LOS ANGELES COUNTY COLLEGE OF NURSING AND ALLIED HEALTH
School of Nursing

Nursing 231:

NURSING PHARMACOLOGY

Spring 2013

N231: NURSING PHARMACOLOGY
Level II, Semester 3
Thursdays, 0700-0900

WEEK	TOPIC	HOURS	DATE
1	Medications used to Restore Mental Health	2	01/24/13
2	Medications used to Restore Mental Health	2	01/31/13
3	**Quiz #1** Drugs Affecting the Central Nervous System	2	02/07/13
4	Drugs Affecting the Autonomic Nervous System	2	02/14/13
5	**EXAM #1**	1	02/21/13
	Drugs Affecting the Cardiovascular System	1	
6	Drugs Affecting the Cardiovascular System (Cont'd)	2	02/28/13
7	**Quiz #2** Drugs Affecting the Cardiovascular System (Cont'd)	1	03/07/13
	Geropharmacology	1	
8	Drugs Used in Ophthalmic Conditions	2	03/14/13
	Spring Break		03/21/13
9	**FINAL EXAM** Course Evaluations	2	03/28/13

COURSE TITLE:	**N231 Nursing Pharmacology**
PRE-REQUISITES:	Completion of Course Requirements for Semesters 1 and 2.
UNITS:	1 unit
HOURS:	2 hours per week
LENGTH:	9 weeks
PLACEMENT:	Level II: Semester 3
COURSE DESCRIPTION:	This course builds on basic pharmacological principles to develop an understanding of the clinical use of pharmacological agents. This course will provide students with an understanding of pharmacotherapeutics for selected disease states, which can be applied in the clinical setting. Emphasis will be on geropharmacology, psychotropic drugs, cardiovascular drugs, ophthalmic drugs, antiepileptics (antiseizure), drugs affecting the autonomic and central nervous systems.

COURSE OBJECTIVES: Upon satisfactory completion of the course, the student:

1. Applies the nursing process in determining mechanism of action, therapeutic dose, indications, adverse reactions and nursing implications of selected pharmacologic agents in the care of individuals with common health problems.

2. Discusses the legal/ethical implication of drug administration to individuals with common health problems with emphasis on simple variations from wellness.

3. Identifies the educational needs and teaching methodology regarding drugs and the implications for individuals with common health problems.

4. Identifies sociocultural variations of individuals with common health problems in relation to various medications.

STUDENT LEARNING: OUTCOMES: Students competently identify the implementation and integration of pharmaco-therapeutic concepts taking into consideration legal/ethical implications, patient educational needs, and sociocultural variations needed in the safe administration of medication to patients with common health problems in acute, ambulatory care, and psychiatric care settings.

METHOD OF EVALUATION:

Students attain an overall cumulative score of 70% or higher on exams and quizzes indicating attainment of student learning outcome.

Grade is calculated from:

- Two quizzes each consisting of 10 questions worth 5% of the grade for a total of 10%.
- Two exams each consisting of 50 questions worth 45% for a total of 90%.

GRADING SCALE:

The percentage grading scale is used as the method of scoring and determining final grade in course. (See your student handbook on grading policy.)

TEACHING METHODS:

Lecture, discussion, audiovisuals, and reading materials.

REQUIRED READINGS & INSTRUCTIONAL REFERENCES:

Ferraro, C. (2008). A primer for advanced practice acute care and critical care nurses, part II. *AACN Advanced Critical Care*. 19(2), 134-151.

Foley, M. (ed). (1997). *Mastering geriatric care*. Springhouse, PA, Springhouse p. 293-318 (*on reserve in the Library)*

Kee, J.L., Hayes, E., & McCuistion, L.E. (2012). *Pharmacology A nursing process approach (7th ed.).* St. Louis: Elsevier.

