

**WILKES-BARRE AREA CAREER & TECHNOLOGY CENTER
PRACTICAL NURSING PROGRAM**

INTRODUCTION TO PHARMACOLOGY

PART I & II

LEVEL I

Course Title:	Pharmacology – Part I & II
Time Allotment:	32 Hours
Placement:	Level I
Course Overview:	This course combines “course overviews” described in the specific sections summarized in part I and II of this outline.
Teaching Methods:	Lectures and Discussions Audio-Visual Aids Demonstrations Worksheets Reading assignments Computer software Internet @ http://evolve.elsevier.com
Percentage:	Part I = 75% of grade Part II = 25% of grade
Grading:	The student must achieve a grade of 80% or higher to pass this course. Missed quizzes or examinations will be graded as per student handbook policy.

**WILKES-BARRE AREA CAREER & TECHNOLOGY CENTER
PRACTICAL NURSING PROGRAM**

PART I

Mrs. Rita Carey-Nita BSN, RN

**WILKES-BARRE AREA CAREER & TECHNOLOGY CENTER
PRACTICAL NURSING PROGRAM**

INTRODUCTION TO PHARMACOLOGY

LEVEL I

Course Objectives:

Upon completion of this course, the student will:

1. Discuss methods in preventing medication errors.
2. Utilize the nursing process in the pharmacological care of patients.
3. Calculate medication dosages correctly.
4. Safely administer medications to patients.

**WILKES-BARRE AREA CAREER & TECHNOLOGY CENTER
PRACTICAL NURSING PROGRAM**

INTRODUCTION TO PHARMACOLOGY

LEVEL I

Course Title:	Introduction to Pharmacology – Part I
Time Allotment:	25 hours
Placement:	Level I
Course Overview:	This course briefly presents the principles and concepts of pharmacology. Safe medication administration is discussed in detail. Demonstration and laboratory practice enables the student to practice these principles safely and competently in the clinical area.
Teaching Methods:	Lectures and discussions Audio-visual aids Demonstrations Reading assignments Worksheets
Evaluation Methods:	Unit examinations 3/3 Exams 25% each with total of 75% toward overall course
Grading:	Missed examinations will be graded as per student handbook policy.

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PRACTICAL NURSING PROGRAM**

INTRODUCTION TO PHARMACOLOGY

LEVEL I

BIBLIOGRAPHY

1. Boundy, J. & Stockert, P. Calculation of Medication Dosage. Lippincott Williams & Wilkins. Philadelphia. 2007.
2. Timby, B.K. Nursing Skills and Concepts. Lippincott Williams & Wilkins. Philadelphia. 2005
3. Lilley, L., Harrington, S., & Snyder, J. Pharmacology and the Nursing Process. 4th Edition. Mosby. St. Louis: 2004-10-02.
4. Deglin, J. H. Davis Drug Guide. 10th Edition. F.A. Davis. Philadelphia. 2007.

VIDEOS

1. Medication Administration Guidelines. Mosby Nursing Skills.
2. Oral and Topical Medications. Taylor's Video Guide to Clinical Nursing Skills
3. Injectable Medications. Taylor's Video Guide to Clinical Nursing Skills

