

SYLLABUS

TITLE:	Pharmacology
COURSE CODE:	ENF 231
PREREQUISITE:	
On-site Education:	QUI 118
Distance Education:	QUI 118, BIO 102
COREQUISITE:	
On-site Education:	None
Distance Education:	ENF 101 or ENF 102
CREDITS:	Three (3) credits: 45 hours of theory and 30 hours of skills laboratory

DESCRIPTION

This course includes the integration of fundamental knowledge about the history, safety, principles, and the ethical, legal, moral, social, cultural, and spiritual aspects of pharmacology. It provides knowledge about drug indications, effects, and pharmacodynamics during the growth and development stages of the individual. Emphasizes the nursing process practice when preparing and administering medications through different systems according to the category, to promote the individual's adaptation through the practice and procedures of these skills.

JUSTIFICATION

One of the ways medical treatment can be provided is by the use of medications, and it is the nursing professional key responsibility to administer them. Trends in health care and public concern about the effect of medications on humans have contributed to an increase of knowing about the nursing professional's responsibility on every aspect of therapeutic drug use.

Currently, the nursing professional is more in contact with patients in hospitals and care centers, therefore, he or she has greater responsibility in assessing the therapeutic effects, reactions, and interactions of medications. This responsibility of the nursing professional can only be carried out by having an evidence-based body of knowledge in pharmacology.

COMPETENCIES, LEVEL II

At the end of the course, the student will be able to:

1. Consider the elements that contribute to provide safe nursing care during medication administration. *Ess. II*
2. Identify quality improvement strategies when administering medications to prevent mistakes and offer a safe care. *Ess. II*
3. Identify research that promotes the best practices in the pharmacological management of nursing. *Ess. III*
4. Recognize the role of technology and information management in improving customer care outcomes. *Ess. IV*
5. Distinguish health care policies and their influence on the pharmacological management of nursing. *Ess. V*
6. Discuss the importance of interprofessional communication and collaboration when carrying out therapeutic pharmacological treatments to the client. *Ess. VI*
7. Apply basic knowledge of policies on health care, financial, and environmental regulations, including ethical and legal framework, relevant to pharmacotherapy to ensure quality care for the client. *Ess. V*
8. Use therapeutic communication and interpersonal relationships skills when administering medications to preserve and maintain the individual's health throughout the life cycle. *Ess. VI*
9. Identify protective and risk factors, health-illness beliefs, values, attitudes, and practices that influence health when administering medications to the client. *Ess. VII*
10. Identify holistic, client-centered care that shows an understanding of pharmacology, culture, spirituality, client preferences, and nursing management. *Ess. IX*

PROFESSIONAL GUIDES AND STANDARDS

The curriculum is based on the following documents, which are available on the Web under the different organizations:

American Association of Colleges of Nursing (2008). *The Essentials of Baccalaureate Education for Professional Nursing Practice* Washington, DC: Author.

American Nurses Association (2017). *Guide to the Code of Ethics for Nurses with Interpretive Statements* Washington, DC: Author.

American Nurses Association (2015). *Nursing: Scope and Standards of Practice (3rd ed.)*. Washington, DC: Author.

American Nurses Association (2015). *Nursing's Social Policy Statement: The Essence of the Profession (3rd ed.)*. Washington, DC: Author.

Colegio de Profesionales de la Enfermería en Puerto Rico (2018). *Estándares de Práctica de la enfermería en P.R* [Nursing Practice Standards in P.R.] San Juan, P.R. Author.

Colegio de Profesionales de la Enfermería en Puerto Rico (2008). *Código de ética* [Code of ethics] San Juan, P.R. Author.

Department of Health and Human Services: *Institutional Review Boards and the HIPAA Privacy Rule Information for Researches*, Review on July 10, 2017. Retrieved September 17, 2018 from <https://www.hhs.gov/hipaa/index.html>

CONTENT

I. Nursing process applied to pharmacology during the life cycle

A. Evolution of pharmacology

1. Definition of terms
2. Historical trends
 - a. Nursing Roles
 - b. New Nursing Roles
 - 1) Information technology in nursing
 - c. Nursing Role in Drug Research:
 - 1) Relevance of EBP in pharmacotherapy
 - 2) Steps to retrieve EBP articles
 - 3) Incorporate EBP in pharmacotherapy practice