Miller, C. (1999). *Nursing care of older adults*. Philadelphia: Lippincott, p 491-525. *(on reserve in the Library).*

Pickar, G. (2008). *Dosage calculations.* (8th ed.). Clifton Park, NY: Thompson Delmar Learning.

Stanley, M. & Beare, P. (1999). *Gerontological nursing*. Philadelphia: F.A. Davis, p 66-72. *(on reserve in the Library)*

Townsend, M.C. (2012). *Psychiatric mental health nursing: Concepts of care in evidence-based practice (7th ed.).* Philadelphia: F.A. Davis.

RECOMMENDED READINGS:

None.

All academic policies are strictly enforced.

Unit Title: Medications Used to Restore Mental Health		
Objectives	**Content Outline**	**Student Activities**
A. Analyzes the implementation of the nursing process in the safe administration of antipsychotics. 1. Discusses the pharmacodynamics/ pharmacokinetics of antipsychotics. 2. Differentiates the different types of antipsychotics. 3. Discusses the adverse reactions to antipsychotics and related management.	A. Antipsychotics 1. Mechanism of action R/T psychopathology Indication for use Contraindications Laboratory testing Adverse effects 2. Types • First generation (typical) - Phenothiazines - Thioxanthenes - Butyrophenone • Atypical antipsychotics (newer) - Geodon - Abilify - Clozapine - Risperidone - Olanzapine • Long-acting antipsychotics - Haloperidol Decanoate - Fluphenazine Decanoate - Risperdal consta 3. Adverse reactions • Acute (EPS) • Long-term tardive dyskinesia • Agranulocytosis • Neuroleptic Malignant Syndrome (NMS)	**<u>Required Reading:</u>** Kee (7th ed.) Chapter 27 • Compete critical thinking case study on page 395.

Unit Title: **Medications Used to Restore Mental Health** (Cont'd)		
Objectives	**Content Outline**	**Student Activities**
	4. Management of adverse reactions • Cogentin - Lorazepam • Propanolol • Dantrolene	
4. Describes the nursing implications in the safe administration of antipsychotics with emphasis on the teaching points.	5. Nursing implications 6. Teaching points	
B. Analyzes the nursing implications in the safe administration of anti-anxiety medications (anxiolytics).	B. Anxiolytics	**<u>Required Reading</u>**
1. Discusses the pharmacodynamics/ pharmacokinetics of anti-anxiety medications.	1. Mechanism of action Indication for use Contraindications Laboratory testing Adverse effects	Kee (7th ed.) Chapter 21, pp 294-301 Complete Critical Thinking Case Study page 306.
2. Lists the different types of anti-anxiety medications.	2. Medications: • Benzodiazepines • Azaspirones • Benzodiazepine antagonist	
3. Describes the relevant nursing implications including teaching points in the administration of anxiolytics.	3. Nursing implications 4. Teaching points	

Unit Title: **Medications Used to Restore Mental Health** (Cont'd)		
Objectives	**Content Outline**	**Student Activities**
C. Analyzes the implementation of the nursing process in the safe administration of antidepressants.	C. Antidepressants	**<u>Required Reading</u>** Kee (7th ed.): Chapter 28
1. Discusses the pharmacodynamics/ pharmacokinetics of antidepressants	1. Mechanism of action Indication for use Contraindications Laboratory testing Adverse effects	Complete Critical Thinking Case Study page 407.
2. Identifies the general classifications of antidepressants	2. Classifications • Tricyclic antidepressants (TCA) • SSRI • NDRI • MAOI • Serotonin antagonists • SNRI	
3. Describes the nursing implications with emphasis on the teaching points in the use of antidepressants	3. Nursing implications 4. Teaching points	

