

PHT 101: PHARMACY CAREERS A

Foothill College Course Outline of Record

Heading	Value
Units:	4
Hours:	4 lecture per week (48 total per quarter)
Advisory:	Passing grade in high school algebra 1, biology, chemistry and two years of English.
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	None
Grade Type:	Letter Grade (Request for Pass/No Pass)
Repeatability:	Not Repeatable

Student Learning Outcomes

- State all the technician's primary job responsibilities, the duties falling under each job, and demonstrate professional and ethical behaviors required in the pharmacy profession.
- Interpret, read, write, understand, communicate and define medical and pharmaceutical terminology as used in retail pharmacy.
- Demonstrate and utilize legal and appropriate interpersonal communication skills when interacting with patients, in person and the phone, and pharmacy personnel
- Perform basic mathematical functions as required for calculations of pharmaceutical dosages, temperatures, and measurements.
- Identify common pathophysiology of body tissues and membranes, integumentary, the nervous system, cardiovascular system, and respiratory system and prescription/non-prescription remedies, side effects and dosages.

Description

The first of three courses to be taken in series; intended for students enrolled in the CTE Pharmacy Careers Pathway Program. This course provides students with foundational knowledge crucial for success to pursue further education in pharmacy technology or other various allied health professions. Topics of instruction include basic anatomy and physiology, medical terminology and pharmaceutical abbreviations, dosage calculations, pharmaceutical preparations and medications, pharmacy practice, inter-professional education within the health care system—cultivating collaborative practice for providing patient-centered care (effective communication, teamwork, professionalism, etc.), learning strategies, effective study and life management skills all necessary for success in an allied health profession.

Course Objectives

The student will be able to:

- Recognize and demonstrate professional and ethical behaviors of an allied health careers pharmacy student.
- Recognize and demonstrate various methods of customer service skills required in the allied health profession of pharmacy.
- Identify techniques for coping with stress.

- Create a time management plan for each quarter of the program.
- Identify different learning styles and recognize relevant study skills.
- Summarize the principles of HIPAA and patient privacy.
- Define "decision requiring professional judgment" and give examples.
- Define, interpret, communicate, and apply pharmaceutical and medical terminology, abbreviations and symbols.
- Define, interpret, communicate and apply medical terminology for the nervous system, dermatological system, cardiovascular system, respiratory system, eyes, ears and throat.
- Identify generic and brand names of common over the counter medications and know their use.
- Describe the history of pharmacology and explain the components of drug product development in relation to Drug Legislation and Regulations.
- Differentiate between the naming systems of drugs, the classification of various drug sources, and dosage formulations.
- Define pharmacokinetics and describe absorption, distribution, metabolism and excretion.
- Describe factors effecting drug action as it relates with side effects, adverse effects, and anaphylaxis.
- Describe the basic anatomy and pathophysiology of the nervous system.
- Identify common prescription and non-prescription medication and remedies for the treatment of disease states correlated with the nervous system.
- Describe the basic anatomy and pathophysiology of the dermatological system.
- Identify common prescription and non-prescription medication and remedies for the treatment of disease states correlated with the dermatological system.
- Describe the basic anatomy and pathophysiology of the cardiovascular system.
- Identify common prescription and non-prescription medication and remedies for the treatment of disease states correlated with the cardiovascular system.
- Describe the basic anatomy and pathophysiology of the respiratory system.
- Identify common prescription and non-prescription medication and remedies for the treatment of disease states correlated with the respiratory system.
- Describe the basic anatomy and pathophysiology of the, eyes, ears and throat.
- Identify common prescription and non-prescription medication and remedies for the treatment of disease states correlated with the eyes, ears and throat.
- Utilize Roman numerals.
- Perform basic mathematical functions as needed for dosage calculations.
- Demonstrate understanding of mathematical functions as required for calculations of pharmaceutical dosages.
- Describe the role, technical standards of the pharmacy personnel and how they differ from the responsibilities in various health care settings.
- State the general requirements of any local, state, or federal regulations specifically affecting the various responsibilities of the pharmacy personnel.
- Interpret the organizational structure of various pharmacy settings and the general responsibilities and job status of various pharmacy personnel within the work environment.

