HOUSTON COMMUNITY COLLEGE SYSTEM
JOHN B. COLEMAN HEALTH SCIENCE CENTER
ASSOCIATE DEGREE NURSING PROGRAM

RNSG 1301
PHARMACOLOGY

SYLLABUS

SPRING 2012

CLASS Nbr 83113
HOUSTON COMMUNITY COLLEGE SYSTEM
JOHN B. COLEMAN HEALTH SCIENCE CENTER
ASSOCIATE DEGREE NURSING PROGRAM
RNSG 1301: PHARMACOLOGY

FACULTY

Yvette Rolle, MSN, CNE, OB RNC
Office: 340 (Suite 344)
Office phone: (713)718-7240
Email: Yvette rolle@hccs.edu
Office hours: (as posted)
I. COURSE DESCRIPTION

Introduction to the science of pharmacology with emphasis on the actions, interactions, adverse effects, and nursing implications of each drug classification. Topics include roles and responsibilities of the nurse in safe administration of medications within a legal/ethical framework.

II. PRE-REQUISITES

Completion of the TEAS Entrance Exam and gaining approval to enroll in the course from the ADN department.

III. CLASS MEETING TIMES

Monday: 8am to 11:00 am, Room 363 A

VIII. REQUIRED TEXTBOOKS


IV. COURSE LEARNING OUTCOMES

The student will:
1. Identify the roles and responsibilities of the nurse in administering pharmacological agents.
2. Use knowledge of pharmacology to demonstrate safe medication dosage calculations.
3. Define pharmacology concepts and describe the process of medication administration.
4. Use a systematic approach to study drug therapy with emphasis on therapeutic classifications and prototypical drugs.
5. Describe the pathophysiology of selected major conditions for which drug therapy is commonly used.
6. Describe characteristics of major drug groups and selected prototypical drugs in terms of the following:
   a. Mechanism of action
   b. Indications for use
   c. Contraindications to use
   d. Expected therapeutic effects
   e. Common or serious adverse effects
   f. Accurate administration
   g. Essential client teaching
7. Identify client-related and drug-related factors that influence drug effects.
8. Apply all steps of the nursing process to scenarios of clients receiving one or more therapeutic drugs.
9. Discuss principles of drug selection, dosage, and route in special populations (i.e., children, older adults, and clients with impaired renal or hepatic function).
10. Discuss clinically significant drug-drug, drug-disease, and drug-nutrient interactions.
11. Discuss nursing process implications of administering or supervising drug therapy in the home setting.
12. Describe selected legal, ethical, and economic aspects of drug therapy.
13. Evaluate over-the-counter drugs for personal use or with regard to instruction of clients.

IV. LEARNING ACTIVITIES

A. Methods of Instruction
   a. Required readings
   b. Audiovisuals
   c. Lecture and discussion
   d. Question and answer
B. Methods of Evaluation
   a. Computerized Quizzes
   b. Multiple-choice computerized examinations
   c. Written math examination on drug calculations
C. Contemporary Technology
   a. Computer-assisted instruction and testing
   b. Access to the Internet
   c. Access to Medline and other computerized databases
D. Concept Reinforcement
   a. Critical thinking scenarios
   b. My Nursing Lab activities
   c. Current research and literature discussion
   d. Individual faculty-student conferences

VI. EVALUATION

1. Three (3) computer-generated multiple choice exams will be administered. One hour will be allowed for the exam and 20 minutes will be allowed for review of the completed exam. Refer to course calendar for date and time of exams. Student concerns regarding exam questions/content must be addressed within 1 week of the exam.
   a. Students will be assigned to exam rooms.
   b. A pencil/pen, calculator, and HCC Student ID will be the only items allowed in the computer during exams. Please leave belongings in your car or sign-up for a locker with Campus Operations (2nd floor)
   c. If faculty has any doubt concerning your behavior during an exam, you will be asked to leave the computer lab and you will receive a ZERO as the exam grade. NO EXCEPTIONS.
Examination content will be constructed from lecture and required textbook reading assignments. ADN policy requires that each student report for the examinations on time. NO STUDENT will be admitted to the exam if s/he arrives AFTER the scheduled exam time. Students must present their school ID before scheduled exams.

Students are encouraged to complete pre and post-test quizzes for reinforcement of concept taught at Pearson’s my nursing Lab web site. A hand-written medication, dosage calculation exam will be administered.

**NO CELL PHONES, PROGRAMMABLE CALCULATORS, OR PDAs WILL BE ALLOWED DURING THE EXAM.** Student concerns regarding the hand-written exam must be addressed within 1 week of the exam.