Unit Title: **Medications Used to Restore Mental Health** (Cont'd)		
Objectives	**Content Outline**	**Student Activities**
D. Analyzes the implementation of the nursing process in the safe administration of psychotropic drugs: • Mood stabilizers • Anti-depressants	D. Mood stabilizers	**<u>Required Reading</u>** Kee (7th ed.): Chapter 28 .
1. Discusses the pharmacodynamics/ pharmacokinetics of mood stabilizers.	1. Mechanism of action Indication for use Contraindications Laboratory testing Adverse effects	
2. Identifies commonly used mood stabilizers.	2. Commonly used drugs • Lithium • Anticonvulsants • Antipsychotics • Others - Calcium channel blockers - Antihypertensive (Clonidine)	
3. Discusses the nursing implications with emphasis on the teaching points in the use of mood stabilizers.	3. Nursing implications 4. Teaching points	

Unit Title: Drugs Affecting the Central Nervous System		
Objectives	**Content Outline**	**Student Activities**
A. Utilizes the nursing process in the promotion and maintenance of system stability for individuals receiving pharmacologic agents affecting the CNS: • Anticonvulsants • Anti-Parkinson • Skeletal muscle relaxants • Anesthetics 1. Identifies commonly used anti-seizure drugs.	A. Anticonvulsants 1. Commonly used anti-seizure drugs • Barbiturates - Phenobarbital • Benzodiazepines - Clonazepam (Klonopin) - Diazepam (Valium) - Lorazepam (Ativan) - Clorazepate (Tranxene) • Succinimides - Ethosuximide (Zarontin) - Valporic acid (Depakot) - Methsuximide (Celontin) • Hydantoins - Phenytoin (Dilantin) - Fosphenytoin (Cerebyx) • Iminostilbene - Carbamazepine (Tegretol) - Oxcarbazepine (Trileptal) • Miscellaneous - Levetiracetam (Keppra) - Gabapentin (Neurontin) - Topiramate (Topamax) - Pregabalin (Lyrica)	**Required Reading** Kee (7th ed.): pp. 308-318

Unit Title: **Drugs Affecting the Central Nervous System** (Cont'd)		
Objectives	**Content Outline**	**Student Activities**
2. Discusses the pharmacodynamics/ pharmacokinetics of the commonly used anti-seizure drugs 3. Identifies factors that influence choice of anti-seizure drugs for a particular seizure disorder. 4. Describes the nursing implications including teaching points in the administration of anti-seizure drugs.	2. Mechanism of action Indication for use Contraindications Laboratory testing Adverse effects 3. Factors to consider in choosing an anti-seizure drug. 4. Nursing implications 5. Teaching points	
B. Analyzes the implementation of the nursing process in the promotion and maintenance of system stability for individuals receiving anti-Parkinson drugs. 1. Differentiates dopaminergic drugs from anticholinergic drugs. 2, Identifies commonly used dopaminergic and anticholinergic drugs in Parkinson's disease.	B. Drugs for Degenerative Diseases of the Nervous System 1. Parkinson's disease a. Dopaminergic drugs • Levodopa (L-Dopa) • Carbidopa (Lodosyn) • Amantadine (Symmetrel) • Bromocriptine (Parlodel) • Levodopa + Carbidopa (Sinemet)	**<u>Required Reading:</u>** Kee (7th ed.): Chapter 23, pp. 319-331

Unit Title: **Drugs Affecting the Central Nervous System** (Cont'd)		
Objectives	**Content Outline**	**Student Activities**
3. Discusses the pharmacodynamics/ pharmacokinetics of anticholinergic drugs and dopaminergic drugs in the treatment of Parkinson's disease. 4. Describes nursing implications including teaching points in the administration of dopaminergic and anticholinergic drugs.	b. Anticholinergic drugs • Benztropine (Cogentin) • Biperiden (Akineton) • Procyclidine (Kemadrin) • Trihexyphenidyl (Artane) • Diphenhydramine HCl (Benadryl) • Ethopropazine HCl (Parsidol) c. Adjunctive drugs • Selegiline (Eldepryl) • Rasagiline (Azilect) • Entacapone (Comtan) • Pramipexole (Mirapex) d. Mechanism of action Contraindications Laboratory testing Adverse effects e. Nursing implications f. Teaching points 2. Alzheimer's Disease • Donepezil hydrochloride (Aricept) • Tarcrine (Cognex) • Galantamine (Razadyne/Reminyl) • Memanine (Namenda) • Rivastigmine (Exeleon)	

