

PHM-1460: PHARMACOLOGY AND THERAPEUTIC PRINCIPLES II

Cuyahoga Community College

Viewing: PHM-1460 : Pharmacology and Therapeutic Principles II

Board of Trustees:

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Academic Term:

Fall 2022

Subject Code

PHM - Pharmacy Technology

Course Number:

1460

Title:

Pharmacology and Therapeutic Principles II

Catalog Description:

Fundamentals of pharmacology including drug classification, brand and generic drug nomenclature, common drug therapy associated with various disease states, drug indications, side effects, and parameters for safe drug usage.

Credit Hour(s):

3

Lecture Hour(s):

3

Lab Hour(s):

0

Other Hour(s):

0

Requisites

Prerequisite and Corequisite

PHM-1450 Pharmacology and Therapeutic Principles I, or departmental approval.

Outcomes

Course Outcome(s):

Recognize drug information sources and evaluate information in an exchange between other health care professionals.

Essential Learning Outcome Mapping:

Written Communication: Demonstrate effective written communication for an intended audience that follows genre/disciplinary conventions that reflect clarity, organization, and editing skills.

Information Literacy: Acquire, evaluate, and use information from credible sources in order to meet information needs for a specific research purpose.

Objective(s):

1. Discuss brand vs. generic drugs and related issues relevant to the drug therapies discussed in this course.
 2. Discuss the use of the major drug information resources and references.
 3. Apply mathematical reasoning to determination of proper drug dosing and administration.
 4. Communicate clearly in writing a discussion of an assigned disease state and therapies used to treat it.
 5. Demonstrate ability to recognize various dosage forms and how they are to be appropriately used, along with the pharmaceutical manufacturers that produce them.
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Course Outcome(s):

Explain the use and side effects of prescription and non-prescription medications and therapies (including alternative therapies) related to infectious diseases and psychiatric conditions, and the respiratory, reproductive, genitourinary, renal, and hematologic systems.

Essential Learning Outcome Mapping:

Written Communication: Demonstrate effective written communication for an intended audience that follows genre/disciplinary conventions that reflect clarity, organization, and editing skills.

Objective(s):

1. Describe the principles of pharmacokinetics, including drug absorption, distribution, metabolism, and excretion.
2. Discuss the major drug classes related to infectious diseases and psychiatric conditions, and the respiratory, reproductive, genitourinary, renal, and hematologic systems.
3. Discuss wellness promotion and disease prevention concepts, such as use of health screenings; and adverse effects of alcohol, tobacco, and legal and illegal drugs, as they relate to the body systems and conditions taught in this course.

Course Outcome(s):

Demonstrate knowledge and skills in areas of science relevant to the pharmacy technician's role, including anatomy/physiology and pharmacology.

Objective(s):

1. Discuss the body organs and physiology related to infectious diseases and psychiatric conditions, and the respiratory, reproductive, genitourinary, renal, and hematologic systems.
2. List the most frequently occurring disorders/diseases related to infectious diseases and psychiatric conditions, and the respiratory, reproductive, genitourinary, renal, and hematologic systems.
3. Identify and describe emerging therapies related to the body systems and disorders studied in this course.
4. Apply mathematical reasoning to determination of proper drug dosing and administration.
5. Describe the principles of pharmacokinetics, including drug absorption, distribution, metabolism, and excretion.
6. Discuss the major drug classes related to infectious diseases and psychiatric conditions, and the respiratory, reproductive, genitourinary, renal, and hematologic systems.
7. Relate bio-chemical principles to basic pharmacology.

Course Outcome(s):

Assist pharmacists in preparing, storing, and distributing medication products requiring special handling and documentation [(e.g., controlled substances, immunizations, chemotherapy, investigational drugs, drugs with mandated Risk Evaluation and Mitigation Strategies (REMS)].