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<tr>
<th>Grading Criteria:</th>
<th>Grading Scale:</th>
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<tr>
<td>Exam 1 30%</td>
<td>A = 90-100</td>
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<td>Exam 2 30%</td>
<td>B = 80-89</td>
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<td>Exam 3 30%</td>
<td>C = 75-79</td>
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<tr>
<td>Class Participation 5%</td>
<td>D = 60-74</td>
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<tr>
<td>Math Exam 5%</td>
<td>F = 59 or below</td>
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Student Name (print): __________________________________________________________

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Exam 1 30% of Grade _____ X .30 = __________
Exam 2 30% of Grade _____ X .30 = __________
Exam 3 30% of Grade _____ X .30 = __________
Class Participation 5% of Grade _____ X .05 = __________
Math Exam 5% of Grade _____ X .05 = __________

Course Final Grade: ________________________

**VII. ATTENDANCE AND TARDINESS**

Daily classroom attendance records will be maintained. A student, in order to be counted as present, the student must sign the attendance sheet. Failure to sign the attendance roster will result in being
marked absent for the day.

**Absences** exceeding 12.5% of lecture courses may result in reporting to Early Alert Program and/ or administrative withdrawal of the student from the course.

**VIII. POLICIES**

All students will adhere to HCCS policies as delineated in the HCCS and ADN handbooks. Students who repeat a course three or more times may soon face significant tuition/fee increases at HCC and other Texas public colleges and universities. Please ask your instructor/counselor about opportunities for tutoring/other assistance prior to considering course withdrawal, or if you are not receiving a passing grade.

**IX. SPECIAL NEEDS**

Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc) who needs to arrange reasonable accommodations must contact the Disability Services Office at the respective college at the beginning of each semester. Faculty is authorized to provide only the accommodations requested by the Disability Support Services Office.

**X. REMEDIATION / EARLY ALERT PROGRAM:**

The Houston Community College Early Alert program has been established to assist in the overall effort to retain students who are at risk of failing, withdrawing, or dropping a course. This process requires instructional faculty and student support staff to identify students who are performing poorly as early as possible and provide relevant support services to help students overcome their deficiencies. A student is identified when an instructor notices academic or personal difficulties that affect student’s academic performance. The possible problem(s) could be tardiness, missed/failed test scores, excessive absences, or a number of other circumstances. Once a referral is made counselors will then contact students to discuss the issues and possible solutions/student plan for their academic or personal difficulties.

When an Early Alert referral has been initiated either for academic or personal difficulties, a student must provide documentation of completion of student remediation plan to the assigned advisor prior to next unit exam. Student will not be allowed to take the next scheduled unit exam if student fails to provide documentation of completion of student plan.

**EGLS3 – Evaluation for Greater Learning Student Survey System:**

At Houston Community College, professors believe that thoughtful student feedback is necessary to improve teaching and learning. During a designated time, you will be asked to answer a short online survey of research-based questions related to instruction. The anonymous results of the survey will be made available to your professors and division chairs for continual improvement of instruction. Look for the EGLS3 as part of the Houston Community College Student System online near the end of the term.
TUITION/FEE INCREASES

Students who repeat a course three or more times may soon face significant tuition/fee increases at HCC and other Texas public colleges and universities. Please ask your instructor/counselor about opportunities for tutoring/other assistance prior to considering course withdrawal, or if you are not receiving passing grades.

XI. PHARMACOLOGY COURSE OBJECTIVES

Pharmacology Math Calculations Objectives:

1. Demonstrate proficiency in calculating mathematical problems using addition, subtraction, multiplication, and/or division of fractions.
2. Demonstrate proficiency in calculating mathematical problems using the addition, subtraction, multiplication, and/or division of decimals.
3. Convert decimals to fractions and fractions to decimals.
4. Demonstrate proficiency in calculating mathematical problems using percents.
5. Demonstrate proficiency in converting ratios to percents and percentages to ratios, in simplifying ratios, and in using the proportion method for solving problems.
6. Memorize the basic equivalents of household, apothecary, and metric systems.
7. Demonstrate proficiency in performing conversion of medication problems utilizing the household, apothecary, and metric systems.
8. Memorize common abbreviations used in clinical practice.
9. Use formulas to calculate intravenous fluid administration rates (IV) and to calculate medication dosages (PO, SC, and IM).

Pharmacology Basics Objectives:

1. State the origin and definition of pharmacology.
2. Explain the meaning of therapeutic methods.
3. Describe the process used to name drugs.
4. Differentiate among the chemical, generic, official and brand names of medicines.
5. List official sources of drug standards.
7. Differentiate among Schedule I, II, III, IV, and V medications, and describe nursing responsibilities associated with the administration of each type of drug.
8. Describe the procedure outlined by the FDA to develop and market new medicines.
9. Identify the five basic principles of drug action.
10. Explain nursing assessments necessary to evaluate potential problems associated with the absorption of medications.
11. Describe nursing interventions that can enhance drug absorption.
12. Identify the meaning and significance to the nurse of the term half-life when used in relation to drug therapy.
13. Compare and contrast the following terms used with regard to medications: desired action, side effects, adverse effects, allergic reactions, and idiosyncratic reactions.
14. List the factors that cause variations in absorption, metabolism, distribution, and excretion of drugs.
15. State the mechanism by which drug interactions may occur.
16. Differentiate among the following terms used with regard to medications: additive effect, synergistic effect, antagonist effect, displacement, interference, and incompatibility.
17. Discuss the effects of age on drug action.
18. Identify the purpose for using the nursing process methodology.
19. State the five steps in the nursing process and describe in terms of a problem-solving method used in nursing practice.

