Pharmacy I

Subject: Career Development and Career and Technical Education
Grade: 10
Expectations: 43
Breakouts: 174

(a) Introduction.
1. Career and technical education instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and 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 goal of Pharmacy I is for the student to gain a strong foundation in the knowledge and skills needed to pursue a career in the pharmaceutical field (e.g., pharmacy technician, pharmacist). Knowledge includes pharmacology, pharmacy law, medication safety, the dispensing process, and inventory. Pharmacy I is designed to be the second course in a pathway leading to college and career readiness in the healthcare therapeutics professions. The course content aligns with the competencies of pharmacy technician certification examinations.
4. Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.
5. 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.

(b) Knowledge and Skills Statements

(1) The student exhibits personal and interpersonal knowledge and skills. The student is expected to:

    (A) model ethical conduct in complex situations;

        (i) model ethical conduct in complex situations

    (B) model a respectful and professional attitude when interacting with diverse patient populations, colleagues, and professionals;

        (i) model a respectful attitude when interacting with diverse patient populations

        (ii) model a respectful attitude when interacting with colleagues

        (iii) model a respectful attitude when interacting with professionals

        (iv) model a professional attitude when interacting with diverse patient populations

        (v) model a professional attitude when interacting with colleagues

        (vi) model a professional attitude when interacting with professionals

    (C) apply self-management skills such as stress and change management;

        (i) apply self-management skills

(D) apply interpersonal skills, including negotiation skills, conflict resolution, customer service, and teamwork;

    (i)   apply interpersonal skills, including negotiation skills

    (ii)   apply interpersonal skills, including conflict resolution

    (iii)   apply interpersonal skills, including customer service

    (iv)   apply interpersonal skills, including teamwork

(E) practice problem-solving skills in respect to complex ethical decision making; and

    (i)   practice problem-solving skills in respect to complex ethical decision making

(F) compare unethical and illegal conduct in the workplace.

    (i)   compare unethical and illegal conduct in the workplace

(2) The student communicates effectively with diverse populations. The student is expected to:

(A) practice a respectful and professional attitude when interacting with diverse patient populations, colleagues, and professionals; and

    (i)   practice a respectful attitude when interacting with diverse patient populations

    (ii)   practice a respectful attitude when interacting with colleagues

    (iii)   practice a respectful attitude when interacting with professionals

    (iv)   practice a professional attitude when interacting with diverse patient populations

    (v)   practice a professional attitude when interacting with colleagues

    (vi)   practice a professional attitude when interacting with professionals

(B) compare communication techniques that are effective for various population clients such as terminally ill, intellectually disabled, visually/hearing impaired, and elderly/pediatric populations.

    (i)   compare communication techniques that are effective for various population clients

(3) The student interprets pharmacy correspondence utilizing medical abbreviations and terminology typically found in the pharmacy setting. The student is expected to:

(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;

    (i)   employ pharmacy terminology in creating correspondence in the pharmacy

    (ii)   employ pharmacy terminology in utilizing correspondence in the pharmacy

    (iii)   employ pharmacy abbreviations in creating correspondence in the pharmacy

    (iv)   employ pharmacy abbreviations in utilizing correspondence in the pharmacy

(B) compare terminology typically used in the community and institutional pharmacy settings; and

    (i)   compare terminology typically used in the community and institutional pharmacy settings

(C) translate sig codes and abbreviations used in the pharmacy.

    (i)   translate sig codes used in the pharmacy

    (ii)   translate abbreviations used in the pharmacy

(4) The student distinguishes between the requirements of various federal agencies. The student is expected to:

    (A) explain the handling and disposal of non-hazardous, hazardous, and pharmaceutical substances and waste;

        (i) explain the handling of non-hazardous substances

        (ii) explain the handling of non-hazardous waste

        (iii) explain the handling of hazardous substances

        (iv) explain the handling of hazardous waste

        (v) explain the handling of pharmaceutical substances

        (vi) explain the handling of pharmaceutical waste

        (vii) explain the disposal of non-hazardous substances

        (viii) explain the disposal of non-hazardous waste

        (ix) explain the disposal of hazardous substances

        (x) explain the disposal of hazardous waste

        (xi) explain the disposal of pharmaceutical substances

        (xii) explain the disposal of pharmaceutical waste

    (B) discuss the requirements for controlled substance prescriptions, including new, refill, and transfer prescriptions, according to the Drug Enforcement Administration (DEA) controlled substances schedules;