Objective(s):

1. Discuss brand vs. generic drugs and related issues relevant to the drug therapies discussed in this course.
2. Identify and describe emerging therapies related to the body systems and disorders studied in this course.
3. Discuss the DEA, FDA, and drug standards and laws related to pharmacy and the treatment of body systems included in this course.
4. Demonstrate the ability to read medication orders/prescriptions, interpret these orders and prepare (type) on labels for patient use for medications related to the conditions and body systems studied in this course.
5. Demonstrate ability to recognize various dosage forms and how they are to be appropriately used, along with the pharmaceutical manufacturers that produce them.
6. Discuss the major drug classes related to infectious diseases and psychiatric conditions, and the respiratory, reproductive, genitourinary, renal, and hematologic systems.

Course Outcome(s):

Apply patient-safety and medication-safety practices in all aspects of the pharmacy technician's roles with respect to the medication classes and body systems in this course..

Objective(s):

1. Discuss the body organs and physiology related to infectious diseases and psychiatric conditions, and the respiratory, reproductive, genitourinary, renal, and hematologic systems.
2. Discuss the DEA, FDA, and drug standards and laws related to pharmacy and the treatment of body systems included in this course.
3. Define pharmacology and its importance in pharmacy practice.
4. Apply mathematical reasoning to determination of proper drug dosing and administration.
5. Discuss wellness promotion and disease prevention concepts, such as use of health screenings; and adverse effects of alcohol, tobacco, and legal and illegal drugs, as they relate to the body systems and conditions taught in this course.

Methods of Evaluation:

1. Written assignments (homework from chapters in textbook and workbook)
2. Research paper on a topic relevant to the course material.
3. Written examinations and quizzes

Course Content Outline:

1. Basics of physiology applicable to pharmacology
 - a. General biochemical principles
 - b. Review of the human body functions
 - c. The human cell and its functions
2. Basic pharmacology and related principles
 - a. Pharmacokinetics (absorption, distribution, metabolism, excretion)
 - b. Body tissue as they respond to medications
 - c. Regulation and coordination of body functions
3. Prescription and medication orders
 - a. Reading and interpreting prescriptions
 - b. Preparing medications (especially related to infectious diseases and psychiatric conditions, and the respiratory, reproductive, genitourinary, renal, and hematologic systems) for patient use
 - c. Patient safety principles applicable to dispensing medications, including relevant mandated Risk Evaluation and Mitigation Strategies (REMS)
4. The Respiratory system
 - a. Body organs and physiology of the respiratory system
 - b. Disorders and diseases of the respiratory system
 - c. Classes of drugs used to treat conditions affecting the respiratory system, including emerging therapies and the role of FDA and United States Pharmacopeia
 - d. Mechanisms, actions and adverse effects of medications in these classes
 - e. Brand and generic medications for the respiratory system, along with their dosage forms and manufacturers
 - f. Dosing (including dosage calculations) and administration, safe handling and use, of medications for the respiratory system
 - g. Health screenings related to respiratory wellness.
5. Infectious diseases
 - a. Introduction to infectious diseases
 - b. Disorders and diseases caused by infection
 - c. Bacterial infections and classes of drugs used to treat them, including emerging therapies and the role of FDA and United States Pharmacopeia
 1. Mechanisms, actions and adverse effects of medication classes used to treat bacterial infections
 2. Brand and generic medications, along with their dosage forms and manufacturers, of these classes
 3. Dosing (including dosage calculations) and administration, safe handling and use, of medications used to treat infections
 - d. Fungal Infections and classes of drugs used to treat them, including emerging therapies and the role of FDA and United States Pharmacopeia
 1. Mechanisms, actions and adverse effects of medication classes used to treat fungal infections
 2. Brand and generic medications, along with their dosage forms and manufacturers, of these classes
 3. Dosing (including dosage calculations) and administration, safe handling and use, of medications used to treat infections
 - e. Viral Infections and classes of drugs used to treat them, including emerging therapies and the role of FDA and United States Pharmacopeia
 1. Mechanisms, actions and adverse effects of medication classes used to treat viral infections
 2. Brand and generic medications, along with their dosage forms and manufacturers, of these classes.
 3. Dosing (including dosage calculations) and administration, safe handling and use of medications used to treat viral infections
 - f. Infectious Disease Prevention
 1. Infection control procedures, including preventing transmission of blood borne and airborne diseases
 2. Immunization
6. The Reproductive and Genitourinary systems
 - a. Body organs and physiology of the reproductive and genitourinary systems
 - b. Disorders and diseases of the reproductive and genitourinary systems
 - c. Classes of drugs used to treat conditions affecting the reproductive and genitourinary systems, including emerging therapies and the role of FDA and USP
 - d. Mechanisms, actions and adverse effects of medications in these classes