Drugs Affecting the Autonomic Nervous System Objectives:

1. Discuss the sympathetic nervous system as related to drug therapy with adrenergic agonists.
2. Explain the action of drugs that inhibit the actions of cholinergic and adrenergic fibers.
3. Name the most common neurotransmitters known to affect central nervous system function.
4. Identify the two major neurotransmitters of the autonomic nervous system.
5. Identify two broad classes of drugs used to stimulate the adrenergic nervous system.
6. Name the neurotransmitters called catecholamines.
7. Review the action of adrenergic agents to identify conditions that would be affected favorably and unfavorably by these medications.
8. Explain the rationale for using adrenergic blocking agents for conditions that have vasoconstriction as part of the disease pathophysiology.
9. Describe the benefits of using beta-adrenergic blocking agents for hypertension, angina pectoris, cardiac arrhythmias, and hyperthyroidism.
10. Identify disease conditions that would preclude the use of beta-adrenergic blocking agents.
11. List the neurotransmitters responsible for cholinergic activity.
12. List the predictable side effects of cholinergic agents.
13. List the predictable side effects anticholinergic agents.
14. Describe the clinical uses of anticholinergic agents.

Drugs Affecting the Central Nervous System Objectives:

1. Analgesic agents
   a. Define analgesia.
   b. Discuss the major components of pain theory.
   c. Differentiate among opiate agonists, opiate partial agonists, and opiate antagonists.
   d. Describe monitoring parameters necessary for patients receiving opiate agonists.
   e. List the different drugs in the groupings of opiate analgesics.
   f. Compare the analgesic effectiveness of opiate partial agonists when administered before or after opiate agonists.
   g. Compare the mechanism of action, side effects, contraindications, nursing implementation and indication for opiate agonists, agonist antagonists, & Opiate antagonists.
   h. Discuss the different "special" pain situations and its management.
   i. List the nursing interventions of pain management, both pharmacologic and non-pharmacologic approaches to pain relief.
   j. List safety measures of pain management.
   k. Define equianalgesic opioids potency.
   l. Explain when Naloxone can be used effectively to treat respiratory depression.
m. Explain why synthetic nonopiate analgesics are not used for inflammatory disorders.

n. List the pediatric and geriatric considerations for opioids administration and its implications.

o. Identify the legal and ethical principles of opioids administration.

2. General & local anesthetics
   a. Define anesthesia
   b. Discuss the differences between and indications of general & local anesthetics.
   c. List the most commonly used general & local anesthetics with their associated risk factors.
   d. Discuss what occurs in anesthesia, including the stages of anesthesia.
   e. Describe essential components of patient assessment used for patients receiving neuromuscular blocking agents.
   f. Describe the physiologic effects of neuromuscular blocking agents.
   g. Identify the effect of neuromuscular blocking agents on consciousness, memory, and the pain threshold.
   h. Describe disease conditions that may affect the patient’s ability to tolerate the use of neuromuscular blocking agents.
   i. List the steps required to treat respiratory depression.
   j. Compare the mechanism, action, side effects, cautions, contraindications, nursing implementations & indications for general & local anesthesia.

3. CNS depressants & Muscle relaxants
   a. Differentiate among the terms sedative and a hypnotic agent, and rebound sleep and paradoxical excitement.
   b. Discuss the differences between benzodiazepines and barbiturates as sedative-hypnotic agents.
   c. Identify specific benzodiazepines and barbiturate agents.
   d. Identify alterations found in the sleep pattern when hypnotics are discontinued.
   e. List nursing interventions that can be implemented as alternatives to administering a sedative/hypnotic.
   f. Identify mechanisms of actions, drug effects, therapeutic uses, interactions, and side & toxic effects of skeletal muscle relaxants, benzodiazepines, and barbiturates.
   g. List patient education guidelines for patients receiving sedative hypnotic agents & muscle relaxants.
   h. Compare the effects of barbiturates and benzodiazepines on the central nervous system.
   i. Explain the major benefits of administering benzodiazepines rather than barbiturates.
   j. Identify laboratory tests that should be monitored when benzodiazepines or barbiturates are administered over an extended period.

4. Antiepileptic agents
   a. Prepare a chart to be used as a study guide that includes the following information:
      1. Name of seizure type
      2. Description of seizure
      3. Medications used to treat each type of seizure
   b. Differentiate between the terms epilepsy, seizures and convulsions.
   c. Discuss the basic classification system used to describe types of epilepsy.
   d. Define status epilepticus.
   e. Identify mechanisms of actions, drug effects, therapeutic uses, interactions, and side & toxic effects associated with the various antiepileptic agents.
   f. State the desired therapeutic outcomes for drug therapy for seizure disorders.
   g. Identify the mechanisms of action thought to control seizure activity when anticonvulsants are administered.
   h. List patient education guidelines for patients receiving antiepileptic agents.
   i. Discuss therapeutic plasma levels of narrow therapeutic index in antiepileptic agents.

