# Scope & Sequence

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| Course Name: Pharmacology **PEIMS Code:** 13020950 | | | **Course Credit:** 1.0  **Course Requirements:** This course is recommended for students in Grades 11 and 12.  **Prerequisites:** Biology and Chemistry.  **Recommended Prerequisite:** A course from the Health Science Career Cluster. |
| **Course Description:** The Pharmacology course is designed to study how natural and synthetic chemical agents such as drugs affect biological systems. Knowledge of the properties of therapeutic agents is vital in providing quality health care. It is an ever changing, growing body of information that continually demands greater amounts of time and education from health care workers. | | | |
| **NOTE:** This is a suggested scope and sequence for the course content. This content will work with any textbook or instructional materials. If locally adapted, make sure all TEKS are covered. | | | |
| **Total Number of Periods**  **Total Number of Minutes**  **Total Number of Hours** | 175 Periods  7,875 Minutes  131.25 Hours\* | \*Schedule calculations based on 175/180 calendar days. For 0.5 credit courses, schedule is calculated out of 88/90 days. Scope and sequence allows additional time for guest speakers, student presentations, field trips, remediation, extended learning activities, etc. | |

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| **Unit Number, Title, and Brief Description** | **# of Class Periods\***  (assumes 45-minute periods)  Total minutes per unit | **TEKS Covered**  **130.230 (c) Knowledge and skills** |
| **Unit 1:. Meeting Employer Expectations in Health Science**  This unit is designed to inform future Health Science students about industry expectations for employability skills and professional standards. | 15 periods  675 minutes | (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:  (A) demonstrate verbal and non-verbal communication in a clear, concise, and effective manner;  (B) demonstrate adaptability skills such as problem solving and creative thinking;  (C) develop a career plan;  (D) employ teamwork;  (E) create a job-specific resume; and  (F) appraise the characteristics desired by employers. |
| **Unit 2: Pharmacology Basics in Health Science**  Students in this unit Will be able to identify the basics of how drugs work inside the human body. Students will analyze major subdivisions of pharmacotherapeutics, pharmacodynamics, and pharmacokinetics. Students will be able to differentiate between the positive and potentially negative effects of common medications. Common reference books on pharmacology will be explained. | 25 periods  1,125 minutes | (2) The student explores the field of pharmacology and foundation of pharmacology. The student is expected to:  (A) define pharmacology and its major subdivisions, including pharmacodynamics, pharmacokinetics, and pharmacotherapeutics;  (B) explain the difference between therapeutic effects, side effects, and toxic effects;  (C) identify a drug receptor in the human body;  (D) trace the interaction and antagonist receptor;  (E) explain the relationship among drug dosage, drug response, and time;  (F) explain drug safety and therapeutic index;  (G) describe three names by which drugs are known; and  (H) list two common drug reference books. |
| **Unit 3: Members of the Pharmacology Team**  In this unit students will identify the role of the pharmacological team along with individuals responsible for the manufacturing, dispensing, and administrating pharmaceuticals. The impact of the cost of health care in general and of pharmaceuticals in particular will be analyzed. Students will describe career pathways related to pharmacology along with emerging pharmacy opportunities. | 20 periods  900 minutes | (3) The student identifies individuals and careers associated with manufacturing, dispensing, and administering pharmaceuticals. The student is expected to:  (A) identify career pathways related to pharmacology;  (B) define the role of the pharmacy team;  (C) research and describe emerging pharmacy career opportunities;  (D) analyze the impact of pharmaceuticals on the costs of health care; and  (E) evaluate the impact of pharmaceuticals on the costs of society. |
| **Unit 4: Legal and Ethical Issues in Pharmacology**  Student will learn the potential consequences of a failure to follow the legal and ethical responsibilities pharmacists and pharmacy technicians. They will explore the differences between product liability, contributory negligence, negligence, and regulatory law. Students will explain the elements of a lawsuit and define professional liability. | 25 periods  1,125 minutes | (4) The student explains the ethical and legal responsibilities of pharmacists and pharmacy technicians. The student is expected to:  (A) describe the legal terms and consequences associated with prescription errors;  (B) differentiate between negligence, product liability, contributory negligence, and regulatory law;  (C) evaluate the effect of medication errors related to the pharmacy and the industry;  (D) discuss the elements of a lawsuit; and  (E) define professional liability. |
| **Unit 5: Using Medical Terminology in Pharmacology**  Students are expected to communicate effectively with other healthcare professionals about a variety of topics including: Routes of drug medication, and various classifications of drugs. Students should display a working knowledge of basic medical terminology including root words, suffixes and prefixes. | 20 periods  900 minutes | (5) The student uses a comprehensive medical vocabulary in order to communicate effectively with other health care professionals. The student is expected to:  (A) identify the various routes of drug medication;  (B) differentiate among the various classes of drugs;  (C) properly use common terms associated with pharmacology; and  (D) analyze unfamiliar terms using the knowledge of word roots, suffixes, and prefixes. |
| **Unit 6: Mathematics Used in Pharmacology**  In this unit students must not only demonstrate their ability to use math to solve problems of measurement in pharmacy but also to convert measurements from one system to another. Students must also be able to analyze medication calculations, including metric, apothecary, and household systems. | 15 periods  675 minutes | (6) The student demonstrates mathematical knowledge and skills to solve problems with systems of measurement used in the pharmacy. The student is expected to:  (A) analyze medication calculations, including metric, apothecary, and household systems;  (B) convert a measurement expressed in one standard unit within a system to a measurement expressed in another unit within the same system; and  (C) convert a measurement expressed in one system to a unit of the same measurement in a different system. |
| **Unit 7: Pharmacological Forms and Types of Drug Administration**  Student become familiar with the different forms in which pharmaceuticals are dispensed. Students also demonstrate their ability to use and define terms associated with different drug forms. A pharmaceutical agents route of administration and examples of dosage forms are also defined. | 20 periods  900 minutes | (7) The student recognizes the effectiveness of a pharmaceutical agent, its form, and its route of administration. The student is expected to:  (A) differentiate between solid, semi-solid, and liquid dosage forms;  (B) name forms in which drugs are manufactured, including their subcategories;  (C) list examples of drugs in each dosage form; and  (D) define medical terms associated with drug forms. |
| **Unit 8: The Use of Technology in Pharmacology**  In this unit students will describe and analyze technology components and select appropriate equipment and instruments used for a specific task. Students will also explain hoe appropriate technology improve pharmacy efficiency. | 20 periods  900 minutes | (8) The student must be able to select appropriate equipment and instruments and use technology for specific tasks. The student is expected to:  (A) identify technology components used in the pharmacy;  (B) describe how technology applications approve efficiency in the pharmacy; and  (C) analyze the use of technology in the pharmacy. |
| **Unit 9: Pharmacology Safety Standards**  To prevent personal or client injury students will practice dispensing and administering pharmaceutical agents using recognized safety standards. Interpreting safety standards and examining unsafe practices allow students to demonstrate these skills in a clinical setting. | 15 periods  675 minutes | (9) The student is expected to practice safety in dispensing and administering pharmaceutical agents and prevent personal and client illness or injury. The student is expected to:  (A) employ safety standards;  (B) interpret rules associated with pharmacy standards;  (C) examine unsafe practices;  (D) observe safe procedures in the administration of client care; and  (E) demonstrate these safe procedures in the clinical setting. |