Course Content

- Professional and Ethical Behavior

1. Expectations of allied health career pharmacy students
2. Ability to apply knowledge
3. Ability to collaborate with a team and work independently as appropriate
4. Understanding the patient perspective and assisting the patient with their needs
5. Exhibiting professionalism in verbal, non-verbal and written communication
6. Being knowledgeable about policies that impact the delivery of health care in a various settings
7. Engaging in critical thinking about ethical issues and professional practice within the allied health professions
8. Understanding Code of Ethics
- B. Customer Service
 1. Establishing good customer service
 2. Understanding expectations of the customers from their pharmacy staff
 3. Utilizing good telephone customer service skills
 4. Demonstrate how to build professional rapport with the patient
 5. Practicing good non-verbal communication skills
 6. Handling an angry and difficult patient situations
 - a. P.R.E.S (Pause, Restate, Empathize, Solution)
- C. Student Stress and Coping
 1. Various support services available to students
 2. Academic pressure
 3. Substance use and abuse
 4. Conflict resolution
- D. Time Management
 1. Identifying short-term goals that lead to long-term goals
 2. Preparation of a time management schedule
 3. Inter-relatedness of academic, personal and career goals
 4. Course and program expectations related to time management and attendance
- E. Learning Styles and Study Skills
 1. VARK learning style inventory
 2. Study skills for student success
- F. HIPAA and Patient Privacy
 1. Regulations related to patient privacy
 2. Security of patient records
 3. Implications for the allied health student
 4. Social media issues related to patient privacy regulation
- G. Professional Judgment Criteria
 1. Ethical rules for health care professionals
 2. Case studies
- H. Pharmaceutical Terminology
 1. Prefixes and suffixes
 2. Nomenclature
 3. Pharmaceutical abbreviations
 4. Routes of administration
 5. Scheduled times of administration
 6. Pharmaceutical dosage forms
 7. Miscellaneous pharmaceutical abbreviations
 8. Miscellaneous drug abbreviations
 9. Common chemical and chemical compound abbreviations
 10. Application of pharmaceutical abbreviations
- I. Medical Terminology
 1. General body as a whole
 - a. Prefixes and suffixes
 - b. Abbreviations for the body as a whole
 2. The nervous system
 - a. Prefixes and suffixes
 - b. Abbreviations
3. The dermatological system
 - a. Prefixes and suffixes
 - b. Abbreviations
4. The cardiovascular system
 - a. Prefixes and suffixes
 - b. Abbreviations
5. The respiratory system
 - a. Prefixes and suffixes
 - b. Abbreviations
6. The eyes, ears and throat
 - a. Prefixes and suffixes
 - b. Abbreviations
- J. Over the Counter Medications
 1. FDA regulations for over the counter products
 2. How a prescription becomes an over the counter medication
 3. Common conditions treated with OTC medications
 4. Considerations for special populations; pediatrics, geriatric and patients with other disease states
 5. Restricted OTC medications
 6. Generic/brand names of cough and cold medications
 7. Generic/brand names of gastrointestinal medications
 8. Generic/brand names of analgesics
 9. Generic/brand names of topical medications
 10. Generic/brand names of pediatric formulations
- K. Introduction to Pharmacology, Drug Legislation, and Regulation
 1. The history of pharmacology
 - a. The Age of Natural Substances
 - b. The Age of Synthetic Substances
 - c. The Age of Biotechnology
 2. Drug product development
 3. Drug product removal
 4. Prescription and nonprescription drugs
 5. Controlled substances
 6. Federal drug legislation
 - a. The Pure Food and Drug Act 1906
 - b. The Harrison Narcotic Act 1914
 - c. The Pure Food, Drug and Cosmetic Act 1938
 - d. The Comprehensive Drug Abuse Prevention and Control Act of 1970
- L. Drug Names, Sources and Dosage Forms
 1. Drug names
 - a. Chemical name
 - b. Generic name
 - c. Trade/Brand name
 - d. Combination drugs
 2. Drug sources
 - a. Plant
 - b. Animal
 - c. Mineral
 - d. Synthetic
 - e. Engineered sources
 3. Dosage forms of drugs
 - a. Solid, semisolid, liquid, gaseous drugs
- M. Definition of Pharmacokinetics
 1. Absorption
 2. Distribution
 3. Metabolism
 4. Excretion
- N. Factors Affecting Drug Action
 1. Side effects and adverse effects of drugs
 2. Hypersensitivity or allergy
 3. Anaphylactic reaction
- O. The Nervous System