B. Drug Action:

1. Action mechanisms:
 - a. Pharmaceutical phase
 - b. Pharmacokinetic phase
 - 1) Absorption
 - 2) Distribution
 - 3) Biotransformation
 - 4) Elimination
 - c. Pharmacodynamic phase
 - 1) Drug effects
 - a) Therapeutic
 - b) Secondary
 - c) Adverse
 - d) Toxic

- 2) Concepts related to pharmacodynamics
 - a) Levels
 - b) Therapeutic index
 - c) Peak
 - d) Area under the curve (AUC)
 - e) Biological half-life
 - f) Initial loading dose
- 2. Drug interaction
 - a. Pharmacokinetics
 - b. Pharmacodynamics
 - c. Foods
- 3. Self-medication
 - a. Nonprescription drugs (OTC)
 - b. Herbal therapy
 - c. Nursing Implications
- 4. Palliative care
- 5. Drug sources
- 6. Drug names
- 7. Physical drug disposition
- 8. Drug indications
- C. Pharmacotherapy in the adaptation process of the individual during the life cycle
 - 1. Drug action
 - a. Pediatrics
 - 1) Pharmacokinetics
 - 2) Pharmacodynamics
 - b. Geriatrics
 - 1) Pharmacokinetics
 - 2) Pharmacodynamics
 - 2. Nursing process when administering medications in pediatrics and geriatrics
- D. Nursing process for drug administration
 - 1. Assessment
 - a. Medical history
 - b. Medical orders
 - c. Prescriptions
 - d. Abbreviations
 - e. Rights
 - f. National safety goals related to drug administration
 - 2. Planning, intervention, and evaluation
 - a. Medication distribution systems
 - b. Electronic records

- 1) Doctor
 - 2) Patient
 - c. Storage
 - d. Principles and guidelines of drug administration
 - e. Administration routes
 - f. Drug administration in community settings
- II. Cultural, ethical, legal, moral, humanistic, and spiritual aspects in drug administration
- A. Drug administration laws and regulations
 - 1. Pure Food and Drug Act
 - 2. Federal Food, Drug, and Cosmetic Act
 - 3. Food and Drug Administration
 - B. Controlled substance laws and regulations
 - C. Nursing implications when administering controlled substances
 - D. Cultural, humanistic, and spiritual aspects in pharmacotherapy
- III. Safety measures when administering medications throughout the life cycle
- A. Drug dosage calculation
 - 1. System of measurement
 - a. Apothecary
 - b. Metric
 - c. Homemade
 - 2. Equivalences
 - B. Medication dose calculations
 - 1. Oral
 - 2. Parenteral
 - a. Injectable
 - b. Intravenous
 - c. Pediatric
- IV. Medications that affect adaptation in health-disease continuum in adaptation modes
- A. Medications that affect neurological function
 - 1. Autonomic nervous system
 - a. Adrenergic
 - b. Adrenergic antagonists
 - c. Cholinergic
 - d. Anticholinergic
 - 2. Neurological and neuromuscular agents
 - a. Central nervous system stimulants
 - 1) Amphetamines

- 2) Anorexic
 - 3) Migraine and headache
- 3. Central nervous system depressants
 - a. Sedatives and hypnotics
 - b. Anesthetics
 - c. Anticonvulsants
 - d. Neurological disorders medications
 - 1) Alzheimer's
 - 2) Parkinson
 - e. Neuromuscular disorders medications
 - 1) Myasthenia gravis
 - 2) Multiple Sclerosis
 - 3) Muscle spasms
- 4. Medications that affect sensory function (pain) and anti-inflammatory
 - a. Anti-inflammatory
 - 1) Steroids
 - 2) Nonsteroidal
 - 3) Anti-rheumatic
 - 4) Antigout
 - b. Non-opioids
 - c. Opiates
 - d. Agonist-antagonist opioid
 - e. Narcotic antagonists
- 5. Medications that affect one's self-concept
 - a. Antipsychotics
 - b. Anxiolytics
 - c. Antidepressants
 - d. Mood stabilizers
- B. Oxygenation-altering medications
 - 1. Antihistamines
 - 2. Decongestants
 - 3. Cough suppressants
 - 4. Expectorants
 - 5. Glucocorticoids
 - 6. Sympathomimetic agents: Alpha and Beta2 adrenergic agonists
 - 7. Xanthines
 - 8. Anticholinergic
 - 9. Leukotriene receptor antagonists
- C. Pharmacological agents that affect circulation
 - 1. Cardiac glycosides