        (i) discuss the requirements for controlled substance prescriptions, including new prescriptions, according to the Drug Enforcement Administration (DEA) controlled substances schedules;

        (ii) discuss the requirements for controlled substance prescriptions, including refill prescriptions, according to the Drug Enforcement Administration (DEA) controlled substances schedules;

        (iii) discuss the requirements for controlled substance prescriptions, including transfer prescriptions, according to the 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;

        (i) describe Food and Drug Administration (FDA) recall requirements based on classification for medications

        (ii) describe Food and Drug Administration (FDA) recall requirements based on classification for devices

        (iii) describe Food and Drug Administration (FDA) recall requirements based on classification for supplies

        (iv) describe Food and Drug Administration (FDA) recall requirements based on classification for supplements

    (D) interpret and apply state and federal laws pertaining to processing, handling, and dispensing of medications, including controlled substances;

        (i) interpret state laws pertaining to processing of medications, including controlled substances

        (ii) interpret state laws pertaining to handling of medications, including controlled substances

        (iii) interpret state laws pertaining to dispensing of medications, including controlled substances

        (iv) interpret federal laws pertaining to processing of medications, including controlled substances

        (v) interpret federal laws pertaining to handling of medications, including controlled substances

(vi)　interpret federal laws pertaining to dispensing of medications, including controlled substances

(vii)　apply state laws pertaining to processing of medications, including controlled substances

(viii)　apply state laws pertaining to handling of medications, including controlled substances

(ix)　apply state laws pertaining to dispensing of medications, including controlled substances

(x)　apply federal laws pertaining to processing of medications, including controlled substances

(xi)　apply federal laws pertaining to handling of medications, including controlled substances

(xii)　apply federal laws pertaining to dispensing of medications, including controlled substances

(E)　interpret state and federal laws and regulations pertaining to pharmacy technicians; and

(i)　interpret state laws pertaining to pharmacy technicians

(ii)　interpret state regulations pertaining to pharmacy technicians

(iii)　interpret federal laws pertaining to pharmacy technicians

(iv)　interpret federal regulations pertaining to pharmacy technicians

(F)　explain pharmacy compliance with professional standards and relevant legal, regulatory, formulary, contractual, and safety requirements.

(i)　explain pharmacy compliance with professional standards

(ii)　explain pharmacy compliance with relevant legal requirements

(iii)　explain pharmacy compliance with relevant regulatory requirements

(iv)　explain pharmacy compliance with relevant formulary requirements

(v)　explain pharmacy compliance with relevant contractual requirements

(vi)　explain pharmacy compliance with relevant safety requirements

(5)　The student recalls drug information. The student is expected to:

(A)　identify brand name, generic name, classification, and indication of use for common medications with automaticity;

(i)　identify brand name for common medications with automaticity

(ii)　identify generic name for common medications with automaticity

(iii)　identify classification for common medications with automaticity

(iv)　identify indication of use for common medications with automaticity

(B)　discuss common and life-threatening drug interactions and contraindications;

(i)　discuss common drug interactions

(ii)　discuss life-threatening drug interactions

(iii)　discuss common drug contraindications

(iv)　discuss life-threatening drug contraindications

(C)　identify narrow therapeutic index (NTI) medications; and

(i)　identify narrow therapeutic index (NTI) medications

(D) access and use references such as United States Pharmacopeia (USP) standards, drug reference books, and clinical information sources as needed to perform job duties.