COMPUTER SOFTWARE

1. ProCal
2. EDGT On-line

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COURSE OUTLINE

HOURS	OBJECTIVES	MAJOR TOPICS	MAJOR LEARNING ACTIVITIES
	<p>Identify the limitations of the LPN in medication administration according to the Nurse Practice Act.</p> <p>Describe the proper procedure for documentation of the administration of medication.</p> <p>Describe the methods of narcotic drugs.</p> <p>Explain “The Six Rights of Drug Administration”.</p> <p>Describe the different types of medication orders.</p>	<p>I. Principles of Medication Administration</p> <p>A. LPN role in administration</p> <ol style="list-style-type: none"> 1. The Nurse Practice Act <p>B. Medication Profile</p> <ol style="list-style-type: none"> 1. Kardex 2. Medication Administration Record (MAR) <p>C. Drug Distribution Systems</p> <ol style="list-style-type: none"> 1. Stock 2. Unit Dose 3. Narcotic Control Systems <p>D. The Six Rights of Drug Administration</p> <ol style="list-style-type: none"> 1. Right Patient 2. Right Drug 3. Right Dose 4. Right Route 5. Right Time 6. Right Documentation 7. Drug Errors <p>E. Nursing Responsibilities</p> <ol style="list-style-type: none"> 1. Knowledge of medication <p>IV. The Drug Order</p> <p>A. Types of Medication Orders</p> <ol style="list-style-type: none"> 1. STAT 2. Single 3. Standing 4. PRN <p>B. Verification of a Drug Order</p>	<p>The student will read: <i>Pharmacology & the Nursing Process</i> Lilly, Harrington & Snyder, 4th Edition, Chapter 4.</p> <p>All students will review “<i>The Pennsylvania Code; Subchapter B. Practical Nurses</i>” @ http://www.pacode.com/secure/data/049/chapter21/subchapBtoc.html (21.141 – 21.148)</p> <p>The student will read: <i>Pharmacology & the Nursing Process</i> Lilly, Harrington & Snyder, 5th Edition, Chapter 1 & Chapter 5</p> <p><i>Calculation of Medication Dosage</i> Boundy, J. & Stockert, P. Chapter 6 pp.110-112</p> <p>Timby, B.K. <i>Nursing Skills and Concepts</i>. Lippincott Williams & Wilkins. Chapter 32</p> <p>The student will view Video: <i>Medication Administration Guidelines</i>. Mosby Nursing Skills.</p> <p>The student will read: <i>Calculation of Medication Dosage</i> Boundy, J. & Stockert, P. Chapter 6 pp.110-112</p>

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COURSE OUTLINE

Page 2

HOURS	OBJECTIVES	MAJOR TOPICS	MAJOR LEARNING ACTIVITIES
	Identify the parts of a drug label.	IV. The Drug Order C. Interpreting of the Physicians Order 1. Written Order 2. Verbal Order 3. Scheduling the administration of a medication V. Reading Drug Labels A. Parts of a drug label 1. Trade name 2. Generic name 3. Dosage strength 4. Form 5. Route 6. Amount 7. Directions 8. National Drug Code (NDC) number 9. Manufacturer 10. Expiration date Unit Examination I	. The student will read: <i>Calculation of Medication Dosage</i> Boundy, J. & Stockert, P. Chapter 5 Lecture and discussion. The student will: Attend unit 1 examination.

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PRACTICAL NURSING PROGRAM

COURSE OUTLINE

HOURS	OBJECTIVES	MAJOR TOPICS	MAJOR LEARNING ACTIVITIES
	<p>Identify various oral dosage forms.</p> <p>Explain the proper procedure for administration of rectal suppositories.</p> <p>Identify equipment used for administration of oral drugs.</p> <p>Explain the procedure for administration of creams, lotions, ointments, and wet dressings.</p>	<p>VI. Preparing A Drug for Administration</p> <ol style="list-style-type: none"> 1. Nursing Responsibilities <p>VII. Administration of Drugs By Non-Parenteral Route</p> <p>A. Enteral Route</p> <ol style="list-style-type: none"> 1. Oral dosage forms <ol style="list-style-type: none"> a. tablets b. capsules c. liquids d. lozenges 2. Drugs through an NG tube 3. Rectal dosage forms <ol style="list-style-type: none"> a. suppositories b. enemas 4. Equipment 5. Techniques 6. Documentation <p>B. Topical Route</p> <ol style="list-style-type: none"> 1. Dosage Forms <ol style="list-style-type: none"> a. creams b. lotions c. ointments d. wet dressings e. transdermal 2. Equipment 3. Techniques 4. Documentation 	<p>The student will read: <i>Calculation of Medication Dosage</i> Boundy, J. & Stockert, P. Chapter 3</p> <p>The student will read: <i>Pharmacology & the Nursing Process</i> Lilly, Harrington & Snyder, 5th Edition, Chapter 9</p> <p><i>Calculation of Medication Dosage</i> Boundy, J. & Stockert, P. Chapter 3</p> <p>Timby, B.K. <i>Nursing Skills and Concepts</i>. Lippincott Williams & Wilkins. Chapter 33</p> <p>Teacher demonstration.</p>