5. Antiparkinsonian agents
   a. Name the neurotransmitter that is found in excess and the neurotransmitter that is deficient in persons with Parkinsonism.
   b. Describe reasonable expectations of medications prescribed for treatment of Parkinson’s disease.
   c. List the different classes of medications used as antiparkinsonian agents.
   d. Identify mechanisms of actions, drug effects, therapeutic uses, interactions, and side & toxic effects associated with the use of each antiparkinsonian agent.
   e. Identify the period of time necessary for a therapeutic response to be observed when drug therapy for Parkinsonism is initiated.
   f. Discuss neuroprotective therapy.
   g. List the nursing actions related to the administration of the various antiparkinsonian agents.
   h. List the patient education guidelines for patients receiving antiparksonian agents.
   i. Identify the therapeutic patient responses to the antiparksonian agents.
   j. List symptoms that can be attributed to the cholinergic activity of pharmacological agents.
   k. Identify the specific symptoms that show improvement when anticholinergic agents are administered to the patient with Parkinson’s disease.

6. Psychotherapeutic agents
   a. Describe major indications for the use of antipsychotic agents.
   b. Define terminology associated with anxiety states.
   c. Identify mechanisms of actions, drug effects, therapeutic uses, interactions, and side & toxic effects associated with psychotherapeutic agents.
   d. Discuss psychological and physiologic drug dependence.
   e. Describe the essential components of a baseline assessment of a patient with depression or bipolar disorder.
   f. Compare drug therapy used during the treatment of the manic phase and depressive phase of bipolar disorder.
   g. Identify monitoring parameters used for persons taking monoamine oxidase inhibitors (MAOIs), selective serotonin reuptake inhibitors (SSRIs), or tricyclic antidepressants.
   h. Differentiate between the physiologic and psychologic therapeutic responses seen with antidepressant therapy.
i. Identify premedication assessments necessary before administration of MAOIs, SSRIs, tricyclic antidepressants, and antimanic agents.

7. CNS stimulant agents
   a. List the various CNS stimulant agents
   b. Define the following terms
      c. analeptic
      d. CNS stimulant
      e. methylxanthines
   f. Identify the mechanism of action, indications, contraindications, cautions, side effects & toxic effects of CNS stimulants.
   g. Identify the variety of conditions & disorders being treated with CNS stimulants.

Drugs Affecting the Cardiovascular & Renal Systems Objectives:

1. Positive inotropic agents
   a. Define inotropic, chronotropic, & dromotropic.
   b. Summarize the pathophysiology of heart failure including the body’s compensatory mechanisms.
   c. Identify the goals of treatment of heart failure.
   d. Discuss the effect of cardiac glycosides & positive inotropic agents on a failing heart.
   e. Discuss the peak onset, duration of action, metabolism and excretion of positive inotropic agents.
   f. Identify significant drugs, laboratory tests & food interactions associated with positive inotropic agents.
   g. Explain why specific disease conditions, & drugs are considered interactions, cautions, or contraindications to the use of a digoxin and other positive inotropic agents.
   h. Explain the process of digitalizing a patient, including the initial dose, preparation and administration of the medication, and nursing assessments needed to monitor therapeutic response and digitalis toxicity.
   i. Describe safety precautions associated with the preparation and administration of digitalis glycosides.
   j. Identify essential assessment data, nursing interventions, and health teaching needed for a patient with heart failure.
   k. Identify the nurse's responsibility in patients experiencing digoxin toxicity & to patients receiving digoxin immune FAB (Digibind).
   l. Identify mechanisms of actions, drug effects, therapeutic uses, interactions, and side & toxic effects associated with positive inotropic agents.

2. Antidysrhythmic agents
   a. Define the most commonly encountered Dysrhythmias.
   b. Describe normal cardiac function.
   c. Identify the various classes of Antidysrhythmic agents as determined by their mechanism of action.
   d. List examples of specific drugs within each class of Antidysrhythmic agents.
e. Identify mechanisms of actions, drug effects, therapeutic uses, interactions, and side & toxic effects associated with Antidysrhythmic agents.
f. Identify baseline-nursing assessments that should be implemented during the treatment of arrhythmias.
g. List the dosage forms and precautions needed in the preparation of intravenous Lidocaine for the treatment of arrhythmias.
h. Identify the potential effects of muscle relaxants used during surgical intervention when combined with Antiarrhythmic therapy.

3. Antiangina agents
   a. Define angina
   b. Discuss how cellular ischemia is responsible for causing angina.
   c. Describe the actions of nitrates, beta-adrenergic blockers, and calcium channel blockers on the myocardial tissue of the heart.
   d. Identify mechanisms of actions, drug effects, therapeutic uses, interactions, and side & toxic effects associated with Antiangina agents.
   e. Identify assessment data needed to evaluate an angina attack.
   f. Identify medication therapy health teaching of an angina patient.