    (i)   access references

    (ii)   use references

(6) The student explains the dispensing process. The student is expected to:

(A) identify a prescription or medication order for completeness, including drug strength, dosage form, directions, quantity, and refills, and obtain missing information if needed;

    (i)   identify a prescription or medication order for completeness, including drug strength

    (ii)   identify a prescription or medication order for completeness, including dosage form

    (iii)   identify a prescription or medication order for completeness, including directions

    (iv)   identify a prescription or medication order for completeness, including quantity

    (v)   identify a prescription or medication order for completeness, including refills

    (vi)   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;

    (i)   communicate with patients to obtain information, including demographics for the patient profile

    (ii)   communicate with patients to obtain information, including medication history, for the patient profile

    (iii)   communicate with patients to obtain information, including health conditions, for the patient profile

    (iv)   communicate with patients to obtain information, including allergies, for the patient profile

    (v)   communicate with patients to obtain information, including insurance, for the patient profile

(C) practice assisting pharmacists in collecting, organizing, and recording demographic and clinical information for the Pharmacists' Patient Care Process;

    (i)   practice assisting pharmacists in collecting demographic information for the Pharmacists' Patient Care Process

    (ii)   practice assisting pharmacists in organizing demographic information for the Pharmacists' Patient Care Process

    (iii)   practice assisting pharmacists in recording demographic information for the Pharmacists' Patient Care Process

    (iv)   practice assisting pharmacists in collecting clinical information for the Pharmacists' Patient Care Process

    (v)   practice assisting pharmacists in organizing clinical information for the Pharmacists' Patient Care Process

    (vi)   practice assisting pharmacists in recording clinical information for the Pharmacists' Patient Care Process

(D) perform the necessary mathematical calculations required for order entry, including formulas, ratios, concentrations, percent strength, dilutions, proportions, and allegations;

    (i)   perform the necessary mathematical calculations required for order entry, including formulas

    (ii)   perform the necessary mathematical calculations required for order entry, including ratios

    (iii)   perform the necessary mathematical calculations required for order entry, including concentrations

(iv) perform the necessary mathematical calculations required for order entry, including percent strength

(v) perform the necessary mathematical calculations required for order entry, including dilutions

(vi) perform the necessary mathematical calculations required for order entry, including proportions

(vii) perform the necessary mathematical calculations required for order entry, including allegations

(E) identify equipment and supplies, including diabetic supplies, spacers, and oral/injectable syringes, required for drug administration based on the package size and unit dose;

(i) identify equipment and supplies, including diabetic supplies, required for drug administration based on the package size

(ii) identify equipment and supplies, including diabetic supplies, required for drug administration based on the unit dose

(iii) identify equipment and supplies, including spacers, required for drug administration based on the package size

(iv) identify equipment and supplies, including spacers, required for drug administration based on the unit dose

(v) identify equipment and supplies, including oral syringes, required for drug administration based on the package size

(vi) identify equipment and supplies, including injectable syringes, required for drug administration based on the package size

(vii) identify equipment and supplies, including oral syringes, required for drug administration based on the unit dose

(viii) identify equipment and supplies, including injectable syringes, required for drug administration based on the unit dose

(F) identify and describe the importance of lot numbers, expiration dates, and National Drug Codes (NDC) on drug packaging;

(i) identify the importance of lot numbers on drug packaging

(ii) identify the importance expiration dates on drug packaging

(iii) identify the importance of National Drug Codes (NDC) on drug packaging

(iv) describe the importance of lot numbers on drug packaging

(v) describe the importance expiration dates on drug packaging

(vi) describe the importance of National Drug Codes (NDC) on drug packaging

(G) practice and adhere to effective infection control procedures;

(i) practice and adhere to effective infection control procedures;

(ii) practice effective infection control procedures

(iii) adhere to effective infection control procedures

(H) apply appropriate cleaning standards, including hand washing and cleaning counting trays, countertops, and equipment; and

  (i)   apply appropriate cleaning standards, including hand washing

  (ii) apply appropriate cleaning standards, including cleaning counting trays

  (iii) apply appropriate cleaning standards, including cleaning countertops

  (iv) apply appropriate cleaning standards, including cleaning equipment

(I) explain the state pharmacy boards' roles in the regulation of pharmacy technicians and that differences exist between states in the processing, handling, and dispensing of prescription medications.

