College of Technology Practical Nursing Program

NUR 154 Course Syllabus Fall 2005

Course Name and Title: Pharmacology I

Date Revised: August 15, 2005

Semester Credits: 2

Course hours per week: Monday & Tues. 1 hr. lecture = 2 hrs. per week

Co-requisite Courses:

NUR 151, NUR 152 (195), 155

Instructor:

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Stranahan Bld. – Rm. 155 Office Hours: by appointment

Course Description:

This lecture course provides a background in the fundamental principles of pharmacology and medication administration as one means to meet human needs. Identification of broad medication categories, the prototype approach, is emphasized. Pharmacologic actions, uses, nursing implications, and client teaching for medications listed on the course outline are addressed within the context of the nursing process.

Course Objectives: At the completion of NUR 154, the student will:

1. Explain the role of the practical nurse in administration of medications, including legal considerations and ethical concerns.
2. Solve drug dosage problems accurately on examinations, using ratio and proportion method or formula of choice.
3. Discuss the basic pharmacological principles of absorption, distribution, metabolism, and excretion and identify developmental factors of the pediatric and geriatric client requiring adaptations.
4. On written examination, relate the components of the nursing process to the administration of medications.
5. Identify (for each drug type/prototype):
    a. Classification
    b. Action
    c. Use
    d. Route of administration

   e. Nursing implications
   f. Considerations for geriatric and pediatric clients
   g. Client teaching
6. Spell and define medical terminology for each unit in the course.

Methods of Instruction:

1. Lecture
2. Group discussion
3. Selected reading references
4. Study guides
5. Audio-visual materials

Methods of Evaluation:

1. Unit exams - 80%
2. Final exam - 20%

Attendance Policy: Regular attendance is expected. Lack of attendance will adversely affect final grades. A student may miss up to three class days without penalty, but the fourth absence, and each absence thereafter will result in a loss of one full letter grade to the final course grade. If a student misses a class or lab, it is the student's responsibility to make up for the absence.
Tests are to be taken on the day they are scheduled. Makeup tests will be taken on the first day the student returns to class. All makeup tests will automatically have a 10% reduction in score unless the student has contacted the instructor before the next class period and received approval for the absence.

Disability Statement: Eligible students with disabilities will receive appropriate accommodations in this course when requested in a timely way. Please speak with me after class or in my office. Please be prepared to provide a letter from your DSS Coordinator. For students planning to request testing accommodations, be sure to bring the form to me in advance of the two-day deadline for scheduling in the ASC.

Required Textbooks:

Title: Basic Pharmacology for Nurses
Author: Clayton & Stock
Publisher: Mosby

Title: Student Work Manual, (for Basic Pharmacology) Author: Clayton & Stock
Publisher: Mosby

Recommended Textbooks:

Medical Dictionary of choice Nursing Drug handbook of choice

Course Outline:

Unit 1 - Foundations of Pharmacology (Chapts. 1, 2, 3)
Unit 2 - Analgesic, Musculoskeletal, and Antiarthritis Medications (Chapt. 44 & 20)
Unit 3 - Anti-infective Medications, Antivirals, Antiretrovirals, and Antifungal Medications (pgs. 634-46 + Table 45-5 C/S)
Unit 4 - A. - Gastrointestinal (oral) Medications (31, 32, & 47 – 701- garlic), B. – GI – con't. (Chapt. 33, 34 [to constipation/diarrhea], & 47 – pgs. 707-14)
Unit 5 - Medications for Diabetes (Chapt. 35 – C/S)
Unit 6 - Medications Used to Treat Genitourinary System {Electrolytes} (Chapt. 27 & 20 [minus ASA & NSAID]
Unit 7 - Treatments of the Integumentary System (Chapt. 8 & review 45)
Unit 8 - Hormones and Steroids (Chapt. 35 [review], 37, & 36)

Unit I – Foundations of Pharmacology

Central Objectives: The learners will express understanding of pharmacology, therapeutic treatments, regulatory agencies, standards in medication administration, and be able to access appropriate reference and resource materials [e.g., PDR]. The learner will be able to identify five principles of drug action and describe the appropriate nursing actions related to these principles. Each learner will express understanding of the components of pharmacology and know related terminology. The student will demonstrate understanding of pharmacology across the life span.