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COURSE OUTLINE

HOURS	OBJECTIVES	MAJOR TOPICS	MAJOR LEARNING ACTIVITIES
	<p>Describe the dosage forms and procedure for administration of drugs to the mucous membranes.</p> <p>Differentiate the procedures for administration of ear drops to a child and an adult.</p>	<p>VII. Administration of Drugs By Non-Parenteral Route</p> <p>C. Mucous Membrane Route</p> <ol style="list-style-type: none"> 1. Dosage Forms <ol style="list-style-type: none"> a. sublingual b. buccal c. ophthalmic d. otic e. inhalation f. vaginal 2. Equipment 3. Techniques 4. Documentation <p>Unit Examination #2</p>	<p>The student will read: <i>Pharmacology & the Nursing Process</i> Lilly, Harrington & Snyder, 5th Edition, Chapter 9</p> <p><i>Calculation of Medication Dosage</i> Boundy, J. & Stockert, P. Chapter 3 Teacher demonstration.</p> <p>Timby, B.K. <i>Nursing Skills and Concepts</i>. Lippincott Williams & Wilkins. Chapter 32</p> <p>The student will view video <i>Oral and Topical Medications</i>. Taylor's Video Guide to Clinical Nursing Skills</p> <p>The student will attend unit examination #2.</p>

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PRACTICAL NURSING PROGRAM

COURSE OUTLINE

Page 5

HOURS	OBJECTIVES	MAJOR TOPICS	MAJOR LEARNING ACTIVITIES
	<p>Correctly interpret the calibration of various syringes.</p> <p>Explain the need for using aseptic techniques for administration of drugs by injection.</p>	<p>VIII. Administration of Drugs By Parenteral Route</p> <p>A. Equipment</p> <ol style="list-style-type: none"> 1. Syringe <ol style="list-style-type: none"> a. parts b. calibrations <p>B. Dosage Forms</p> <ol style="list-style-type: none"> 1. Ampules 2. Vials 3. Mix-O-Vials 4. Unit dose <p>C. Preparation of Parenteral Drugs</p> <ol style="list-style-type: none"> 1. Nursing Responsibilities 2. OSHA <p>D. Intradermal Route</p> <ol style="list-style-type: none"> 1. Equipment 2. Sites 3. Technique 4. Documentation <p>E. Subcutaneous Route</p> <ol style="list-style-type: none"> 1. Equipment 2. Sites 3. Technique 4. Documentation 	<p>The student will read:</p> <p><i>Pharmacology & the Nursing Process</i> Lilly, Harrington & Snyder, 5th Edition, Chapter 9</p> <p><i>Calculation of Medication Dosage</i> Boundy, J. & Stockert, P. Chapter 3</p> <p>Timby, B.K. <i>Nursing Skills and Concepts</i>. Lippincott Williams & Wilkins. Chapter 33</p> <p>Lecture and discussion.</p> <p>Teacher demonstration.</p> <p>Laboratory: practice drawing up drugs from various containers.</p>

