VIRGINIA WESTERN COMMUNITY COLLEGE
PRACTICAL NURSING PROGRAM
PNE 174 APPLIED PHARMACOLOGY FOR PRACTICAL NURSES

Course Description
Applies problem-solving skills in preparing and administering medications. Studies history, classification, sources, effects, and legalities of drugs. Emphasizes major drug classes and specific agents within each class. Laboratory 3 hours per week.

Required Textbooks and Materials
Buchholz, S. (2016). *Henke's Med-Math: Dosage Calculation, Preparation & Administration* (8th Ed.). Philadelphia, PA: Lippincott Williams & Wilkins. ISBN 978-1-4963-0284-7
Lippincott *Nursing 2019 Drug Handbook*, Philadelphia: Lippincott. ISBN: 978-1-4963-8407-2
Skills Lab Kit (in tote bag) which must be purchased at the VWCC campus book store (this is the same kit required for PNE 141/142).
Timby, Barbara K. (2017). *Fundamental Nursing Skills and Concepts* (11th Ed.). Philadelphia: Lippincott, Williams, & Wilkins. ISBN 978-1-4963-4762-8
Ford, Susan M., (2018). *Roach's Introductory Clinical Pharmacology* (11th Ed.). Philadelphia: Lippincott, Williams, & Wilkins. ISBN 978-1-4963-4356-7
Ford, Susan M., (2018). *Study Guide to Accompany Roach's Introductory Clinical Pharmacology* (11th Ed.). Philadelphia: Lippincott, Williams, &Wilkins. ISBN 978-1-4963-44403-7
PrepU for Fundamental Skills and Concepts

Course Objectives
After completion of the course, the student will be able to:

1. **SAFETY –** Relate the legal and ethical aspects and related nursing responsibilities in the care, preparation, and administration of medications.
2. **CRITICAL THINKING** – Analyze factors that affect drug pharmacokinetics.
3. SAFETY – Demonstrate knowledge of the classifications and characteristics of major drug groups and selected individual drugs.
4. **EVIDENCE-BASED PRACTICE** – Analyze major concerns in drug therapy throughout the lifespan.
5. **CULTURE** – Analyze common cultural misunderstandings regarding drug therapy.
6. **SAFETY** – Utilize appropriate terminology associated with pharmacology and the administration of medications.
7. **SAFETY** – Relate examples of specific drug actions, adverse reactions, and nursing considerations that may affect nursing judgment associated with the administration of medications and drug therapy.
8. **CRITICAL THINKING –** Interpret drug orders for medications in order to calculate correct dosage of drugs ordered.
9. **SAFETY –** Demonstrate knowledge and correct use of drug abbreviations and notations as well as interpretation of medication labels.
10. **CRITICAL THINKING –** Identify dosage forms for drugs given by the enteral route.
11. **SAFETY –** Identify anatomy landmarks used for giving parenteral injections.
12. **EVIDENCE-BASED PRACTICE –** Demonstrate procedures for giving oral, topical, inhaled, and parenteral medications.
13. **EVIDENCE-BASED PRACTICE –** Demonstrate methods for administering intravenous drugs and the techniques for using various venous access devices.
14. **EVIDENCE-BASED PRACTICE -** Relate factors that affect the choice of IV tubing used to administer IV solutions
15. **EVIDENCE-BASED PRACTICE –** Identify three techniques for infusing IV solutions.
16. **EVIDENCE-BASED PRACTICE –** Apply critical thinking in the demonstration of the procedure for preparing, starting, and discontinuing an intravenous infusion.

