**High Plains Technology Center**

**Health Careers**

**Learning Activity Packet (LAP) for Advanced Pharmacy Technician**

**Related unit of instruction:**

Pharmacology for PhT

**Approximate Completion time:**

15 hours

**Rationale for the Lap:**

This LAP is designed to provide the student with an overview of the major categories of classifications of drugs. Emphasis is placed on actions of drugs in the human body as well as trade and generic names.

**Criteria for successful completion:**

By the end of this LAP the student will

1. Read and turn in work sheets for Chapter 1 - 3 in Ballington & Laughlin’s *Pharmacology for Technicians*
2. Pass the tests for each chapter

**Learning Objective:**

*Evolution of Medicinal Drugs Chapter 1*

1. Recognize the important contributors, events, and resources in the development of pharmacology through the ages.
2. Know what is meant by pharmacology.
3. Define what drugs are, identify their sources, and understand how they work.
4. Be familiar with the federal laws that regulate drugs and the agencies that administer those laws.
5. Be familiar with the procedure for getting a new drug to market.

*Basic Concepts of Pharmacology Chapter 2*

1. Understand receptors and their function in mechanisms of drug actions.
2. Appreciate the general principles of pharmacokinetics and the importance of those principles in developing and testing drugs.
3. Understand that drugs can have beneficial and harmful effects.
4. Become familiar with the common terms used to describe drug interactions.

*Dispensing Medications Chapter 3*

1. Know the components of the prescription, including the commonly used abbreviations.
2. Understand the “rights” of correct drug administration.
3. Recognize common dosage forms.
4. Know the routes of administration.
5. Recognize factors that influence the effects of drugs, particularly in the elderly and pediatric populations.
6. Understand the immunization process.
7. Understand the role of the pharmacy technician in medication safety.

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1. Read and turn in work sheets for Chapter 4 - 6 in Ballington & Laughlin’s *Pharmacology for Technicians*
2. Pass the tests for each chapter

**Learning Objective:**

*Antibiotics Chapter 4*

1. Identify the major types of antibiotics by drug class.
2. Know which auxiliary labels to use when dispensing major types of antibiotics.
3. Define therapeutic effects, side effects and administration routes of major antibiotics.
4. Use antibiotic and general drug terminology correctly in written and oral communication.

*Therapy for Fungal and Viral Infections Chapter 5*

1. Understand the differences between fungi and viruses and why the drugs to treat them must have very different mechanisms of action.
2. Differentiate antifungal, antiviral and antiretroviral drugs by their indications, therapeutic effects, side effects, dosages and administration.
3. Use antifungal, antiviral, and antiretroviral terminology correctly in written and oral communication.
4. Identify drugs used for HIV and understand their synergism.

*Anesthetics and Narcotics Chapter 6*

1. Understand the central and peripheral nervous systems, their functions, and their relationship to drugs.
2. Recognize different dosage forms and understand how the drug delivery system works.
3. Learn how drugs affect body systems and where they work in the body.
4. Understand the concepts of general and local anesthesia, and know the functions of these agents.
5. Define the action of neuromuscular blocking agents in reducing muscle activity.
6. Distinguish between narcotic and nonnarcotic analgesia.
7. Understand the different classes of narcotics and the role of the technician in monitoring these drugs.
8. Become familiar with the various types of agents for migraine headaches.

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1. Read and turn in work sheets for Chapter 7 - 10 in Ballington & Laughlin’s *Pharmacology for Technicians*
2. Pass the tests for each chapter

**Learning Objective:**

*Psychiatric and Related Drugs Chapter 7*

1. Differentiate antidepressant, antipsychotic, and antianxiety agents.
2. Be prepared to discuss the antidepressant classes, their uses, and their side effects.
3. Know why and how lithium and other drugs are used in treating bipolar disorders.
4. Be familiar with antipsychotics and the drugs that prevent their side effects.
5. Define anxiety, learn its symptoms, and know the drugs used in its treatment.
6. Recognize the course and treatment of panic disorders, insomnia, and alcoholism.

*Drugs for Central Nervous System Disorders Chapter 8*

1. Develop an understanding of the physiologic processes that occur in epilepsy.
2. Classify seizures and the goals of therapy.
3. Understand that specific drugs are used in different classes of seizures.
4. Be familiar with Parkinson disease and the drugs used in its treatment.
5. Identify the drugs and goals of therapy for attention-deficit disorders.
6. Realize that some drugs may be used to several disease states.
7. Recognize drugs used to treat Alzheimer disease.