WILKES-BARRE AREA CAREER & TECHNOLOGY CENTER

PRACTICAL NURSING PROGRAM

COURSE OUTLINE

Page 6

HOURS	OBJECTIVES	MAJOR TOPICS	MAJOR LEARNING ACTIVITIES
	<p>Identify common nursing diagnoses used in the administration of drugs.</p>	<p>VIII. Administration of Drugs By Parenteral Route F. Intramuscular Route 1. Equipment 2. Sites a. vastus lateralis b. ventrogluteal c. dorsogluteal d. deltoid 3. Z-Track method 4. Techniques 5. Documentation G. Nursing Responsibilities After Drug Administration 1. Observation 2. Evaluation IX. The Nursing Process A. Assessment B. Nursing Diagnosis C. Planning D. Implementation E. Evaluation Unit Examination #3</p>	<p>The student will read: <i>Pharmacology & the Nursing Process</i> Lilly, Harrington & Snyder, 5th Edition, Chapter 9 <i>Calculation of Medication Dosage</i> Boundy, J. & Stockert, P. Chapter 3 Timby, B.K. <i>Nursing Skills and Concepts</i>. Lippincott Williams & Wilkins. Chapter 33 The student will view video: <i>Injectable Medications</i>. Taylor's Video Guide to Clinical Nursing Skills The student will read: <i>Pharmacology & the Nursing Process</i> Lilly, Harrington & Snyder, 5th Edition, Chapter 1 The student will attend Unit Examination #3.</p>

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**WILKES-BARRE AREA VOCATIONAL-TECHNICAL SCHOOL
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PART II

NAPNES Course Goals/Objectives:

Upon completion of this course, the student will:

1. Correlate knowledge of anatomy and physiological effect of drugs.
2. Enunciate variables which affect drug action and cause unusual or adverse effects in drug therapy.
3. Correlate knowledge of drug action and use with possible interactions and contraindications.
4. Discuss the LPN's responsibilities in the event of drug interaction or adverse effect.
5. List sources of information used to keep drug knowledge current.
6. Utilize sources of information used to keep drug knowledge current.

Course Title: Pharmacology – NAPNES Guidelines

Time Allotment: 7 Hours

Placement: Level I

Course Overview*: This course is presented to prepare the LPN for their expanding role as patient bedside nurses under the direction of the physician and/or the registered nurse. The course stresses the importance of the LPN in working toward maximizing therapeutic drug effects while decreasing the possibility of adverse effects. The nursing process is utilized throughout the course to achieve this purpose. The course follows a standardized NAPNES outline that begins with in-dept review of general principles of pharmacology. The course then progresses to the detailed discussion of drugs that affect all body systems which will be covered in Level I, II and III. The course is designed to follow closely to corresponding clinical experiences.

Teaching Methods: Lectures and Discussions
Audio-Visual Aids
Reading assignments
Written assignments
Computer software
Internet @ <http://evolve.elsevier.com>

Evaluation Methods: Unit Examinations 1 exam = 100%

Grading: The student must achieve a grade of 80% or higher to pass this course.

Missed quizzes or examinations will be graded as per student handbook policy.

BIBLIOGRAPHY

1. Liley, Harrington & Snyder. **Pharmacology and the Nursing Process.** 4th Edition. Mosby. St. Louis: 2005
2. Deglin, Judith and Vallerand, April. **Davis's Drug Guide For Nurses.** 9th Edition. F. A. Davis. Philadelphia: 2005.
3. Eyles, M.O. & Candido, M. J. **Guidelines for a Licensed Practical/Vocational Nurse Pharmacology Course.** 3rd Edition. National Association for Practical Nurse Education and Service, Inc. (NAPNES). Silver Spring, MD: 1997.
4. Gyls, A. B. & Masters, R. M. **Medical Terminology Simplified.** 3rd Edition. F. A. Davis. Philadelphia: 2005

