



Pharmacy I

PEIMS Code: N1302127

Abbreviation: PHARMCY1

Grade Level(s): 10-11

Award of Credit: 1.0

Approved Innovative Course

- Districts must have local board approval to implement innovative courses.
- In accordance with Texas Administrative Code (TAC) §74.27, school districts must provide instruction in all essential knowledge and skills identified in this innovative course.
- Innovative courses may only satisfy elective credit toward graduation requirements.
- Please refer to [TAC §74.13](#) for guidance on endorsements.

Course Description:

The Pharmacy I course is designed to build upon the knowledge and skills taught in the Introduction to Pharmacy Science course. Students build on their existing foundation of knowledge and skills needed to pursue a career in the pharmaceutical field such as a pharmacy technician or pharmacist). Instruction includes pharmacokinetics, pharmacy law, medication safety, the dispensing process, and inventory. This course is aligned with the standards of the national certification exams that students might take, such as Pharmacy Technician Certification Examination (PTCE) and/or Exam for the Certification of Pharmacy Technicians (ExCPT). Recommended participants are students who wish to become certified pharmacy technicians.

Essential Knowledge and Skills:

- (a) General Requirements. This course is recommended for students in 10-11. Recommended Prerequisites: Biology, Introduction to Pharmacy Science, or Principles of Health Science. Students shall be awarded one credit for successful completion of this course.
- (b) Introduction.
 - (1) Career and technical education instruction provides content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.
 - (2) The Health Science Career Cluster focuses on planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development.
 - (3) The Pharmacy I course is designed to build upon the knowledge and skills taught in the Introduction to Pharmacy Science course. Students build on their existing foundation of knowledge and skills needed to pursue a career in the pharmaceutical field such as a pharmacy technician or pharmacist). Instruction includes pharmacokinetics, pharmacy

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- law, medication safety, the dispensing process, and inventory. This course is aligned with the standards of the national certification exams that students might take, such as Pharmacy Technician Certification Examination (PTCE) and/or Exam for the Certification of Pharmacy Technicians (ExCPT).
- (4) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.
 - (5) Professional integrity in the health science industry is dependent on acceptance of ethical and legal responsibilities. Students are expected to employ ethical and legal responsibilities, recognize limitations, and understand the implications of their actions.
 - (6) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.
- (c) Knowledge and Skills.
- (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:
 - (A) express ideas in a clear, concise, and effective manner;
 - (B) exhibit the ability to cooperate, contribute, and collaborate as a member of a team; and
 - (C) identify employer expectations such as punctuality, attendance, time management, communication, organizational skills, and productive work habits.
 - (2) The student exhibits personal and interpersonal knowledge and skills. The student is expected to:
 - (A) model ethical conduct in complex situations;
 - (B) model a respectful and professional attitude when interacting with diverse patient populations, colleagues, and professionals;
 - (C) apply self-management skills, such as stress and change management;
 - (D) apply interpersonal skills, including negotiation skills, conflict resolution, customer service, and teamwork;
 - (E) practice problem solving skills in respect to complex ethical decision making; and
 - (F) distinguish between unethical and illegal conduct in the workplace.
 - (3) The student communicates effectively with diverse populations in a pharmacy or simulated setting. The student is expected to:
 - (A) practice a respectful and professional attitude when interacting with diverse patient populations, colleagues, and professionals;
 - (B) compare and contrast communication techniques that are effective for typical versus special population clients such as terminally ill, intellectually disabled, visually/hearing impaired, and elderly/pediatric populations;
 - (4) The student interprets pharmacy correspondence utilizing medical abbreviations and terminology typically found in the pharmacy or simulated setting. The student is expected to:

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- (A) employ pharmacy terminology and abbreviations in creating and utilizing correspondence in the pharmacy, such as prescriptions, medication administration records (MARs), and patient order sheets;
 - (B) compare and contrast terminology typically used in the retail and industrial pharmacy settings; and
 - (C) identify sig codes and abbreviations used in the pharmacy.
- (5) The student distinguishes between the requirements of the various federal agencies. The student is expected to:
- (A) explain the handling and disposal of non-hazardous, hazardous, and pharmaceutical substances and waste;
 - (B) discuss the requirements for controlled substance prescriptions, including new, refill, and transfer, and Drug Enforcement Administration (DEA) controlled substances schedules;
 - (C) describe Food and Drug Administration (FDA) recall requirements based on classification for medications, devices, supplies, and supplements;
 - (D) interpret and apply state and federal laws pertaining to processing, handling, and dispensing of medications including controlled substances;
 - (E) analyze state and federal laws and regulations pertaining to pharmacy technicians; and
 - (F) explain pharmacy compliance with professional standards and relevant legal, regulatory, formulary, contractual, and safety requirements.
- (6) The student demonstrates knowledge of common drug information and therapeutic indications. The student is expected to:
- (A) identify brand name, generic name, classification, and indication of use for common medications with automaticity;
 - (B) discuss common and life-threatening drug interactions and contraindications;
 - (C) identify narrow therapeutic index (NTI) medications; and
 - (D) practice accessing references such as United States Pharmacopeia (USP) standards, drug reference materials, and other clinical information sources to perform job duties,
- (7) The student explains the dispensing process in a community pharmacy and institutional pharmacy setting. The student is expected to:
- (A) identify a prescription or medication order for completeness, including strength, form, directions, quantity, and refills, and obtain missing information if needed;
 - (B) communicate with patients to obtain information, including demographics, medication history, health conditions, allergies, and insurance, for the patient profile;
 - (C) practice assisting pharmacists in collecting, organizing, and recording demographic and clinical information for the *Pharmacists' Patient Care Process*;