Unit Title: **Drugs Affecting the Central Nervous System** (Cont'd)		
Objectives	**Content Outline**	**Student Activities**
	3. Alternative and complimentary therapies • Ginkgo Biloba	
C. Analyzes the implementation of the nursing process in the promotion and maintenance of system stability for individuals receiving skeletal muscle relaxants. 1. Identifies common indications for skeletal muscle relaxants 2. Identifies commonly used skeletal muscle relaxants 3. Discusses the pharmacodynamics/ pharmacokinetics of selected commonly used skeletal muscle relaxants. 4. Describes the nursing implications in the safe administration of skeletal muscle relaxants with emphasis on the teaching points. .	C. Drugs for Neuromuscular Disorders 1. Myasthenia Gravis • Neostigmine (Prostigmin) • Pyrudistugmine (Mestinon) • Endrophonium (Tensilon) 2. Multiple Sclerosis a. Immunodulators • Glatiramer acetate (Copazone, copolymer-1) • Interferon beta-1a (Avonex, Rebif) • Interferon beta-1b (betaseron) • Natalizymab (Tysabril) b. Immunosuppressants • Mitoxantrone (Novantrone) 3. Muscle Relaxants • Dantrolene (Dantrium) • Baclofen (Liorsel) • Tizanidine (Zanaflex) 4. Centrally-Acting Skeletal Muscle Relaxants 5. Peripherally-Acting Skeletal Muscle Relaxants	**Required Reading**: Kee (7th ed.): Chapter 24, pp. 332-340

Unit Title: **Drugs Affecting the Central Nervous System** (Cont'd)		
Objectives	**Content Outline**	**Student Activities**
D. Analyzes the implementation of the nursing process in the promotion and maintenance of system stability for individuals receiving anesthetic agents.	D. Anesthetics	
1. Differentiates the two classifications of anesthetics.	1. Classifications • Local • General	**<u>Required Reading</u>**: Kee (7th ed.): Chapter 21, pp 301-307
2. Discusses special considerations in the choice of anesthetic agents in various age groups (adult, older adult, child).	2. Special considerations • Conscious sedation (e.g. ECT) • Neuromuscular blocking agents	
3. Describes the nursing implications in the use of anesthetics and adjunctive drugs.	3. Nursing implications	

Unit Title: Drugs Affecting the Autonomic Nervous System		
Objectives	**Content Outline**	**Student Activities**
A. Analyzes the implementation of the nursing process in the promotion and maintenance of system stability for individuals receiving autonomic nervous system drugs (adrenergic, anti-adrenergic, cholinergic, anticholinergic). 1. Identifies common OTC ANS drugs. 2. Identifies the following characteristics of ANS drugs: • Pharmacokinetics • Pharmacodynamics • Indication for use • Route and dosage range • Mechanism of action • Therapeutic uses • Contraindications • Adverse effects • Laboratory testing • Nursing Assessment • Nursing Intervention • Patient Education 3. Discusses patients who are at high risk when receiving ANS medications. 4. Discusses legal/ethical behaviors which reflect accountability in the administration of ANS medications. 5. Applies effective teaching principles to individuals about safe use of ANS medications.	A. Adrenergic Drugs (Sympathomimetics) B. Alpha and Beta Activity • Epinephrine (Adrenalin) • Norepinephrine (Levophed, Levarterenol) • Dopamine (Dobtrux) • Metaraminal (Aramine) • Pseudoephedrine (Sudafed) C. Alpha Activity • Oxymetazoline Hydrochloride (Afrin) • Phenylephrine (Neo-Synephrine) • Tetrahydrozoline Hydrochloride D. Adrenergic-Blocking Agents • Doxazosin (Cadura) • Prazosin (Minipress) • Terazosin (Hytrin) • Tamsulosin (Flomax) E. Cholinergic-blocking agents (Anticholinergics) • Bethanechol (Urecholine, Duvoid) • Atropine • Oxybutynin (Ditropan) • Scopolamine • Trihexyphenidyl (Artane) • Propantheline bromide (Pro-banthine) • Benztropine (Cogentin) • Tolterodine (Detrol)	**Required Reading**: Kee (7th ed.): Chapter 18, pg 254-270 **Student Activities:** Discuss the autonomic nervous system in relation to cholinergic responses. Discuss the importance of Tensilon and Mestinon in the treatment of myasthenia gravis.