VIDEOS

1. **Prevention of Medication Errors.** J. B. Lippincott Company

COMPUTER SOFTWARE & RESOURCES

1. <http://evolve.elsevier.com>

**WILKES-BARRE AREA VOCATIONAL-TECHNICAL SCHOOL
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COURSE OUTLINE

GENERAL PRINCIPLES OF PHARMACOLOGY

Page 1

HOURS	OBJECTIVES	MAJOR TOPICS	MAJOR LEARNING ACTIVITIES
	<p>Upon completion of this unit, the student will: Define Pharmacology</p> <p>List the five interrelated sciences that make up pharmacology</p> <p>Describe the four characteristics that comprise pharmacokinetics.</p> <p>Discuss bioavailability and bioequivalence as they relate to “process”.</p> <p>List eight routes by which medications can be administered.</p>	<p>I. Overview of Pharmacology A. Pharmacology Defined</p> <p>B. Interrelated Sciences 1. Pharmacokinetics 2. Pharmacodynamics 3. Pharmacotherapeutics 4. Toxicology 5. Pharmacognosy</p> <p>C. Pharmacokinetics 1. Absorption</p> <p style="padding-left: 40px;">a. Process</p> <p style="padding-left: 40px;">b. Route (1) Parenteral (2) Injection (3) Enteral (4) Sublingual (5) Oral (6) Topical (7) Transdermal</p>	<p>Read appropriate chapters: Liley, et al.</p> <p>Review Gylys & Masters, “Medical Terminology Simplified” pg 547 – 550</p> <p>Refer to http://evolve.elsevier.com for additional resources</p> <p>Lecture</p> <p>Discussion</p>

	Identify factors which influence drug distribution.	(8) Inhalation 2. Distribution	
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COURSE OUTLINE

GENERAL PRINCIPLES OF PHARMACOLOGY

Page 2

HOURS	OBJECTIVES	MAJOR TOPICS	MAJOR LEARNING ACTIVITIES
	<p>Identify factors which influence drug metabolism.</p> <p>Describe the process of excretion as it relates to drugs.</p> <p>Discuss “half-life” in terms of beneficial or toxic effect.</p> <p>Describe onset peak and duration relative to the effect of a drug.</p> <p>Define Pharmacodynamics.</p> <p>Discuss three ways in which drugs can exert “mechanism of action.”</p> <p>Define Pharmacotherapeutic.</p> <p>Discuss 4 of the 6 therapeutic uses by which drugs can be implemented into a treatment plan.</p>	<p>3. Metabolism (biotransformation)</p> <p>4. Excretion</p> <p>5. Other Pharmacokinetic Variables a. Half-life b. Onset, Peak, and Duration</p> <p>D. Pharmacodynamics 1. Definition 2. Mechanism of Action a. Receptor Interaction b. Enzyme Interaction c. Nonspecific Interaction</p> <p>E. Pharmacotherapeutics 1. Definition 2. Therapeutic Uses a. Acute b. Maintenance c. Supplemental d. Palliative e. Supportive f. Prophylactic</p>	<p>Lecture</p> <p>Demonstration & Examples</p> <p>Discussion</p>

		4. Various Nursing Drug Guides/References	
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COURSE OUTLINE

PHARMACOLOGY AND THE ROSE OF THE LPN

Page 5

HOURS	OBJECTIVES	MAJOR TOPICS	MAJOR LEARNING ACTIVITIES
	<p>Upon completion of this unit, the student will: Define the steps in the nursing process related to drug therapy.</p> <p>Explain assessment as it relates to the nursing process in drug therapy.</p> <p>Describe how environmental factors can affect drug action.</p> <p>Discuss the importance of a nursing diagnosis as part of the assessment phase.</p>	<p>I. The Nursing Process in Drug Therapy</p> <ol style="list-style-type: none"> A. Assessment B. Planning C. Implementation D. Evaluation <p>II. Assessment</p> <ol style="list-style-type: none"> A. Interview <ol style="list-style-type: none"> 1. Patient 2. Relatives and Friends B. Health Parameters <ol style="list-style-type: none"> 1. Physical Assessment 2. History <ol style="list-style-type: none"> a. health and pathophysiology b. medication 3. Emotional and psychological assessment C. Environmental Influences <ol style="list-style-type: none"> 1. Effect on need for medication ex: unfamiliar surroundings, noise, physical limitations 2. Therapeutic nursing actions to decrease need for drugs 3. Facilities <ol style="list-style-type: none"> a. equipment b. support persons D. Nursing Diagnosis <ol style="list-style-type: none"> 1. Definition 	<p>Read appropriate chapters: Liley, et al.</p> <p>Discussion</p> <p>Lecture</p>