4. Antihypertensive agents
   a. Define hypertension.
   b. Describe the different forms of hypertension
   c. Discuss the rationale for using a stepped care approach in the management of hypertension.
   d. Describe nursing assessments and interventions used during the treatment of hypertension.
   e. State lifestyle modifications that should be implemented when a diagnosis of hypertension is made.
   f. Identify the nine classes of drugs used to treat hypertension.
   g. Identify mechanisms of actions, drug effects, therapeutic uses, interactions, and side & toxic effects associated with antihypertensive agents.
   h. List the nursing interventions of antihypertensive agent administration & approaches to reduce hypertension.
   i. List the outcome criteria used for patients receiving antihypertensive agents.

5. Diuretic agents
   a. State the indication for diuretics.
   b. State the different types of diuretics.
   c. Identify mechanisms of actions, drug effects, therapeutic uses, interactions, and side & toxic effects associated with diuretic agents.
   d. Identify nursing assessment data used to evaluate a patient’s hydration.
   e. State which electrolytes may be altered by diuretic therapy.
   f. Identify the effects of diuretics on blood pressure, electrolytes, and diabetic or prediabetic patients.
g. Review the signs and symptoms of electrolyte imbalance and normal laboratory values of potassium, sodium and chloride.

h. Explain the rationale for administering diuretics cautiously to older patients and people with impaired renal function, cirrhosis of the liver, or Diabetes mellitus.

i. Identify alterations in diet that may be prescribed concurrently with loop, Thiazide, or potassium-sparing diuretic therapy.

j. Describe the goal of administering diuretics to treat hypertension, and heart failure.

6. Coagulation Modifier agents
   a. Explain what nonpharmacologic measures can improve peripheral circulation.
   b. Identify mechanisms of actions, drug effects, therapeutic uses, interactions, and side & toxic effects associated with coagulation modifier agents.
   c. State the primary purposes of anticoagulant therapy.
   d. Describe conditions that place an individual at risk for developing blood clots.
   e. Identify specific nursing interventions that can prevent clot formation.
   f. Explain laboratory data used to establish dosing of anticoagulant medications.
   g. Describe specific monitoring procedures to detect hemorrhage in the Anticoagulated patient.
   h. Describe procedures used to ensure that the correct dose of an anticoagulant is prepared and administered.
   i. Explain the specific procedures and techniques used to administer heparin subcutaneously, via intermittent administration through a heparin lock, and via intravenous infusion.
   j. Identify the purpose, dosing determination, and scheduling factors associated with the use of Protamine sulfate.
   k. State the nursing assessments needed to monitor therapeutic response and the development of side effects to expect or report from anticoagulant therapy.

7. Antilipemic agents
   a. Identify the major types of lipoproteins.
   b. List the various Antilipemic agents commonly used to treat hyperlipidemia.
   c. State specific oral administration instructions needed with antilipidemic agents.
   d. Identify the specific agents used to treat type II and type IV forms of hyperlipidemia.
   e. Identify mechanisms of actions, drug effects, therapeutic uses, interactions, and side & toxic effects associated with Antilipemic agents.
   f. Identify therapeutic responses produced by the Antilipemic agents.

Drugs Affecting the Respiratory System Objectives:

1. Antihistamines, decongestants, Antitussives & expectorants
   a. State the causes of allergic rhinitis and nasal congestion.
   b. Differentiate between the various agents: antihistamines, decongestants, antitussives & expectorants.
   c. Define rhinitis medicamentosa and describe the patient education needed to prevent it.
d. Identify mechanisms of actions, drug effects, therapeutic uses, interactions, and side & toxic effects associated with antihistamines, decongestants, antitussives & expectorants.

e. Review the procedure for administration of medications by nose drops, sprays, and inhalation.

f. Explain why all decongestant products should be used cautiously in persons with hypertension, hyperthyroidism, diabetes mellitus, cardiac disease, increased intraocular pressure, or prostatic disease.

g. Identify essential components involved in planning patient education that will enhance compliance with the treatment regimen.

h. State the nursing assessments needed to monitor therapeutic response and the development of side effects to expect or report form expectorant, antitussive and mucolytic therapy.

2. Bronchodilators and Other Respiratory Agents
   a. Describe the anatomy & physiology of the respiratory system.
   
b. Describe how lower respiratory tract diseases affect the respiratory system.
   
c. Discuss the manifestations of lower respiratory tract diseases.
   
d. Identify factors that precipitate lower respiratory tract diseases.
   
e. Identify the various respiratory agents, both the classes and specific agents used in the treatment of lower respiratory tract diseases.
   
f. Identify mechanisms of actions, drug effects, therapeutic uses, interactions, and side & toxic effects associated with bronchodilators & other respiratory agents.
   
g. Identify nursing assessments used to evaluate the respiratory status of a patient.
   
h. State the nursing assessments needed to monitor therapeutic response and development of side effects to expect or report from sympathomimetic bronchodilator therapy.
   
i. State the nursing assessments needed to monitor therapeutic response and development of side effects to expect or report from corticosteroid inhalant therapy.
   
j. List the nursing interventions that relieve, prevent or decrease the manifestations of the lower respiratory tract diseases.
   
k. List the patient education guidelines for patients receiving bronchodilators and other respiratory agents.