2. Antianginals
 3. Antidysrhythmics
 4. Diuretics
 5. Antihypertensives
 6. Anticoagulants
 7. Thrombolytics
 8. Antiplatelets
 9. Antilipidemics
 10. Peripheral vasodilators
- D. Medications that affect dietary requirements and gastrointestinal elimination
1. Antiemetics
 2. Emetics
 3. Antidiarrheals
 4. Laxatives
 5. Antiulcer agents
 6. Antacids
- E. Medications that affect urinary output
1. Antiseptics, anti-infectives, and antibiotics
 2. Urinary pain relievers
 3. Urinary antispasmodics
 4. Urinary stimulants
- F. Pharmacological agents that affect hormone function
1. Female reproductive system
 2. Male reproductive system
 3. Pituitary gland disorders
 4. Thyroid disorders
 5. Adrenal disorders
 6. Antidiabetics
- G. Medications that affect protection
1. Medications to treat dermatological disorders
 2. Pharmacological agents in the immune system
 - a. Antiretrovirals
 - b. Vaccinations
 - c. Antivirals
 3. Medications used in infectious diseases
 - a. Antibacterial
 - b. Antitubercular
 - c. Antifungal
 4. Medications used in neoplastic diseases
- H. Medications used to replenish fluids, electrolytes, and nutrients

- V. Evidence-based nursing practice in pharmacotherapy
 - A. Definition of concepts of evidence-based practice (EBP)
 - B. Relevance of EBP in pharmacotherapy
 - C. Steps to retrieve EBP articles
 - D. Incorporate EBP into pharmacotherapy practice

METHODOLOGY

ON-SITE EDUCATION

Conference
 Dosing exercises
 Audiovisual aids
 Discussion of EBP articles from databases
 Group discussions
 Supplementary readings
 Written assignments
 Bibliographic records of medications
 Formative discussion of study guides

DISTANCE EDUCATION

Assignments: Study guides, care plan, drug dosing, medication records, and evidence-based practice.
 Forums: Medication discussion
 Supplementary readings and presentations

LEARNING EVALUATION

ON-SITE EDUCATION

Theory		75%
Partial exams	20%	
Study guides and homework (assignments)	15%	
Medication records (assignments)	10%	
Oral presentations (EBP or forums)	5%	
Skills laboratory	25%	
Final exam		<u>25%</u>
	Total	100%

DISTANCE EDUCATION

Theory		75%
Partial exams	20%	
Study guides and homework (assignments)	15%	
Medication records (assignments)	10%	
Presentations: EBP and forums	5%	

Skills laboratory
Final exam

25%

Total 25%
100%

LEARNING ASSESSMENT

Study guides discussion
Study guide rubric
Medication card rubric
Evidence-based practice rubric
Concept maps

BIBLIOGRAPHY

TEXTBOOK

McCuistion, L.; Vuljoin-DiMaggio, K.; Winton, M. & Yeager, J. (2018). *Pharmacology: A Patient-Centered Nursing Process Approach* (9th ed.). St. Louis: Elsevier.

Pacheco, R. & Rodríguez, V. (2019). *Manual de Procedimientos de Farmacología*. Santurce: Puerto Rico, Sagrado Corazón.

REFERENCE BOOKS AND ARTICLES

American Association of Colleges of Nursing (2008). *The Essentials of Baccalaureate Education for Professional Nursing Practice*. Washington, DC: Author.

American Nurses Association (2017). *The Guide to the Code of Ethics for Nurses: Interpretation and Application*. Washington, DC Author.

American Nurses Association (2015). *Nursing: Scope and Standards of Practice (2nd ed.)*. Washington, DC Author.

American Nurses Association (2015). *Guide to Nursing's Social Policy Statement: Understanding the Profession from Social Contract to Social Covenant* (4th ed.). Washington, DC Author.