- e. Brand and generic medications for the reproductive and genitourinary systems, along with their dosage forms and manufacturers
 - f. Dosing (including dosage calculations) and administration of medications for the reproductive and genitourinary systems
 - g. Risk Evaluation and Mitigation Strategies (REMS) programs applicable to specific reproductive and genitourinary system drugs
7. The Hematologic system
- a. Body organs and physiology of the Hematologic system
 - b. Disorders and diseases of the Hematologic system
 - c. Classes of drugs used to treat conditions affecting the Hematologic system, including emerging therapies and the role of FDA and United States Pharmacopeia
 - d. Mechanisms, actions and adverse effects of medications in these classes.
 - e. Brand and generic medications for the hematologic system, along with their dosage forms and manufacturers
 - f. Dosing (including dosage calculations) and administration of medications for the Hematologic system
 - g. Risk Evaluation and Mitigation Strategies (REMS) programs applicable to specific medications used to treat conditions of the hematologic system
8. The Renal system
- a. Body organs and physiology of the Renal system
 - b. Disorders and diseases of the Renal system
 - c. Classes of drugs used to treat conditions affecting the Renal system, including emerging therapies and the role of FDA and United States Pharmacopeia
 - d. Mechanisms, actions and adverse effects of medications in these classes.
 - e. Brand and generic medications for the Renal system, along with their dosage forms and manufacturers
 - f. Dosing (including dosage calculations) and administration of medications for the Renal system
 - g. Risk Evaluation and Mitigation Strategies (REMS) programs applicable to specific medications used to treat conditions of the Renal system
9. Psychiatric Disorders
- a. Causes and prevention of mental illness
 - b. Symptoms and treatments for depression, anxiety and psychosis
 - c. Classes of drugs used to treat psychiatric disorders, including emerging therapies and the role of FDA and United States Pharmacopeia
 - d. Mechanisms, actions and adverse effects of medications in these classes
 - e. Brand and generic medications for the psychiatric disorders, along with their dosage forms and manufacturers
 - f. Dosing (including dosage calculations) and administration of medications for psychiatric disorders
 - g. Relevant Risk Evaluation and Mitigation Strategies for medications to treat psychiatric disorders
10. Professional communication related to pharmacology and medications
- a. Drug information resources
 - b. Research paper organization for pharmacology-related topics

Resources

Brunton, Laurence and Chabner, Bruce. *Goodman and Gilman's: The Pharmacological Basis of Therapeutics*. 13th ed. NY NY, etc: McGraw-Hill Education, 2017.

Stuhan, Mary Ann. *Understanding Pharmacology for Pharmacy Technicians*. 1st ed. Bethesda MD: American Society of Health-System Pharmacists, 2012.

Stuhan, Mary Ann. *Workbook for Understanding Pharmacology for Pharmacy Technicians*. 1st ed. Bethesda MD: American Society of Health-System Pharmacists, 2013.

Resources Other

Lexicomp Online: <http://online.lexi.com/lco/action/hom> (<http://online.lexi.com/lco/action/hom/>) (subscription content for Pharmacology Department students)

Approved Drug Products with Therapeutic Equivalence Evaluations (Orange Book): <https://www.fda.gov/Drugs/InformationOnDrugs/ucm129662.htm>

Wolters Kluwer New Drug Notices: <http://www.wolterskluwer CDI.com/clinical-notice/new-drugs/>

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