  (i)   explain the state pharmacy boards' roles in the regulation of pharmacy technicians

  (ii) explain that differences exist between states in the processing of prescription medications

  (iii) explain that differences exist between states in the handling of prescription medications

  (iv) explain that differences exist between states in the dispensing of prescription medications

(7) 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;

  (i)   identify high-alert/risk medications

  (ii) identify look-alike/sound-alike (LASA) medications

(B) describe error prevention strategies, including using Tall Man lettering, trailing/leading zeros, and barcodes; separating inventory; and limiting use of error-prone abbreviations;

  (i)   describe error prevention strategies, including using Tall Man lettering

  (ii) describe error prevention strategies, including using trailing zeros

  (iii) describe error prevention strategies, including using leading zeros

  (iv) describe error prevention strategies, including using barcodes

  (v)   describe error prevention strategies, including separating inventory

  (vi) describe error prevention strategies, including limiting use of error-prone abbreviations

(C) describe types of prescription errors, including abnormal doses, early refill, incorrect quantity, incorrect patient, and incorrect drug;

  (i)   describe types of prescription errors, including abnormal doses

  (ii) describe types of prescription errors, including early refill

  (iii) describe types of prescription errors, including incorrect quantity

  (iv) describe types of prescription errors, including incorrect patient

  (v)   describe types of prescription errors, including incorrect drug

(D) explain pharmacy professional standards for and the role of the pharmacy technician in the patient care process;

  (i)   explain pharmacy professional standards for the patient care process

  (ii) explain the role of the pharmacy technician in the patient care process

(E) identify opportunities to assist pharmacists in the identification of patients who desire or require counseling to optimize the use of medications, equipment, and devices;

    (i) identify opportunities to assist pharmacists in the identification of patients who desire or require counseling to optimize the use of medications

    (ii) identify opportunities to assist pharmacists in the identification of patients who desire or require counseling to optimize the use of equipment

    (iii) identify opportunities to assist pharmacists in the identification of patients who desire or require counseling to optimize the use of devices

(F) discuss the pharmacy technician's role in patient and medication safety practices such as how to calculate dosage of pediatric over-the-counter drugs;

    (i) discuss the pharmacy technician's role in patient safety practices

    (ii) discuss the pharmacy technician's role in medication safety practices

(G) explain how pharmacy technicians assist pharmacists in responding safely and legally to emergent patient situations; and

    (i) explain how pharmacy technicians assist pharmacists in responding safely to emergent patient situations

    (ii) explain how pharmacy technicians assist pharmacists in responding legally to emergent patient situations

(H) explain basic safety and emergency preparedness procedures applicable to pharmacy services.

    (i) explain basic safety procedures applicable to pharmacy services

    (ii) explain basic emergency preparedness procedures applicable to pharmacy services

(8) 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, light sensitivity, product demand, fast movers, cost, and restricted access;

    (i) identify proper storage for medications in regard to temperature

    (ii) identify proper storage for medications in regard to light sensitivity

    (iii) identify proper storage for medications in regard to product demand

    (iv) identify proper storage for medications in regard to fast movers

    (v) identify proper storage for medications in regard to cost

    (vi) identify proper storage for medications in regard to restricted access

(B) explain the definition and purpose of a formulary or approved/preferred product list;

    (i) explain the definition of a formulary or approved/preferred product list

    (ii) explain the purpose of a formulary or approved/preferred product list

(C) describe procedures for inventory control, including removal of expired and recalled drug products, rotating inventory, performing a physical inventory, ordering medications and supplies, monitoring periodic automatic replenishment (PAR) levels, and using just-in-time ordering;

   (i) describe procedures for inventory control, including removal of expired drug products

   (ii) describe procedures for inventory control, including removal of recalled drug products

   (iii) describe procedures for inventory control, including rotating inventory

   (iv) describe procedures for inventory control, including performing a physical inventory

   (v) describe procedures for inventory control, including ordering medications

   (vi) describe procedures for inventory control, including ordering supplies

   (vii) describe procedures for inventory control, including monitoring periodic automatic replenishment (PAR) levels

   (viii) describe procedures for inventory control, including using just-in-time ordering

(D) explain accepted procedures in purchasing pharmaceuticals, devices, and supplies; and

   (i) explain accepted procedures in purchasing pharmaceuticals

   (ii) explain accepted procedures in purchasing devices

   (iii) explain accepted procedures in purchasing supplies

(E) explain accepted procedures for identifying and disposing of expired medications.

   (i) explain accepted procedures for identifying expired medications

   (ii) explain accepted procedures for disposing of expired medications