1. Identify five basic principles of drug action.
2. Explain nursing assessments necessary to evaluate potential problems associated with the absorption of medications.
3. Describe nursing interventions that can enhance drug absorption.
4. List three categories of drug administration and state the routes of administration for each category.
5. Differentiate between general and selective drug distribution mechanisms.
6. Name the process that inactivates drugs.
7. Identify the meaning and significance to the nurse of the term half-life when used in relation to drug therapy.

Readings: Clayton & Stock – Chapts. 1-3 Unit terminology

Unit 2 - Analgesics, Musculoskeletal, & Arthritis Medication

Central Objective: Utilizing the nursing process, examine drugs which meet the needs of individuals who are experiencing compromised functioning of the musculoskeletal system. Describe the uses and nursing implications of narcotic and non-narcotic analgesics as adjunctive therapy in treating pain.
At the completion of this unit the student will:

1. List medications commonly used for the treatment of minor musculoskeletal pain and inflammation.

2. Evaluate different forms of narcotics and narcotic agonist – antagonists in their ability to control pain.
3. Identify the appropriate usage for musculoskeletal relaxants.
4. Explain the mechanism of action of antiarthritis medications.
5. Describe the clinical situations in which uricosuric therapy may be indicated.
6. Compare the actions of various anti-inflammatory and muscle relaxant agents.
7. Describe adverse reactions frequently found in use of antiarthiritis medications, and nursing actions to minimize them.
8. Develop patient teaching plans for patients with musculoskeletal disorders who are taking medications.
9. Explain when naloxone can be used effectively to treat respiratory depression.
10. State the three pharmacologic effects of salicylates.
11. Prepare a list of side effects to expect, side effects to report, and drug interactions that are associated with salicylates.
12. Explain why synthetic nonopiate analgesics are not used for inflammatory disorders.
13. Prepare a patient education plan for a person being discharged with a continuing perscrip.
14. Examine Table 20-5 and identify the active ingredients in commonly prescribed analgesic combination products. List products containing aspirin and compare the analgesic properties of agents available in different strengths.

Reading: Chapter 44 & 20 [ASA & NSAID]) – Clayton & Stock

Unit 3 – Anti-Infective Agents – Antibiotics, Antivirals, Antiretrovirals, & Antifungal

Central Objective: Describe the actions and uses of various classes of anti-infectives and the nursing implications to be considered when administering each.

At the completion of this unit the student will:

1. Identify the major categories of drugs used as antiinfective agents and the organisms against which they are effective.
2. Define “spectrum” and name examples of how it is used in antiinfective therapy.
3. List some of the common adverse reactions to medications used to treat infections.
4. Discuss assessments and nursing implications associated with the administration of antiinfective agents.
5. Develop a teaching plan for patients taking antiinfective medications.
6. Explain the principles behind the use of antiviral and antiretroviral medications.
7. Describe common medications used in treating AIDS and AIDS-related fungal infections.
8. Discuss the adverse effects and nursing implications when administering an antiviral or antifungal drug.
9. Identify significant data in a patient history that could alert the medical team that a patient is more likely to experience an allergic reaction.
10. Identify baseline data the nurse should collect on a continual basis for comparison and evaluation of antimicrobial drug effectiveness.

11. Describe basic principles of patient care that can be implemented to enhance an individual's therapeutic response during an infection.
12. Identify criteria used to select an effective antimicrobial agent.
13. Differentiate between gram-negative and gram-positive microorganisms and between anaerobic and aerobic properties of microorganisms.
14. Explain the major actions and effects of drugs used to treat infectious diseases.
15. Describe the nursing assessments 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.
16. Review parenteral administration techniques and the procedure for vaginal insertion of drugs.
17. Develop an education plan for patients receiving aminoglycosides; carbapenems, cephalosporins; penicillins; quinolones; streptogramins; sulfonamides; tetracyclines; and antitubercular, antifungal, and antiviral agents.
18. Outline Standard Precautions the nurse takes in limiting exposure to AIDS.

Read: pgs. 634-46 + Table 45-5 Clayton & Stock

Unit 4 - Gastrointestinal Medications

Central Objective: Discuss drugs that affect gastrointestinal functioning, their uses, actions, and nursing considerations of each.

