

# PHM-1450: PHARMACOLOGY AND THERAPEUTIC PRINCIPLES I

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## Cuyahoga Community College

### Viewing: PHM-1450 : Pharmacology and Therapeutic Principles I

**Board of Trustees:**

January 2022

**Academic Term:**

Fall 2022

**Subject Code**

PHM - Pharmacy Technology

**Course Number:**

1450

**Title:**

Pharmacology and Therapeutic Principles I

**Catalog Description:**

Overview of 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**

Departmental approval: admission to program.

## Outcomes

**Course Outcome(s):**

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

**Objective(s):**

1. Discuss the use of the major drug information resources and references.
2. Communicate clearly in writing a discussion of an assigned disease state and medicinals used to treat it.

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**Course Outcome(s):**

Explain the use and side effects of prescription and non-prescription medications and therapies (including alternative therapies) used to treat common disease states that affect selected body systems.

**Objective(s):**

1. Discuss the body organs and physiology relevant to the cardiovascular system, the gastrointestinal system, the central nervous system, and the endocrine system.
2. List the most frequently occurring disorders/diseases of each body system discussed in this course.

3. Discuss the major drug classes used to treat the cardiovascular system, the gastrointestinal system, the central nervous system, and the endocrine system.
4. Identify and describe emerging therapies related to the body systems and disorders studied in this course.

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**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. Define pharmacology and its importance in pharmacy practice.
2. Relate biochemical principles to basic pharmacology.
3. Describe the principles of pharmacokinetics, including drug absorption, distribution, metabolism, and excretion.

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**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 the DEA, FDA, and drug standards and laws related to pharmacy and the treatment of body systems included in this course.
2. 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 taught in this course.
3. Identify drugs of abuse and the application of Prescription Drug Monitoring Program -- Ohio Automated Rx Reporting System (OARRS).

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**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 brand vs. generic drugs and related issues relevant to the drug therapies discussed in this course.
2. Demonstrate ability to recognize various dosage forms and how they are to be appropriately used, along with the pharmaceutical manufacturers that produce them.
3. Demonstrate the ability to read medication orders/prescriptions, interpret these orders and prepare (type) on labels for patient use for medications related to the body systems studied in this course.
4. Apply mathematical reasoning to determination of proper drug dosing and administration.

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**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. Biochemical principles
  - b. Review of the biological body functions
  - c. The body cell and its functions
2. Basic pharmacology and related principles
  - a. Pharmacokinetics (absorption, distribution, metabolism, excretion)
  - b. Body tissue as they relate to medications
  - c. Regulation and coordination of body functions
3. Prescription and medication orders
  - a. Reading and interpreting prescriptions
  - b. Preparing medications for patient use
  - c. Patient safety principles applicable to dispensing
4. The Cardiovascular system
  - a. Body organs and physiology of the cardiovascular system
  - b. Disorders and diseases of the cardiovascular system

- c. Classes of drugs used to treat conditions affecting the cardiovascular system, 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 cardiovascular system, along with their dosage forms and manufacturers
  - f. Dosing (including dosage calculations) and administration of medications for the cardiovascular system
  - g. Health screenings related to cardiovascular wellness
5. The Gastrointestinal system
- a. Body organs and physiology of the gastrointestinal system
  - b. Disorders and diseases of the gastrointestinal system
  - c. Classes of drugs used to treat conditions affecting the gastrointestinal system, 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 gastrointestinal system, along with their dosage forms and manufacturers
  - f. Dosing (including dosage calculations) and administration of medications for the gastrointestinal system
6. The Central Nervous system
- a. Body organs and physiology of the central nervous system
  - b. Disorders and diseases of the central nervous system
  - c. Classes of drugs used to treat conditions affecting the central nervous system, 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 central nervous system, along with their dosage forms and manufacturers
  - f. Dosing (including dosage calculations) and administration of medications for the central nervous system
  - g. Adverse effects of alcohol and illegal drugs and role of DEA and prescription monitoring systems for controlled substances
  - h. Risk Evaluation and Mitigation Strategies (REMS) programs applicable to specific central nervous system medications
7. The Endocrine system
- a. Body organs and physiology of the endocrine system
  - b. Disorders and diseases of the endocrine system
  - c. Classes of drugs used to treat conditions affecting the endocrine system, 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 endocrine system, along with their dosage forms and manufacturers
  - f. Dosing (including dosage calculations) and administration of medications for the Endocrine system
  - g. Health screenings (such as blood sugar) related to endocrine wellness
8. Professional communication related to pharmacology and medications
- a. Drug information resources
  - b. Research paper organization for pharmacology-related topics

## Resources

Stuhan , MaryAnn. *Understanding Pharmacology for Pharmacy Technicians*. 1st ed. American Society of Health-System Pharmacists, 2012.

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Stuhan , MaryAnn. *Workbook for Understanding Pharmacology for Pharmacy Technicians*. 1st ed. American Society of Health-System Pharmacists, 2013.

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

## 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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