Unit Title: Drugs Affecting the Cardiovascular System		
Objectives	**Content Outline**	**Student Activities**
A. Analyzes the implementation of the nursing process in the promotion and maintenance of system stability for individuals receiving cardiovascular drugs. 1. Identifies the pharmacokinetics, pharmacodynamics, and physiology of: • Antilipemic agents • Coagulation modifier agents • Cardiac glycosides • Antianginal agents • Antidysrhythmic agents • Antihypertensive 2. Identifies the following characteristics of cardiac medications: • Pharmacokinetics • Pharmacodynamics • Indication for use • Route and dosage range • Mechanism of action • Therapeutic uses • Contraindications • Adverse effects • Laboratory testing • Nursing Assessment • Nursing Intervention • Patient Education • Drug, herb and food interaction 3. Defines inotropic, chronotropic and dromotropic.	A. Antilipemics 1. Blood lipids 2. Dyslipidemia 3. Types of antilipemic agents • Bile acid sequestrants • HMG-CoA reductase inhibitors -Statins • Nicotinic acid • Gemfibrozil • Others - Zetia - Vytorin B. Coagulation modifier agents 1. Anticoagulants 2. Antiplatelet 3. Thrombolytic agents 4. Hemorrheologic agents C. Cardiac Glycosides 1. Digitalis preparations • Digoxin D. Antianginal agents 1. Organic nitrates 2. Beta Blockers 3. Calcium channel blockers E. Antiarrhythmic agents 1. Sodium Channel Blockers • Lidocaine • Norpace	**Required Reading**: Kee (7th ed.): pp 684-688, pp 689-693. Chapter 42, 45 **Student Activities:** Review cardiovascular drugs • Beta adrenergic blockers • Calcium channel blockers • Angiotensin converting enzyme • Angiotensin II receptor antagonist • Diuretics Student will be prepared to: 1. Discuss the role that beta-adrenergic blocker agents and calcium channel blockers have in the treatment of angina. 2. Identify the most common antihypertensive agents utilized in the treatment of angina, MI, and CHF. 3. Discuss the use of beta blockers and calcium channel blockers in the treatment of dysrhythmias.
Unit Title: **Drugs Affecting the Cardiovascular System** (Cont'd)		

Objectives	Content Outline	Student Activities
4. Discusses the effect of cardiac glycosides and positive inotropics on the failing heart. 5. Explains the digitalizing process. 6. Discusses the effect of antianginal agents in the treatment of chest pain. 7. Identifies significant drugs, laboratory findings associated with positive inotropic drugs.	2. Beta Blockers 3. Potassium Channel Blockers 4. Calcium Channel Blockers • Verapamil • Diltiazem	4. Discuss INR ratio. 5. Identify the antidote(s) used in the treatment of patients on anticoagulation therapy.