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- (D) perform the necessary mathematical calculations required for order entry, including conversions, formulas, ratios, concentrations, percent strength, dilutions, proportions, and allegations;
 - (E) identify equipment and supplies, including package size, unit dose, diabetic supplies, spacers, oral/injectable syringes, required for drug administration;
 - (F) identify and describe the importance of lot numbers, expiration dates, and National Drug Codes (NDC) on drug packaging;
 - (G) practice and adhere to effective infection control procedures;
 - (H) apply appropriate hygiene and cleaning standards, including hand washing, cleaning counting trays, countertops, and equipment; and
 - (I) explain that differences exist between states regarding state regulations, pertaining to pharmacy technicians, and the processing, handling, and dispensing of medications.
- (8) The student identifies common medication errors and explains error prevention strategies. The student is expected to:
- (A) identify high-alert/risk and look-alike/sound-alike (LASA) medications;
 - (B) describe error prevention strategies, including Tall Man lettering, separating inventory, trailing/leading zeros, barcode usage, limiting use of error-prone abbreviations;
 - (C) describe types of prescription errors, including abnormal doses, early refill, incorrect quantity, incorrect patient, incorrect drug;
 - (D) explain the *Pharmacists' Patient Care Process* and describe the role of the pharmacy technician in the patient care process;
 - (E) assist pharmacists in the identification of patients who desire/require counseling to optimize the use of medications, equipment, and devices;
 - (F) apply patient and medication-safety practices in aspects of the pharmacy technician's roles;
 - (G) explain how pharmacy technicians safely and legally assist pharmacists in responding to emergent patient situations and
 - (H) explain basic safety and emergency preparedness procedures applicable to pharmacy services.
- (9) The student performs inventory procedures according to federal, state, local, and facility guidelines. The student is expected to:
- (A) identify proper storage for medications in regard to temperature;
 - (B) explain the definition and purpose of a formulary or approved/preferred product list including fast movers;
 - (C) describe procedures for inventory control including removal of expired/recalled drug products, rotating inventory, performing a physical inventory, and ordering medications/supplies, including periodic automatic replenishment (PAR) levels and just in time ordering;

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- (D) explain accepted procedures in purchasing pharmaceuticals, devices, and supplies;
 - (E) explain accepted procedures in inventory control of medications, equipment, and devices; and
 - (F) explain accepted procedures utilized in identifying and disposing of expired medications.
- (10) The student demonstrates knowledge of safety procedures in a pharmacy or simulated setting. The student is expected to:
- (A) list the appropriate hygiene and cleaning standards, including hand washing, cleaning counting trays, countertops, and equipment;
 - (B) identify basic safety and emergency preparedness procedures, such as basic life support (BLS) and first aid applicable to pharmacy services;
 - (C) describe the potential sources for drug diversion and the risks to the employees, patients, and the community, such as inventory and “red flags”;
 - (D) identify the potential solutions to minimize drug diversion, such as inventory controls and the prescription drug monitoring program (PDMP);
 - (E) list the types and uses of personal protective equipment (PPE) and the steps for donning and doffing; and
 - (F) describe why collecting and documenting patient allergies are important steps in medication safety.

Recommended Resources and Materials:

Davis, K. & Guerra, A. *Mosby’s Pharmacy Technician: Principles and Practice* (5th ed.). St. Louis: Elsevier, 2017.

Drugbank (2020). Narrow Therapeutic Index. *Drugbank*, 2020. Accessed November 15, 2020. <https://go.drugbank.com/categories/DBCAT003972>.

Mylan Pharmaceuticals Inc. *Mylan Generic Brand Reference Guide*. New York: Haymarket Media, Inc., 2020.

Prescriber’s Digital Reference (2020). PDR, LLC., 2020. Accessed November 15, 2020. <https://www.pdr.net/>.

The United States Pharmacopeia Convention. *U.S. Pharmacopeia*, 2020. Accessed November 15, 2020. <https://www.usp.org/>.

Instructional Technologies

Kahoot!. Kahoot!, 2020. Accessed November 15, 2020. <https://kahoot.com/>.

Quizlet. Quizlet, Inc., 2020. Accessed November 15, 2020. <https://quizlet.com/>.

Survey Monkey. Survey Monkey, 2020. Accessed November 15, 2020. <https://www.surveymonkey.com/>.

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Canva. Canva, 2020. Accessed November 15, 2020. <https://www.canva.com/>.

Glogster. Glogster, 2020. Accessed November 15, 2020. <http://edu.glogster.com/>.

Recommended Course Activities:

- Project-based learning
- Classroom role-playing
- Laboratory projects
- Interactive simulations

Suggested methods for evaluating student outcomes:

- On-going summative and formative assessment by the classroom instructor
- Quizzing
- Role-playing in classroom
- Process validation through laboratory simulations

Teacher qualifications:

An assignment for Pharmacy I is allowed with one of the following certificates.

- Health Science 6-12.
- Health Science Technology 8-12.
- Vocational Health Occupations.
- Vocational Health Science Technology.

It is recommended, but not required, that the teacher hold the Certified Pharmacy Technician (CPhT) and Registered Pharmacy Technician (PhTR) credentials.

Additional information: