I. GENERAL INFORMATION

Course Title: Pharmacology Aspects in Nursing
Number and Code: NURS 1130
Credits: 3
Academic term: 
Professor: 
Office hours: 
Office Telephone: (787) 250-1912 ext. 2159, 2202
Email: 

II. COURSE DESCRIPTION

Discussion of relevant aspects of the study of the pharmacology including the biochemical, physiological, research and legal aspects. Use of the principles and skills of posology. Application of the nursing process in medication administration. Requires 45 hours of lecture and 30 hours of open presentational lab. Corequisite: NURS 1111.

III. TERMINAL OBJECTIVES

At the end of the course the students will be able to:

1. Discuss the general concepts of pharmacology and its implications for the practice of nursing safe and efficient. Use principles and skills of the dosage for the administration of medications safely and efficiently (Safety).

2. Use the principles and skills of dosage calculations for a safe and efficient administration of medications. (Safety).

3. Apply the nursing process with a focus humanist in the safe administration of medications whereas their needs, values, preferences and cultural beliefs. (Humanist care)

4. Administration of drugs taking into considerations patient’s needs, values, beliefs and cultural preferences. (Cultural)

5. Effectively use verbal and non-verbal communication including information technology skills to support quality care to the patient/client and among the interdisciplinary team. (TEAM STEPS).

6. Apply evidence-based knowledge in the decision-making process in administration in medication, when providing nursing care to the patient/client and family. Apply knowledge based on evidence for the process of decision-making in the administration of drugs when it offers nursing care to patient/client and family. (Research)
SPECIAL NOTE: GRADUATE COMPETENCIES OF THE PROFILE OF THE GRADUATE, WHICH RESPONDS TO THIS COURSE:

The health-related professions require a multitude of knowledge and skills to do their job with excellence. The calculation of drug dosage and knowledge about the various drugs and their action is core knowledge within the functions of the nurse. It is necessary to have a broad knowledge about the techniques of drug administration and their action on the client system. The professional nurse has the ethical and legal responsibility to have solid knowledge in this area.

1. Apply critical thinking skills while providing direct care, basic, safe, cash, time, equitable, patients/clients to engage in the use of the (process of nursing).

2. Decision-making offers and focused patient – centered care to patient’s clients considering their needs, values, preferences, and cultural beliefs. (Humanistic care)

3. Demonstrates competence in therapeutic interventions based on guided by the college of nursing evidence-based interventions as guided by the nursing faculty, and providing care to the adult for the maintenance and restoration of health structured scenarios while giving nursing care to adults for the promotion, maintenance, and restoration of health in structured settings scenarios. (Health disease)

4. It starts in the use of effective verbal and non-verbal communication including skills of information technology to support quality care to patient/client and work in team. (Communication)

5. Apply evidence-based knowledge for decision-making processes as guided by the nursing faculty when offering nursing care to adult’s patients/clients within the contexts of their family. (Research: evidence-based practice)

IV. PHARMACOLOGY CONTENT

A. GENERAL CONCEPTS OF PHARMACOLOGY
   1. Background History of Pharmacology
   2. Definition of terms
      a. Pharmacology
      b. Therapeutics
      c. Pharmacotherapy
      d. Drugs
      e. Medication
      f. Biologics complementary and alternative therapies
      g. “Over the counter” medication (OTC medication)
   3. Cultural Aspects
      a. Complementary and alternative concepts
   4. Drug regulation
      a. Formats and Formulary
      b. Pharmacopeia
      c. Regulatory Acts
      e. FDA: Food and Drug Administration
      f. Drug approval process
5. Drug categories
   a. Therapeutic classification
   b. Pharmacological classification

6. Drug Names
   a. Chemical
   b. Generic
   c. Trade/Commercial
   d. Generic equivalent
   e. Bioavailability of the drug