2. Importance

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COURSE OUTLINE

PHARMACOLOGY AND THE ROLE OF THE LPN

Page 6

HOURS	OBJECTIVES	MAJOR TOPICS	MAJOR LEARNING ACTIVITIES
	<p>Explain planning as it relates to the nursing process in drug therapy.</p> <p>Discuss implementation as it relates to the nursing process in drug therapy.</p> <p>State nursing functions relating to administration of medications.</p> <p>Describe eight factors which the nurse should know about a drug.</p>	<p>III. Planning</p> <p>A. Importance</p> <p>B. Major aims</p> <p>1. Prioritize all nursing diagnoses</p> <p>2. Identify goals and outcome criteria</p> <p>IV. Implementation: Promoting and Monitoring Therapeutic Drug Effect</p> <p>A. Administration of drug</p> <p>1. Nursing approach to patient</p> <p>2. Knowledge of drug</p> <p>a. generic/trade names</p> <p>b. average dose</p> <p>c. classification</p> <p>d. use</p> <p>e. adverse effects</p> <p>f. contraindications</p> <p>g. drug interactions</p> <p>h. signs of effectiveness</p> <p>3. Skill in delivery of drug</p> <p>a. dosage</p> <p>b. methodology</p>	<p>Lecture</p> <p>Discussion</p> <p>Lecture</p>

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COURSE OUTLINE

PHARMACOLOGY AND THE ROLE OF THE LPN

Page 7

HOURS	OBJECTIVES	MAJOR TOPICS	MAJOR LEARNING ACTIVITIES
	<p>Explain each of the 5 “rights” of medication administration.</p> <p>Explain the steps pertinent to patient teaching in drug therapy.</p> <p>State how the nurse can assist in minimizing adverse drug reactions.</p>	<p>4. Five “Rights” of Medication Administration</p> <ul style="list-style-type: none"> a. drug b. dose c. time d. route e. patient <p>B. Patient Teaching</p> <ul style="list-style-type: none"> 1. Identify need 2. Establish realistic goals 3. Select method 4. Implement teaching 5. Evaluate effect <p>C. Nursing’s Role in Minimizing Adverse Effects</p> <ul style="list-style-type: none"> 1. Knowledge of side and toxic effects 2. Knowledge of contraindications 3. Knowledge of drug interactions 4. Observation for adverse effects 5. Necessary nursing intervention <ul style="list-style-type: none"> a. nursing action b. reporting effect c. recording effect 	<p>Demonstration</p> <p>Lecture</p> <p>Discussion</p>

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COURSE OUTLINE

PHARMACOLOGY AND THE ROLE OF THE LPN

Page 8

HOURS	OBJECTIVES	MAJOR TOPICS	MAJOR LEARNING ACTIVITIES
	<p>Discuss evaluation as it relates to the nursing process in drug therapy.</p> <p>Explain the role of the nurse in drug therapy as it relates to: (a) legal; (b) ethical; (c) cultural considerations of the administration of medications.</p> <p>Obtain 80% or greater in quiz.</p>	<p>V. Evaluation: Effectiveness of Drug Therapy</p> <ul style="list-style-type: none"> A. Recognizing therapeutic signs of Effectiveness B. Reporting effect C. Recording effect <p>VI. Legal, Ethical and Cultural Considerations</p> <ul style="list-style-type: none"> A. Legislation B. New Drug Development C. Informed Consent D. Nursing Implications <ul style="list-style-type: none"> 1. Legal 2. Ethical 3. Cultural <p>VII. Examination #1</p>	<p>Lecture</p> <p><i>Written Examination – 100% of grade</i></p>

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