17. **INFOMATICS** – Relate the use of technology and information management tools to support safe medication management.
18. **TEAMWORK** – Analyze the role of the practical nurse as a member of the interdisciplinary health care team in medication administration

Course Outline

Unit 1: Nursing Foundation of Clinical Pharmacology

Ch. 1 Ford

1. General Principles of Pharmacology
2. Drug Names and Classification
3. Drug Development & FDA Programs

Pharmacokinetic Phase

1. Absorption
2. Distribution
3. Metabolism or biotransformation
4. Excretion
5. Onset, Peak, and Duration
6. Age-related changes in pharmacokinetics

Pharmacodynamic Phase

7. Alteration in Cellular Function
8. Alteration in Cellular Environment

Pharmacogenomics

9. Drug Use in Pregnancy and Lactation
10. Drug Reactions
11. Drug Idiosyncrasy and Tolerance
12. Cumulative Effect
13. Toxic Effect
14. Drug Interactions
15. Factors Influencing Drug Response
16. Nursing Implication
17. Herbal Medicine
18. Teaching the patient/client

Ch. 2 Ford (pg. 21-25)

1. General Principles of Drug Administration

Ch. 5 Ford

1. Patient and Family Teaching

Unit II: Oral Medications

Ch. 32 Timby

Medication Orders

1. Components of a medication order
2. Verbal and telephone orders
3. Documentation in the medical record

Medication Administration

1. Administering oral medications
2. Administering oral medications by enteral tube
3. Documentation
4. Medication errors

Nursing Implications

Unit III: Drugs Used to Fight Infection

Ch. 6, 7, 8, 9, 10, 11, 12 Ford

1. Antibacterial Drugs: Sulfonamides
2. Antibacterial Drugs that Disrupt the Bacterial Cell Wall
3. Antibacterial Drugs that Interfere with Protein Synthesis
4. Antibacterial Drugs that Interfere with DNA/RNA Synthesis
5. Antitubercular Drugs
6. Antifungal and Antiparasitic Drugs

Unit IV: Drugs Used to Manage Pain

Ch. 13, 14, 15, 16, 17 Ford

1. Nonopioid Analgesics: Salicylates and Nonsalicylates
2. Nonopioid Analgesics: NSAIDs and Migraine Headache Medications
3. Opioid Analgesics
4. Opioid Antagonists
5. Anesthetic Drugs

Unit V: Topical and Inhalant Medications

Ch. 33 Timby

Topical Route

1. Cutaneous applications
2. Ophthalmic applications
3. Otic applications
4. Nasal applications
5. Sublingual and buccal applications
6. Vaginal applications
7. Rectal applications

Inhalant Route

Nursing Implications

Unit VI: Drugs that Affect the CNS

Ch. 18, 19, 20, 21, 22, 23 Ford

1. CNS Stimulants
2. Cholinesterase Inhibitors
3. Antianxiety Drugs
4. Sedatives and Hypnotics
5. Antidepressant Drugs
6. Antipsychotic Drugs

Unit VII: Drugs that Affect the PNS

Ch. 24, 25, 26, 27 Ford

1. Adrenergic Drugs
2. Adrenergic Blocking Drugs
3. Cholinergic Drugs
4. Cholinergic Blocking Drugs

Unit VIII: Drugs that Affect the Neuromuscular System

Ch. 28, 29, 30 Ford

1. Antiparkinson Drugs
2. Antiepileptics
3. Skeletal Muscle, Bone and Joint Disorder Drugs

Unit IX: Parenteral Medications

Ch. 34 Timby

Parenteral Medication Equipment

1. Syringes

2. Needles
3. Modified safety injection equipment

Drug Preparation

1. Ampules
2. Vials
3. Prefilled cartridges

Injection Routes

8. Intradermal injections
9. Subcutaneous injections
10. Intramuscular injections

Nursing implications

Unit X: Drugs that Affect the Respiratory System

Ch. 31, 32 Ford

1. Upper Respiratory System Drugs
2. Lower Respiratory System Drugs

Unit XI: Drugs that Affect the Cardiovascular System

1. Diuretics
2. Antihyperlipidemics Drugs
3. Antihypertensive Drugs
4. Antianginal and Vasodilating Drugs
5. Anticoagulant and Thrombolytic Drugs
6. Cardiotonic and Inotropic Drugs
7. Antiarrhythmic Drugs

Unit XII: Drugs that Affect the GI System

1. Upper GI System Drugs
2. Lower GI System Drugs

Unit XIII: Fluid and Chemical Balance

Ch. 16 Timby (IV Skills)

