anti-anxiety agents and indicate their main clinical uses, mechanism of action, and adverse effects.
5. List the classifications of general anesthetics.
6. List four injectable general anesthetics currently used and discuss their advantages.
7. List the reasons for using preanesthetic agents prior to administration of a general anesthetic, along with examples of each.
8. Define narcotic
analgesics, describe the mechanism of action, and indicate the types of pain narcotic analgesics are used for.

9. Describe the physiological effects of narcotics, using morphine as a prototype, on various systems of the body.

10. Describe how narcotic antagonist drugs are used to treat overdose reactions to narcotics.

11. Define non-narcotic analgesics and compare the major differences between narcotics and non-narcotic drugs.

12. Describe the salicylates as the prototype drugs of non-narcotics in terms of examples, mechanism of
13. Define nonsteroidal anti-inflammatory drugs and indicate their main clinical use.

| Dec 2, 10-12 N | Final Exam | Comprehensive |