Drugs Affecting the Gastrointestinal System & Nutrition Objectives:

1. Antacids & acid controllers
   a. Identify common stomach disorders that require drug therapy.
   
b. Identify factors that prevent breakdown of the body’s normal defense barriers resulting in ulcer formation.
   
c. Identify the various agents used to treat gastric disorders, including antacids, H2 Histamine blocking agents & proton pump inhibitors.
   
d. Identify mechanisms of actions, drug effects, therapeutic uses, interactions, and side & toxic effects associated with antacids & acid controlling agents.
e. List the patient education guidelines associated with the use of antacids & acid controllers.
f. Identify outcome criteria used to monitor therapeutic patient responses in the use of antacids & acid controllers.

2. Antidiarrheals & laxatives
   a. State the underlying causes of constipation.
   b. Explain the meaning of “normal” bowel habits.
   c. Identify the indications for use, method of action, and onset of action for contact or stimulant laxatives, saline laxatives, lubricant or emollient laxatives, bulk-forming laxatives, and fecal softeners.
   d. Describe medical conditions in which laxatives should not be used.
   e. List the causes of diarrhea.
   f. State the differences between locally acting and systemically acting antidiarrheal agents.
   g. Identify electrolytes that should be monitored whenever prolonged or severe diarrhea is present.
   h. Describe nursing assessments needed to evaluate the state of hydration in patients suffering from either constipation or dehydration.
   i. Identify conditions that generally respond favorably to antidiarrheal agents.
   j. List the patient education guidelines associated with the use of antidiarrheals and laxative agents.

3. Antiemetic (antinausea) agents
   a. Discuss the pathophysiology of nausea & vomiting.
   b. Identify the antiemetic agents and their drug classifications.
   c. Identify the neurotransmitters involved in the process of nausea & vomiting.
   d. Identify mechanisms of actions, drug effects, therapeutic uses, interactions, and side & toxic effects associated with antiemetic agents.
   e. Discuss scheduling of antiemetics for maximum benefit.
   f. List the patient teaching guidelines for patients receiving antiemetic agents.

4. Vitamins & minerals
   a. Differentiate between information found in the dietary reference intake tables and the recommended dietary allowance tables.
   b. Identify the role of vitamins & minerals in the functioning of the human body.
   c. Differentiate between fat-soluble and water-soluble vitamins.
   d. Identify the nutritional states & diseases caused by vitamin and mineral imbalances.
   e. Discuss the treatment of the various vitamin and mineral imbalances.
   f. Identify mechanisms of actions, drug effects, therapeutic uses, interactions, and side & toxic effects associated with vitamins & minerals.

5. Nutritional supplements
   a. Describe the nutritional assessments essential proper to administration of tube feedings and parenteral nutrition.
b. Identify common laboratory and diagnostic tests used to monitor a patient’s nutritional status.
c. Discuss nursing assessment and interventions required during the administration of enteral nutrition.
d. Discuss home care needs for a patient receiving enteral or parenteral nutritional feedings.
e. Identify mechanisms of actions, drug effects, therapeutic uses, interactions, and side & toxic effects associated with enteral & parenteral supplements.
f. Compare the various enteral & parenteral supplements with their ingredients.

Drugs Affecting the Endocrine System Objectives:

1. Pituitary Agents
   a. Describe the normal function of the anterior and posterior aspects of the pituitary gland.
   b. Identify the various pituitary agents.
   c. Discuss the mechanisms of action, indications, side effects and contraindications related to pituitary agents.

2. Thyroid and antithyroid agents
   a. Discuss the normal actions and functions of the thyroid hormones.
   b. Describe the signs, symptoms, treatment, and nursing interventions associated with hypothyroidism and hyperthyroidism.
   c. Discuss the mechanisms of action, indications, contraindications and cautions and side effects related to thyroid agents.
   d. Identify the two classes of drugs used to treat thyroid disease.
   e. Name the drug of choice for hypothyroidism.
   f. Discuss the actions of antithyroid medications on the formation and release of hormones produced by the thyroid gland.
   g. State the three types of treatment for hyperthyroidism.
   h. Explain the nutritional requirements and activity restrictions needed for individuals with hyperthyroidism.
   i. Identify the types of conditions that respond favorably to the use of radioactive iodine- 131.
   j. Explain the action of propylthiouracil on the synthesis of T3 and T4.
   k. Identify the teaching guidelines for patients receiving thyroid or antithyroid agents.