1. Major components of the nervous system
 - a. Form and function
 - b. Neurons and nerve transmission
 2. The central nervous system
 - a. Brain and spinal cord
 3. Peripheral nervous system
 - a. The somatic nervous system
 - b. The autonomic nervous system
 - 1) The sympathetic nervous system
 - 2) The parasympathetic nervous system
 4. Diseases and conditions of the nervous systems
 - a. Diseases of the peripheral nervous system
 - 1) Myasthenia Gravis
 - 2) Polyneuropathy
 - b. Diseases and conditions of the central nervous system
 - 1) Epilepsy
 - 2) Alzheimer's Disease
 - 3) Parkinson's Disease
 - 4) Multiple Sclerosis
 - 5) Migraine Headaches
 - 6) Stroke
 - 7) Depression
 - 8) Anxiety Disorders
 - 9) Schizophrenia
 - 10) Insomnia
 - 11) Attention Deficit/Hyperactivity Disorder
- P. Common Therapeutic Agents Used to Treat Diseases of the Nervous System
1. Therapeutic agents used for the treatment of:
 - a. Myasthenia Gravis
 - b. Polyneuropathy
 2. Therapeutic agents for the treatment of:
 - a. Epilepsy
 - b. Alzheimer's Disease
 - c. Parkinson's Disease
 - d. Multiple Sclerosis
 - e. Migraine Headaches
 - f. Stroke
 - g. Depression
 - h. Anxiety Disorders
 - i. Schizophrenia
 - j. Insomnia
 - k. Attention Deficit/Hyperactivity Disorder
- Q. The Dermatological System
1. Anatomy and physiology of the dermatological system
 - a. Skin
 - b. Hair and nails
 - c. Glands
 2. Common conditions affecting the dermatological system and their treatment
 - a. Acne Vulgaris
 - b. Urticaria
 - c. Eczema
 - d. Psoriasis
 - e. Chicken Pox and Shingles
 - f. Burns
 - g. Warts
 - h. Topical fungal infections
 - i. Impetigo
 - j. Skin Cancer
 - k. Head Lice