7. U.S. Controlled Substance Act of 1970
   a. Purpose
   b. Schedule
   c. DEA role

8. Health effect of biological and chemical agents
   a. Bioterrorism
   b. Potential chemicals and biological agents
   c. Role of nursing in emergency preparedness
   d. Strategic National Stockpile

9. Pharmacokinetics
   a. Definitions
   b. Transport of drugs
      i. Diffusion or passive transport
      ii. Active Transport
   c. Categories and factors that affect pharmacokinetics
      i. Absorption
      ii. Distribution
      iii. Biotransformation
      iv. Elimination
   d. Therapeutic response
      i. Plasma drug levels
      ii. Duration of action
      iii. Loading and maintenance doses

10. Pharmacodynamics
    a. Definition
    b. Therapeutic index and drug safety
    c. Response and therapeutic relationship
    d. Potency and Efficacy
    e. Cell receptors
    f. Factors that alter or interfere with the action of medications
       i. Age
       ii. Physical factors
       iii. Pathological factors
       iv. Time and route of administration
11. Medication reactions
   a. Agonist and Antagonist
   b. Secondary effect
   c. Adverse reactions
   d. Tolerance and dependence
   e. Cumulative effect
   f. Iatrogenic reaction
   g. Allergic reaction
   h. Incompatibility
   i. Chain reaction
   j. Toxicity
   k. Teratogenic
   l. Carcinogenic
   m. Idiosyncratic reaction

B. NURSING PROCESS IN SAFETY MEDICATION ADMINISTRATION

1. Role and responsibility of the nurse in the administration of medications
2. The ten rights and the impact on safety medication administration
3. Assessment
   a. Medication history
   b. Allergies
   c. Medication reconciliation
   d. Diet
   e. Mental & physical condition
   f. Stage of growth & development
   g. Attitudes & needs
4. Nursing Diagnosis- NANDA
5. Planning
   a. Goals & objectives in medication therapy (NOC)
   b. JACHO Patient Safety Goals (2009)
6. Intervention
   a. Transcribing medical orders (NIC- 8060)
   b. Medication management (NIC-2380)
      i. Correct drug
      ii. Abbreviations
      iii. Aseptic techniques
      iv. Universal precautions
   c. Documentation in Kardex
   d. Five- corrects" and ten golden rules of administration
   e. Ethical-legal (cultural) aspect
      i. Rights of the client
      ii. Prevention of errors
      iii. Drug reconciliation
   f. Family and patient education
   g. Medication administration
i. Oral (NIC 2308)
   ii. Topical
      a. Ear (NIC-2308)
      b. Eye (NIC-2310)
      c. Inhalation (NIC-2311)
      d. Nasal (NIC-2320)
      e. Rectal (NIC-2315)
      f. Skin (NIC-2316)
      g. Vaginal (NIC-2318)
   iii. Parenteral
      a. Intradermal (NIC-2312)
      b. Subcutaneous (NIC-2317)
      c. Intramuscular (NIC-2313)
      d. Intravenous (NIC 2314)
   h. Special considerations
      i. Geriatric
      ii. Pediatric
      iii. Cultural Awareness
      iv. Ethno pharmacology

7. Evaluation
   a. Therapeutic effect
   b. Secondary effect
   c. Adverse effect

C. HERBAL THERAPY
   1. Characteristics
   2. Types of supplements
   3. Regulations
   4. Pharmacological actions and safety of herbal products.

D. MEDICATION ERROR PREVENTION
   2. Definition of medication error
   3. Factors that contribute to medication errors
   4. Impact of medication errors
   5. Strategies for reducing medication errors
      a. Communication
      b. Team STEPPS – “close monitoring”
      c. Identification of high alert medications
      d. “Look alike” and “sound alike” medications

E. IMPORTANCE OF NURSING RESEARCH IN PHARMACOLOGY

THERAPEUTIC CATEGORIES OF THE FUNCTIONAL HEALTH PATTERNS

1. Nutritional-metabolic health pattern
   a. Antiemetic’s
   b. Vitamins
   c. Antacids
   d. Hypoglycemics
2. Elimination pattern
   a. Laxatives
   b. Antidiarrheal
   c. Diuretics