3. Antidiabetic and hypoglycemic agents
   a. Discuss the normal actions and functions of the pancreas and the feedback system that regulates it.
   b. Describe the current classification system for diabetes mellitus.
   c. Describe the differences between hypossecretion and hypersecretion of insulin and between Type 1 and Type 2 diabetes mellitus.
   d. Describe the various factors influencing the blood glucose levels in the presence or absence of diabetes mellitus.
   e. Identify the objectives of dietary control of diabetes mellitus.
f. Discuss the mechanisms of action, indications, contraindications and cautions, and side effects relating to the insulin, oral antidiabetic and hypoglycemic agents.
g. Differentiate among the signs, symptoms, and management of hypoglycemia and hyperglycemia.
h. Discuss the contributing factors of, nursing assessments for, and nursing interventions for patients exhibiting complications associated with diabetes mellitus.
i. Identify the teaching guidelines for patients receiving insulin, oral antidiabetic agents or hypoglycemic agents.

4. Adrenal agents
   a. Review the normal actions and functions of the adrenal system and its feedback mechanism.
   b. Describe the differences between hypersecretion or hyposecretion of the adrenal gland.
   c. State the normal actions of mineralocorticoids and glucocorticoids in the body.
   d. Identify the baseline assessments needed for a patient receiving corticosteroids.
   e. Prepare a list of the clinical uses of mineralocorticoids and glucocorticoids.
   f. Discuss the mechanism of action of, indications for, contraindications and cautions to, and side effects associated with the use of adrenal medications.
   g. Identify the teaching guidelines for patients receiving adrenal medications.

5. Women's Health agents
   a. Describe the body changes that can be anticipated with the administration of estrogens and progesterone.
   b. State the uses of estrogens and progestins.
   c. Describe the rationale for the various treatments and cite dosages, side effects, cautions, contraindications and drug interactions associated with estrogen and progestin therapy, selective estrogen receptor modulators, fertility agents and drugs used in labor and delivery.
   d. Discuss combined oral contraceptives and selective estrogen receptor modulators.
   e. List the expected therapeutic responses to the various women's health agents.
   f. Describe the therapeutic responses to uterine stimulants and relaxants, as well as their mechanism of actions, side effects, contraindications, and drug interactions.
   g. State the nursing assessments and monitoring parameters for agents used in women's health.
   h. Explain the pathogenesis and pharmacotherapy for osteoporosis.
   i. Explain the nurse’s role in caring for clients receiving drug therapy for the treatment of osteoporosis.
   j. Identify the teaching guidelines for patients receiving women's health agents.

6. Men's health agents
   a. 1. Discuss the normal anatomy and physiology of the male reproductive system.
   b. 2. Identify the various male reproductive agents and their indications with rationale for use.
   c. 3. Describe the pharmacological treatments of benign prostatic hypertrophy.
d. 4. Describe the pharmacological treatment of erectile dysfunction.

e. 5. Identify teaching guidelines for patients receiving male reproductive agents.

**Antiinfective and Antiinflammatory Agents Objectives:**

1. Antibiotic agents
   a. Identify baseline data the nurse should collect on a continuous basis for comparison and evaluation of antimicrobial drug effectiveness.
   b. Identify criteria used to select an effective antimicrobial agent.
   c. Differentiate between gram-negative and gram-positive microorganisms and between anaerobic and aerobic properties of microorganisms.
   d. Identify mechanisms of actions, drug effects, therapeutic uses, interactions, and side & toxic effects associated with antimicrobial agents.
   e. Describe the nursing assessment and interventions for the common side effects associated with antimicrobial agents: allergic reaction; direct tissue damage from nephrotoxicity, ototoxicity, or hepatotoxicity; secondary infection; and other considerations such as photosensitivity, peripheral neuropathy, and neuromuscular blockage.

2. Antiviral agents
   a. Discuss the effects of viruses on the human body
   b. Discuss the indications, contraindications, cautions, routes, mechanisms of action, side effects, toxicity & therapeutic effects related to antiviral agents.
   c. Identify the various antiviral agents and their specific indications.

3. Antitubercular agents
   a. Identify the various first and second line agents used for the treatment of tuberculosis.
   b. Discuss the mechanisms of action, dosages, and side effects, indications for treatment, cautions, contraindications & drug interactions associated with the various antitubercular agents.
   c. Discuss teaching guide for patients receiving any of the antitubercular agents.

4. Antifungal agents
   a. Identify the various antifungal medications.
   b. Describe the mechanisms of action, indications, contraindications, routes of administration, side and toxic effects, & the drug interactions associated with the use of antifungal agents.
   c. List educational guidelines for patients receiving antifungal medications.

5. Antimalarial, antiprotozoal, & antihelmintic agents
   a. Identify the various antimalarial, antiprotozal, & antihelmintic agents.
   b. Identify the signs of malaria, protozoal & helminthic infections.
   c. Discuss the mechanisms of actions, indications, cautions, contraindications, side effects & routes of administration associated with each antimalarial, antihelmintic & antiprotozoal agent.
d. List nursing interventions for patients receiving antimalarial, antiprotozoal, & antihelmintic agents for various infestations.