Unit Title: Drugs Used in Ophthalmic Conditions		
Objectives	**Content Outline**	**Student Activities**
A. Analyzes the implementation of the nursing process in the promotion and maintenance of system stability for individuals receiving drugs affecting the eye. 1. Identifies the pharmacokinetics, pharmacodynamics, and physiology of: • Miotics • Mydriatics • Diuretics • Osmotic agents • Anesthetics 2. Identifies the following characteristics of drugs affecting the eye: • Pharmacokinetics • Pharmacodynamics • Indication for use • Route and dosage range • Mechanism of action • Therapeutic uses • Contraindications • Adverse effects • Laboratory testing • Nursing Assessment • Nursing Intervention • Patient Education • Drug, herb and food interaction	A. Definition of Miotics B. Types of Miotics 1. Cholinergics 2. Anticholinesterase agents 3. Beta-adrenergic blockers C. Mydriatics 1. Adrenergics 2. Anticholinergics 3. Cycloplegics D. Autonomic Drugs 1. Antiadrenergic E. Diuretics 1. Carbonic anhydrase inhibitors 2. Osmotic agents F. Prostaglandin Analogs G. Ophthalmic anesthetics H. Herb-Drug Interaction 1. Goldenseal I. Ophthalmic Antiinfetives 1. Gentamicin 2. Tobramycin 3. Bacitracin 4. Ciprofloxacin	**Required Reading**: Kee (7th ed.): pp. 728-746. **Student Activities:** The student will: • Review the anatomy and physiology of the eye • Define miotic • Define mydriatic • Discuss autonomic nervous system, in relation to its effect upon the ophthalmic system. • Discuss proper administration of ophthalmic eyedrops. • Apply cultural considerations.

Unit Title: **Drugs Used in Ophthalmic Conditions** (Cont'd)		
Objectives	**Content Outline**	**Student Activities**
B. Analyzes the effectiveness of teaching for individuals with acute and chronic eye disorders receiving drugs that affect ophthalmic conditions. 1. Explains the use, care and patient education related to ophthalmic medications. 2. Discuss the importance of taking medications as prescribed to protect and preserve eyesight.	J. Ophthalmic Anti-inflammatories 1. Non-steroidals 2. Corticosteroids	Define • Antibiotics • Postaglandin analogs • Diuretics • Cicloplegics

Unit Title: Geropharmacology		
Objectives	**Content Outline**	**Student Activities**
A. Analyzes the implementation of the nursing process in the promotion and maintenance of system stability for the elderly receiving drugs. 1. Discusses how age related physiological changes affect drug action. 2. Describes principles of drug administration for the elderly person. 3. Identifies risk factors for polypharmacy. 4. States four nursing goals in medicating the elderly person. B. Demonstrates legal/ethical behaviors that reflect accountability in the administration of medication to the elderly person. 1. Identifies medication assessments that identify problems with drug therapy. C. Applies effective teaching principles to the elderly about safe, effective use of drugs. 1. Utilizes the nursing process to teach the elderly person with sensory deficits. 2. Utilizes the nursing process to discuss methods for the most effective medication therapy.	A. The Elderly Population 1. Statistics • Number of medications • Hospitalizations due to drug interaction B. Factors That Affect Drug Administration in the Elderly 1. Distribution 2. Metabolism 3. Absorption 4. Excretion C. Principles in the administration of drugs to the elderly person. 1. Organ dysfunction 2. Effects of aging vs. side effects 3. Polypharmacy 4. Smallest dose 5. Shortest time D. Risk factors 1. Chronicity of health problems 2. Common practices 3. Sensory deficits 4. Nutrition 5. Alternative practices	**Required Reading**: Kee (7th ed), pp 186-195

Unit Title: **Geropharmacology** (Cont'd)		
Objectives	**Content Outline**	**Student Activities**
D. Discusses sociocultural variation of the elderly with acute health problems as they pertain to pharmacological interventions with emphasis on the critical stressors affecting the physiological and or psychological and sociocultural factors. 1. Identifies nutritional considerations that influence therapeutic drug use. 2. Identifies alternative practices of various cultural groups that influence drug therapy.	E. Nursing Implications F. Teaching points	

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