Skills

1. Skill 16-2: Preparing IV Solutions
2. Skill 16-3: Starting an IV Infusion
3. Skill 16-4: Changing IV Solution containers
4. Skill 16-5: Changing IV Tubing
5. Skill 16-6: Discontinuing an IV Infusion
6. Skill 16-7: inserting a Medication Lock

Unit XIV: Intravenous Medications

Ch. 35 Timby

1. Intravenous Medication Administration
2. Continuous administration
3. Intermittent administration
4. Central venous Catheters
5. Nontunneled percutaneous catheters
6. Tunneled catheters
7. Implanted catheters
8. Medication administration using a central venous catheter

Nursing Implications

Unit XV: Drugs that Affect the Endocrine System

Ch. 42, 43, 44, 45, 46 Ford

1. Antidiabetic Drugs
2. Pituitary and Andrenocortical Hormones
3. Thyroid and Antithyroid Drugs
4. Male and Female Hormones

5. Uterine Drugs

Unit XVI: Drugs that Affect the Urinary System

Ch. 47, 48 Ford

1. Menopause and Andropause Drugs
2. Urinary Tract Anti-infectives and Other Urinary Drugs

Unit XVI: Drugs that Affect the Immune System

Ch. 49, 50, 51 Ford

1. Immunologic Agents
2. Antineoplastic Drugs and Targeted Therapies
3. Immunomodulating Drugs

Unit XVII: Drugs that Affect Other Body Systems

Ch. 52, 53, 54 Ford

1. Skin Disorder Topical Drugs
2. Otic and Opthalmic Drugs
3. Fluids, Electrolytes, and Parenteral Therapy

PNE 174
Applied Pharmacology for Practical Nurses
Spring 2018
***Course Schedule**

Date	Class Topics *(To be read prior each to class)*	Tests
Jan 16-17	Course Orientation Nursing Foundations Cha 1 (Ford)	
Jan 23-24	Ch. 2 pgs. 22-25, Ch. 5 (Ford) & Ch. 32 pgs. 762-770 (Timby) Oral Medications Practice	**PrepU #1 Chapters 32 & 33 due by 8 AM**
Jan 30-31	Ch. 6-12 (Ford) Oral Medication Practice (cont.)	
Feb 6-7	Ch. 13-17 (Ford) & Ch. 33 (Timby) Topical and Inhalant Medication Practice	
Feb 13-14	Ch. 18-19 & Ch. 24-25 (Ford) & Ch. 34 (Timby) Parenteral Medications Practice	**Test 1**
Feb 20-21	Ch. 26-30 (Ford) Parenteral Medications Practice (cont)	**PrepU #2 Chapter 34 due by 8 AM**
Feb 27-28	Ch. 31-32 (Ford) Parenteral Medications (cont)	
Mar 4-8	SPRING BREAK – NO LABS	
Mar 13-14	Ch. 33-39 (Ford) Parenteral Medications (cont)	
Mar 20-21	Ch. 42-46 (Ford) Ch. 16 pgs. 320-352 (Timby) Ch. 35 (Timby) IV Medication Practice	**Test 2**
Mar 27-28	Ch. 40, 41, 47, & 48 (Ford) IV Medication Practice (cont)	**PrepU #3 Chapters 16 & 35 due by 8 AM**
Apr 3-4	Ch. 49-51 (Ford) IV Medication Practice (cont)	
Apr 10-11	Ch. 52-54 (Ford) IV Medications, cont.	
Apr 17-18		**Test 3**
Apr 24-25	**Skills Competency Practice**	**Kaplan due by 8 AM** **Drug Dosage Competency Test**
May 1-2	**Skills Competency Testing**	
May 8-9	**Final Exam**	

*Due to inclement weather and other unexpected circumstances, this schedule is subject to change. All changes will be announced on Blackboard.

**Kaplan Focused Reviews and PrepU quizzes must be completed by 8:00 AM on date indicated on the schedule.