- Boyer, M.J. (2016). *Math for Nurses: A Pocket Guide to Dosage Calculation and Drug Preparation* (9th ed.). Philadelphia: Wolters Kluwer | Lippincott Williams & Wilkins.
- Burchum, J. & Rosenthal L. (2019). *Lehne's Pharmacology for Nursing Care* (10th ed.). St. Louis: Saunders, Elsevier.
- Frandsen, G. & Pennington, & A.; Pennington, S. (2017). *Abrams' Clinical Drug Therapy: Rationales for Nursing Practice* (11th ed.). Philadelphia: Wolters Kluwer | Lippincott Williams & Wilkins.
- Gahart, B., & Nazareno, A. (2018). *2018 Intravenous Medications* (34th ed.). St. Louis: Elsevier Mosby.
- Harvey, M. (2015). *Clinical Calculations Made Easy* (5th ed.). Philadelphia: Wolters Kluwer | Lippincott Williams & Wilkins.
- Karch, A. M. (2016). *Focus on Nursing Pharmacology* (7thed.). Philadelphia: Wolters Kluwer | Lippincott Williams & Wilkins.
- Karch, A. (2019). *Lippincott Nursing Drug Guide*. Philadelphia: Wolters Kluwer | Lippincott Williams & Wilkins.
- Kee, J. L., & Marshall, S. (2017). *Clinical Calculations: With Applications to General and Specialty Areas* (8th ed.). St. Louis: Saunders, Elsevier.
- Lilley, L.; Collins, S.; Harrington, S., & Snyder, J. (2019). *Pharmacology and the Nursing Process* (9th ed.). St. Louis: Mosby
- Lippincott. (2015). *Dosage Calculations Made Incredibly Easy!* (5th ed.). Philadelphia: Wolters Kluwer | Lippincott Williams & Wilkins.
- Lynn, P. (2018). *Taylor's Clinical Nursing Skills: A Nursing Process Approach* (5th Ed.). Philadelphia: Wolters Kluwer | Lippincott | Williams & Wilkins.

Skidmore-Roth, L. (2019). *Mosby's Drug Guide for Nursing Students*. (13th ed.). St. Louis: Mosby.

Skidmore-Roth, L. (2019). *Mosby's 2019 Nursing Drug Reference* (32th ed.). St. Louis: Mosby.

ELECTRONIC RESOURCES

www.ismp.org.
www.centerwatch.com/patient/drugs/druglist.html
www.ahrq.gov/qual/errorsix.htm
www.cdc.gov/
www.cinahl.com
www.fda.gov/
www.fda.gov/medwatch/
www.iom.edu/
www.ahcpr.gov/clinic/cpgonline.htm
<http://evolve.elsevier.com/clayton/>
www.allergic-reactions.com
www.bd.com/
www.osha.gov/SLTC/needlestick/
www.safeneedledisposal.org
www.nursefriendly.com/intravenous/
www.opitsourcebook.com/
www.venousaccess.com/
www.asda.org
www.sleepapnea.org
www.apdaparkinson.com/
www.wemove.org/
www.parkinson.org/
www.adaa.org/
www.nami.org
www.ndnmda.org
www.mentalhelp.net/
www.surgeongeneral.gov/library/mentalhealthy/
www.aesnet.org
www.efa.org
www.epilepsy.org.uk/
www.ninds.nih.gov/health_and_medical/disorders/epilepsy.htm
www.ampainsoc.org
www.painmed.org/
www.americanheart.org
www.aaaai.org/
www.lungusa.org
www.nhlbi.nih.gov/guidelines/asthma
<http://toxnet.nlm.nih.gov>
www.healthfinder.gov

www.rxlist.com/
www.herbs.org
www.drugtopics.com
www.nlm.nih.gov/medlineplus/
www.drugs.com/
www.druginfonet.com/drug/htm
www.safemedication.com
<http://virtualnurse.com>

JOURNALS

Revista Impulso [Impulso Magazine] (College of Nursing Professionals of Puerto Rico)
<http://cpepr.org/revista-impulso>

AJN (American Journal of Nursing)
<http://journals.lww.com/AJNOnline/pages/default.aspx>

Others in CINAHL

Find more information resources related to the course topics on the library page
<http://biblioteca.sagrado.edu/>

REASONABLE ACCOMMODATION

To obtain detailed information on the process and the required documentation, you must visit the corresponding office. To guarantee equal conditions, in compliance with the ADA (1990) and the Rehabilitation Act (1973), as amended, all students who need reasonable accommodation services or special assistance must complete the process established by the Vice Presidency for Academic Affairs.

ACADEMIC INTEGRITY

This policy applies to all students enrolled at Universidad del Sagrado Corazón to take courses with or without academic credit. A lack of academic integrity is any act or omission that does not demonstrate the honesty, transparency, and responsibility that should characterize all academic activity. Any student who fails to comply with the Honesty, Fraud, and Plagiarism Policy is exposed to the following sanctions: receive a grade of zero in the evaluation and/or repetition of the assignment in the seminar, a grade of F (*) in the seminar, suspension, or expulsion as established in the Academic Integrity Policy effective in November 2022.

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