6. Antiinflammatory, antirheumatoid & related agents
   a. Describe how nonsteroidal antiinflammatory (NSAIDS) and other antiinflammatory agents exert their mechanism of action
   b. List the various NSAIDS, antigout agents & antiarthritic agents.
   c. Discuss the mechanisms of action, indications, side effects, dosage ranges, cautions, contraindications & drug interactions associated with the use of NSAIDS, antigout agents, & antiarthritic agents.

7. Antiseptic & disinfectant agents
   a. Identify the differences between antiseptics and disinfectants.
   b. Identify the most commonly used & prescribed disinfectants & antiseptics.

Ophthalmic (Eye) & Otic (Ear) Agents Objectives:

1. Ophthalmic agents
   a. Discuss the anatomy and physiology of the structure of the eye.
   b. Explain the baseline data that should be gathered when an eye disorder exists.
   c. Discuss the mechanism of action, cautions, side effects and contraindications of ophthalmic preparations and associated nursing implications.
   d. Describe the procedure for instilling eye drops or eye ointments.
   e. Discuss teaching guide for patients receiving ophthalmic agents.

2. Otic agents
   a. List the various types of otic preparations.
   b. Discuss the mechanisms of action, dosage, cautions, contraindications & specific application techniques related to otic agents.
   c. Discuss teaching guide for patients receiving otic agents.

Immune & Biologic Modifiers and Chemotherapeutic Agents Objectives:

1. Antiinflammatory and Immune System Response
   a. Discuss the inflammatory response.
   b. Identify the major components of the immune system.
   c. Discuss the organs and cells of the immune system.
   d. Differentiate between active and passive immunity.
   e. Differentiate the drugs most often used to stimulate the immune system from those used to suppress the immune system.

2. Immunostimulant agents
   a. Compare the mechanisms of action, indications for use, cautions, contraindications, side effects, and routes of administration for various toxoids and vaccines.
   b. Discuss teaching guide for patients receiving immunostimulant agents.
3. Immunosuppressant agents
   a. Discuss the role of immunosuppressive therapy in the treatment of autoimmune diseases
   b. Discuss the mechanisms of action, contraindications, cautions, side effects, and toxicity associated with the most commonly used immunosuppressive agents.
   c. Discuss teaching guide for patients receiving immunosuppressant agents

4. Biologic Response Modifiers
   a. List the side effects, adverse reactions, and toxic effects associated with the biologic response modifiers.
   b. Discuss the use of biologic response modifiers in the treatment of neoplasms.
   c. Discuss the mechanisms of action, cautions, contraindications, routes of administration and drug interactions associated with biologic response modifiers.
   d. Discuss teaching guide for patient’s biologic response modifiers.

5. Antineoplastic agents
   a. Discuss the purpose of antineoplastic agents in the treatment of cancer.
   b. Classify antineoplastic agents and monoclonal antibodies by their mechanisms of action.
   c. Explain the normal cycle for cell replication and describe the effects of cell cycle-specific and cell cycle-nonspecific drugs with in this process.
   d. State the rationale for giving chemotherapeutic drugs on a precise time schedule.
   e. List the common side effects of and toxic reactions to antineoplastic agents and monoclonal antibodies.
   f. Discuss the mechanisms of action, cautions, contraindications, routes of administration, and drug interactions associated with the use of all classes of antineoplastic agents and the monoclonal antibodies.
   g. Discuss the nursing assessments and interventions needed for persons experiencing adverse effects from chemotherapy.
   h. Discuss teaching guidelines for patients receiving antineoplastic agents.
RNSG 1301: PHARMACOLOGY AND THE NURSING PROCESS
SCANS AREAS OF COMPETENCY

The U.S. department of Labor Secretary’s Commission on Achieving Necessary Skills (SCANS) to enter the workplace has determined that a total of 43 competencies must be addressed and method(s) of determining competency listed:

Three Competencies have been assigned to RNSG 1301:

Use information skills to process computerized information.
Obtain data regarding pharmacological agents, drug interactions, and new drugs and demonstrate the ability to compute dosages and delivery of medications. This will be accomplished with a hand-written medication drug calculation test along with math problems on computerized examinations.

Enhance basic skills: demonstrate arithmetic skill.
This will be accomplished with a hand-written medication drug calculation test along with math problems on computerized examinations.

Enhance basic skills: demonstrate mathematic skill.
This will be accomplished with a hand-written medication drug calculation test along with math problems on computerized examinations.
RNSG 1301 – SPRING 2012
PHARMACOLOGY
COURSE EXPECTATIONS CONTRACTUAL AGREEMENT

I, ________________________________ , have read the syllabus and fully understand the expectations of me as a student in this course.

I acknowledge that I am aware that the A.D.N. Student Handbook is on the RNSG 1301 website and I am accountable for following the policies and procedures discussed in the handbook.

I acknowledge that I am aware that the course syllabus is on the RNSG 1301 website and I am accountable for following the policies and procedures discussed in the syllabus.

In addition, I agree to neither give nor receive any information about test content in this course.

My signature below signifies my willingness to comply with the course requirements.

_________________________________________
Printed Name

_________________________________________
Phone Number

_________________________________________
Email Address

_________________________________________
Signature

_________________________________________
Date