3. Perception-Management health pattern
   a. Diuretics
   b. Antivirals
   c. Antibiotics

4. Cognitive-perceptive pattern
   a. Analgesics
   b. Anesthetics
   c. Antipyretics
   d. Narcotics
   e. Tranquilizers

5. Activity-exercise health pattern
   a. Anti-inflammatory
   b. Antihypertensive
   c. Cardiovascular medication
   d. Anticoagulants
   e. Thrombolytic
   f. Bronchodilators
   g. Expectorants
   h. Decongestant
   i. Antitussive
   j. Antihistamine

V. POSOLOGY CONTENT

A. PRINCIPLES AND SKILLS OF DRUG ADMINISTRATION AND POSOLOGY

1. Interpreting the language of Prescription
2. Drug labels and Packaging
3. Systems of Measurement
4. Drug Preparations and Equipment to Measure Doses
5. Oral and Topical Medications
   a. Calculation of Solids and Liquids
   b. Oral, Skin and Mucous Membrane Route of Administration
6. Parenteral route
   a. Liquids for Injections
   b. Parenteral route & administrating injections
7. Intravenous drip
   a. Calculation of basic IV drip rates
   b. Special Types of Intravenous Calculation
8. Transcription and documentation of medication administration
VI. ACTIVITIES

a. Interactive Lectures
b. Small and large group discussions
c. Assignments on line (Blackboard)
d. Study guides on line (Blackboard)
e. Assigned lectures
f. Independent study
g. Skills laboratory (videos and discussion of modules, simulations practice)
h. ATI Tests
i. News articles discussion

VI. EVALUATION

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VII. SPECIAL NOTES

A. Supporting Services or Special Needs

Students requiring additional services or special assistance must request these at the beginning of the course or as soon as they learn that they need them, through the appropriate register in the office of Mr. Jose Rodriguez, at the University Orientation Program located at the first floor of Harris Building.

B. Honesty, Fraud and Plagiarism

The lack of honesty, fraud, plagiarism and any other inadequate behavior in relation to academic work constitute major infractions sanctioned by General Student Regulations. Major infractions, according to General Regulation Students, may result in suspension from the University for a definite period of time greater than one year or the permanent expulsion from the University, among others sanctions.

C. Use of Electronic Devices

Cellular (mobile) telephones, IPODS, and any other electronic device that could interrupt the teaching-learning process or disrupt a milieu favorable for academic excellence will be deactivated. Critical situations will be dealt with in an appropriate manner. The use of electronic devices that permit the accessing, storing or sending of data during tests or examinations is prohibited.

D. Special Requirements of Practice and Internship Centers
Some academic programs of the University require students to complete a practice or internship in a real work scenario as part of the degree requirements. These external centers may be state and federal agencies, hospitals, and nongovernmental organizations, among others. It is students' responsibility to comply with the external center's requirements in order to complete their practice or internship. Depending on the practice center, these requirements may be doping tests, HIV tests, an immunization certificate against hepatitis, a health certificate, a negative criminal record, or any other requirement that the institution or practice center may stipulate. If students refuse or are not able to meet any of the requirements, they will be unable to complete their practice or internship and, therefore, will not pass the practice or internship course or meet the graduation requirements of their academic program.

VII. Educational Resources

COURSE TEXT


VII. BIBLIOGRAPHY


Módulos


WEB SITES

*Food and Drug Administration.*

[www.fda.org](http://www.fda.org)

*Institute for Medication Practice.*

[www.ismp.org](http://www.ismp.org)
U.S. Pharmacopeia.
www.usp.org

Think Cultural Health: Bridging the Health Care Gap through Cultural Competency Continuing Education Programs
www.thinkculturalhealth.org/

Evidence-based care tutorial
http://www.biomed.lib.umn.edu/learn/ebp/mod01/why.html

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