# Pharmacology Course No. 14253 Credit: 1.0

|  |  |  |  |
| --- | --- | --- | --- |
| **Student name:** |  | **Graduation Date:** |  |

Pathways and CIP Codes:Biochemistry (14.1401); Biomedical (14.0501); Health Science (51.9999)

Course Description: **Technical Level:** Pharmacology courses involve a study of how humans can be changed by chemical substances, especially by the actions of drugs and other substances used to treat disease. Basic concepts of physiology, pathology, biochemistry, and bacteriology are typically brought into play as students examine the effects of drugs and their mechanisms of action.

Directions:The following competencies are required for full approval of this course. Check the appropriate number to indicate the level of competency reached for learner evaluation.

**RATING SCALE:**

4. Exemplary Achievement: Student possesses outstanding knowledge, skills or professional attitude.

3. Proficient Achievement:Student demonstrates good knowledge, skills or professional attitude. Requires limited supervision.

2. Limited Achievement:Student demonstrates fragmented knowledge, skills or professional attitude. Requires close supervision.

1. Inadequate Achievement:Student lacks knowledge, skills or professional attitude.

0. No Instruction/Training:Student has not received instruction or training in this area.

## Benchmark 1: Demonstrate Knowledge of Pharmacology Basics

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 | Review of basic body systems and normal body processes. |  |
| 1.2 | Define and discuss the major areas of pharmacology not limited to: pharmacodynamics, pharmacokinetics, pharmacotherapeutics, pharmacy, posology, toxicology. |  |
| 1.3 | Explain factors affecting the action of drugs including dosage forms, drug absorption, distribution, metabolism, excretion, and blood drug levels. |  |
| 1.4 | Explain common conditions, use and side effects of prescriptions or over the counter (OTC) medications used to treat these conditions not limited to: hypertension, hypothyroidism, diabetes, weight loss, cardiovascular disease, chronic obstructive pulmonary diseases, arthritis, anxiety, and insomnia. |  |
| 1.5 | Define and use as common language; pharmaceutical and medical terminology not limited to: indication, side effect, adverse effect, toxic effect, action, contraindication, allergic reaction, therapeutic effect, and cumulative effect. |  |
| 1.6 | Define and distinguish the difference between drug abuse, drug dependence and drug tolerance. |  |
| 1.7 | Identify and define common classifications of drugs including classifications for prescriptions, controlled substances, and over the counter (OTC) drugs not limited to: anesthetics, sedatives, (hypnotic drugs and alcohol), antipsychotic, antiemetic, antianxiety, antidepressants, psychomotor stimulants, and lithium, antiepileptics, antiparkinson, narcotic analgesics, non-narcotic analgesics, anti-inflammatory, antiarrhythmics, diuretics, antihypertensive, anticoagulants and coagulants, antianemics, antiallergics and antihistamines, bronchodilators, antiulcer, hormones, steroids, antibacterials, and miscellaneous anti-infectives, antifungals and antivirals). |  |
| 1.8 | Identify top 10 most common drugs in retail and hospital-based practice and their indications. |  |
| 1.9 | Define and differentiate drug nomenclature to include chemical, generic and brand (trade) names of medications. |  |
| 1.10 | Identify common drug interactions not limited to: drug-drug, food-drug, prescription drug-OTC, and prescription drugs-herbal preparations. |  |
| 1.11 | Identify contraindications to use of drugs not limited to: drug-disease, drug-laboratory, and food-drug. |  |
| 1.12 | Identify conditions affected by drugs not limited to: pregnancy, breastfeeding and allergies. |  |
| 1.13 | Discuss common alternative therapies not limited to: herbal preparations, dietary supplements, homeopathy, and lifestyle changes. |  |
| 1.14 | Identify common OTC medications not limited to: antacids, laxatives, cold remedies, allergy remedies and pain relievers. |  |
| 1.15 | Explain symptoms of adverse drug reactions not limited to: rash, hives, light headedness, nausea, and vomiting. |  |

## Benchmark 2: Identify Medical and Legal Considerations Related to the Practice of Pharmacy

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Identify the purpose of the FDA and the duties they perform. |  |
| 2.2 | Identify the process that drugs must go through to be developed and approved for use. |  |
| 2.3 | Identify methods used to store, handle, and dispose of hazardous substances and wastes according to federal standards. |  |
| 2.4 | Explain hazardous substances exposure, prevention and treatment not limited to: eyewash, spill kid and safety data sheets (SDS). |  |
| 2.5 | Explain controlled substance regulations according to the drug enforcement agency (DEA) not limited to: receiving, ordering, returning, loss/theft, and destruction. |  |
| 2.6 | Discuss the regulations that affect the production and distribution of a variety of types of drugs. |  |
| 2.7 | Identify the responsibilities and liabilities of a pharmacist preparing and filling prescriptions. |  |
| 2.8 | Identify the responsibilities and liabilities of a doctor prescribing drugs. |  |
| 2.9 | Define and discuss the illegal use of legal drugs. |  |
| 2.10 | Explain the FDA mandatory versus voluntary recall classification. |  |
| 2.11 | Discuss the roles and responsibilities of pharmacy careers not limited to: pharmacists, pharmacy technicians or other pharmacy employees according to the Board of Pharmacy (BOP). |  |
| 2.12 | Describe record keeping requirements related to pharmacy not limited to: length of time prescriptions are maintained, repackaging products, recalled products and supplies, and invoicing. |  |
| 2.13 | Identify professional standards relating to data integrity, security and confidentiality not limited to HIPPA, archiving records, and OBRA. |  |

## Benchmark 3: Demonstrate Measurement and Calculating Techniques

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Demonstrate the use of Arabic and Roman numerals, weights and measures, and the metric system. |  |
| 3.2 | Recognize and use the metric units of length, weight volume and temperature in mathematical problems. |  |
| 3.3 | Demonstrate the ability to perform pharmacology math-related problems not limited to calculations, data analysis and graphing. |  |

## Benchmark 4: Safety

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Identify methods to reduce errors in prescription or medication orders according to the Institute of Safe Medication Practices (ISMP), not limited to: correct patient, high risk medications, look-alike sound-alike medications, leading and trailing zeros and error prone abbreviations. |  |
| 4.2 | Identify requirements for the package insert and medication guidelines. |  |
| 4.3 | Identify and define the published list of high-alert/risk medications. |  |
| 4.4 | Identify what belongs on a drug product label, including auxiliary labels not limited to: poison, shake well, store away from direct sunlight, external use only and take on empty stomach. |  |
| 4.5 | Demonstrate the understanding of the importance and how to perform data searches for accurate pharmacology information. |  |
| 4.6 | Identify issues that require pharmacist intervention not limited to: drug utilization review, adverse drug events, substitutions, misuse and missed dosages. |  |

I certify that the student has received training in the areas indicated.

Instructor Signature:

For more information, contact:

CTE Pathways Help Desk

(785) 296-4908

[pathwayshelpdesk@ksde.org](mailto:pathwayshelpdesk@ksde.org)



900 S.W. Jackson Street, Suite 102

Topeka, Kansas 66612-1212

[https://www.ksde.org](https://www.ksde.org/)

The Kansas State Department of Education does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities and provides equal access to any group officially affiliated with the Boy Scouts of America and other designated youth groups. The following person has been designated to handle inquiries regarding the nondiscrimination policies: KSDE General Counsel, Office of General Counsel, KSDE, Landon State Office Building, 900 S.W. Jackson, Suite 102, Topeka, KS 66612, (785) 296-3201.