At the completion of this unit the student will:

1. Identify uses for antacids and histamine H2 antagonists.
2. Compare and contrast the actions of anticholinergic and antispasmodic medications on the gastrointestinal (GI) tract.
3. Compare the action and adverse reactions of the five major classifications of laxatives.
4. Identify indications for use of at least two common antidiarrheals, antiflatulents, digestive enzymes, and emetics.
5. Describe indications for disulfiram use and what is meant by "disulfiram reaction."
6. Discuss the nursing implications including pre-administration and ongoing assessment and patient teaching to be considered when administering a gastrointestinal drug.

Read: Chapts. [A]. 31, 32, & 47 – garlic – then – [B]. 33, 34, & 47 – pgs. 707-714

Unit 5 – Medications for Diabetes

Central Objectives: The learner will demonstrate understanding of the factors related to the incidence of Type I DM and hypoglycemia. They will express an understanding of the modalities used in the treatment of DM.

1. State the current definition of diabetes mellitus.
2. Identify the incidence of the disease in the United States.

3. Describe the current classification system for diabetes mellitus.
4. Differentiate between the symptoms of type 1 (formerly IDDM) and type 2 (formerly NIDDM) diabetes mellitus.
5. Identify the objectives of dietary control of diabetes mellitus.

Read: Chapt. 35 Clayton & Stock

Unit 6 – Medications Used to Treat Genitourinary System

Central Objectives: Describe and discuss the solutions used in the management of the body fluids and the electrolytes and electrolyte salts that may be administered to replace those that may be lost by the body. The learner will also demonstrate understanding of

1. Cite nursing assessments used to evaluate a patient's state of hydration.
2. Review possible underlying pathology that may contribute to the development of excess fluid volume in the body.
3. State which electrolytes may be altered by diuretic therapy.
4. Cite nursing assessments used to evaluate renal function.
5. Identify the effects of diuretics on blood pressure, electrolytes, and diabetic or prediabetic patients.
6. Review the signs and symptoms of electrolyte imbalance and normal laboratory values of potassium, sodium, and chloride.
7. Identify the action of diuretics.

Unit 7 – Treatments of the Integumentary System

Central Objectives: The learner will demonstrate understanding of the principles of topical treatment – modalities of percutaneous administration. Utilizing the nursing process, examine drugs which meet the needs of individuals who are experiencing compromised function due to skin disorders.

1. Describe the topical forms of medications used on the skin.
2. Cite the equipment needed and techniques used to apply each of the topical forms of medications to the skin surface.
3. The types, uses, general actions, adverse reactions and nursing management of:
    a. Scabicides and pediculocides
    b. Topical anti-infectives.
    c. Topical corticosteroids.
    d. Topical local anesthetics.
    e. Wet dressings and soaks.
    f. Emollients.
    g. Antiviral agents.
    h. Topical antipsoriatics.
    i. Acne products
    j. Topical antiseborrheic products.

k. Burn preparations.
l. Cauterizing agents.

4. Pre-administration and ongoing assessment of patients receiving a skin disorder medication.
5. Nursing diagnoses particular to a patient using a skin disorder medication.
6. Patient teaching regarding medications to treat skin disorders.
7. Specific administration techniques for topical products.

Read: Chapt. 8 Clayton & Stock + review Chapt. 45 [anti-infectives]

Unit 8 – Treatment of Endocrine Disorders

Central Objective: Discuss the basic principles of the endocrine system and its hormones; and the uses of the natural and synthetic hormones, their action, and the nursing implications of each in treating disorders of the endocrine system.

At the completion of this unit the student will:

1. Describe the use of antidiabetic medications.
2. Discuss the uses, adverse reactions and nursing implications of antidiabetic medications.
3. Compare and contrast the hormones produced by the pituitary gland and the adrenal cortex, including their functions.
4. Identify preparations that act on the uterus.
5. Describe at least five adverse reactions that may result from the use of glucocortical and mineralcortical steroids.
6. Compare the actions of various male and female hormones.
7. Discuss the uses, adverse reactions and nursing implications of the male and female hormones.
8. List the indications for the use of thyroid preparations.
9. Discuss the uses, adverse reactions and nursing implications of thyroid preparations.

Read: Chapts. 35 [review], 37, & 36 Clayton & Stock