*Respiratory Drugs Chapter 9*

1. Differentiate the pulmonary diseases.
2. Understand the pathophysiology and treatment of asthma.
3. Define the goals of asthma treatment.
4. Discuss the pathophysiology and treatment of emphysema and chronic bronchitis.
5. Describe other diseases related to the lungs.
6. Be aware of the reemergence of tuberculosis and of treatment for this disease.
7. Understand how the antitussives, expectorants, decongestants and antihistamines differ, and be able to describe their uses.
8. Know why some drugs are prescribed for their side effects.
9. Outline smoking cessation plans and supportive therapy.

*Drugs for Gastrointestinal and Related Diseases Chapter 10*

1. Describe gastrointestinal physiology and how it affects GI diseases.
2. Be aware of drug treatments for GI diseases.
3. Understand gastroesophageal reflux disease and its ramifications.
4. Discuss antidiarrheal agents and explain how they work.
5. Describe the role of fiber in the digestive process.
6. Discuss laxatives and their mechanisms of action.
7. Identify the chemoreceptor trigger zone (CTZ) and discuss its role in nausea.
8. Know which antiemetics act on the CTZ and their mechanisms of action.
9. Know the definition of obesity and how to calculate ideal body weight and body mass index.
10. Recognize medications used to treat malaria and the side effects of these drugs.
11. Understand the measure to prevent and treat hepatitis.

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**Learning Objective:**

*Renal System Drugs Chapter 11*

1. Understand the renal system, its importance, and how it works.
2. Differentiate the parts of the renal system.
3. Understand the drugs used to treat renal disease.
4. Know the causes and treatment of urinary tract infections.
5. Understand the classes of diuretics and how they work.

*Drugs for Cardiovascular Diseases Chapter 12*

1. Understand the cardiovascular system.
2. Know the drugs and treatment for each type of heart disease.
3. Recognize anticoagulant and antiplatelet drugs and know their functions.
4. Discuss stroke and the drugs used to treat it.
5. Identify drugs used to treat hyperlipidemia and understand its role in heart disease and stroke treatment.

*Drugs for Muscle and Joint Disease and Pain Chapter 13*

1. Define muscle relaxants.
2. Identify muscle relaxants and their various mechanisms of action.
3. Identify the nonnarcotic analgesics, and describe their uses and mechanisms of action.
4. Understand an autoimmune disease.
5. Identify agents used to treat arthritis, rheumatoid arthritis and gout, and discuss their usage and side effects.

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1. Read and turn in work sheets for Chapter 14-17 in Ballington & Laughlin’s *Pharmacology for Technicians*
2. Pass the tests for each chapter

**Learning Objective:**

*Hormonal Disorders and Their Treatment Chapter 14*

1. Explain the concept of hormones and how they regulate the body.
2. Discuss thyroid replacement therapy.
3. Discuss adrenal sex hormones and male dysfunction.
4. Understand the concept of hormone replacement therapy.
5. Understand the formulation of oral contraceptives.
6. Recognize the urgent need for drugs used at delivery.
7. Describe the diseases of the genital systems and how to avoid them.
8. Discuss corticosteroids.
9. Understand diabetes and the proper treatment and care of patients.
10. Know the applications for growth hormone.

*Topical, Ophthalmic, and Otic Medications Chapter 15*

1. Describe the skin as an organ.
2. Understand the physiology of the skin.
3. Know the topical drugs and the conditions they treat.
4. Explain the action of the topical corticosteroids and their application.
5. Recognize the classes of antiseptics and disinfectants.
6. Recognize the ophthalmic and otic agents and their uses.

*Recombinant Drugs and Chemotherapy Chapter 16*

1. Understand recombinant DNA and the process for producing medications in this manner.
2. Identify colony-stimulating factors and their uses.
3. Understand the immune system and how it works.
4. Identify drugs used to treat specific disease states and the classification of drugs used in treatments.

*Vitamins, OTC Supplements, Antidotes, and Miscellaneous Topics Chapter 17*

1. Understand how the body uses vitamins and electrolytes.
2. Understand enteral and parenteral nutrition, including its purposes, ingredients, stability and complications.
3. Recognize herbs, their values, uses and dangers.
4. Become familiar with the supportive therapy and antidotes used to treat occurrences of poisoning.
5. Understand the importance of the Blue Alert cart, its supplies and its maintenance.
6. Be aware of the role of the pharmacy technician in the event of a bioterrorist attack.