- R. Common Therapeutic Agents Used to Treat Diseases of the Dermatological System
1. Therapeutic agents for the treatment of:
 - a. Acne Vulgaris
 - b. Urticaria
 - c. Eczema
 - d. Psoriasis
 - e. Chicken Pox and Shingles
 - f. Burns
 - g. Warts
 - h. Topical fungal infections
 - i. Impetigo
 - j. Skin Cancer
 - k. Head Lice
- S. The Cardiovascular System
1. Anatomy of the heart and vasculature system
 - a. Oxygenation
 - b. Cardiac conduction system
 2. Regulation of the heart and vasculature
 - a. Blood pressure
 3. Common conditions affecting the cardiovascular system
 - a. Hypertension
 - b. Coronary Artery Disease
 - 1) Arteriosclerosis
 - 2) Angina Pectoris
 - c. Thrombotic events
 - 1) Thrombosis
 - 2) Myocardial Infarction
 - 3) TIA
 - 4) Strokes
 - d. Arrhythmia
 - e. Heart Failure
- T. Common Therapeutic Agents Used to Treat Diseases of the Cardiovascular System
1. Therapeutic agents for the treatment of:
 - a. Hypertension
 - b. Coronary Artery Disease
 - 1) Arteriosclerosis
 - 2) Angina Pectoris
 - c. Thrombotic events
 - 1) Thrombosis
 - 2) Myocardial Infarction
 - 3) TIA
 - 4) Strokes
 - d. Arrhythmia
 - e. Heart Failure
- U. The Respiratory System
1. The structure and function of the respiratory system
 - a. Upper respiratory system
 - b. Lower respiratory system
 - c. Respiration and gas exchange
 2. Disorders and conditions of the respiratory system
 - a. Conditions of the upper respiratory system
 - 1) Common cold
 - 2) Allergic rhinitis
 - 3) Sinusitis
 - 4) Strep throat
 - b. Conditions of the lower respiratory system
 - 1) Asthma
 - 2) COPD
 - 3) Pneumonia
 - 4) Tuberculosis

5) Bronchitis

6) Lung Cancer

V. Common Therapeutic Agents Used to Treat Diseases of the Respiratory System

1. Therapeutic agents for the treatment of:

- a. Common cold
- b. Allergic rhinitis
- c. Sinusitis
- d. Strep throat
- e. Asthma
- f. COPD
- g. Pneumonia
- h. Tuberculosis
- i. Bronchitis
- j. Lung Cancer

W. The Ophthalmic System, Auditory System, Nose and Throat

1. Anatomy and physiology of the eye

- a. Vision
 - b. Form and function of the eye
2. Conditions that affect the eye
- a. Allergic conjunctivitis
 - b. Inflammation caused by infection or injury
 - c. Glaucoma
3. Anatomy and physiology of the ear
- a. External ear
 - b. Middle ear
 - c. Inner ear
4. Conditions that affect the ear
- a. Otitis Media
 - b. Cerumen Build up
 - c. Drug induced Ototoxicity
5. Anatomy and physiology of nose and sinuses
6. Conditions that affect the nose and sinuses
- a. Allergic rhinitis
 - b. Bacterial sinusitis
7. The throat
- a. Pharynx
 - b. Larynx
8. Conditions that affect the throat
- a. Strep throat
 - b. Tonsillitis

X. Common Therapeutic Agents Used to Treat Diseases of the Eye, Ear, Nose/Sinuses and Throat

1. Therapeutic agents for the treatment of:

- a. Allergic conjunctivitis
- b. Inflammation caused by infection or injury
- c. Glaucoma
- d. Otitis Media
- e. Cerumen Build up
- f. Drug induced Ototoxicity
- g. Allergic rhinitis
- h. Bacterial sinusitis
- i. Strep throat
- j. Tonsillitis

Y. Roman Numerals

- 1. Numeral systems used in the pharmacy
- 2. Roman numbers and Arabic numerals
- 3. Conversion of Roman numerals to Arabic numbers
- 4. Conversion of Arabic numerals to Roman numbers
- 5. Application and translation of Roman numerals for prescription processing

Z. Basic Mathematical Functions of Adding, Subtracting, Multiplying and Dividing Whole Numbers

1. Addition

2. Subtraction

3. Multiplication

a. Product

4. Division

a. Dividend

b. Divisor

c. Quotient

5. Numerators, denominators, and reciprocals of fractions

a. Convert fractions to decimals and vice versa

6. Reducing fractions to lowest terms

a. Prime factor and common factor

b. Determine the greatest common factor of a fraction

c. Reduce fractions to lowest terms

7. Adding and subtracting fractions

a. Least common denominator

b. Equivalent fractions

c. Solve problems that require addition of fractions

d. Solve problems that require subtraction of fractions

8. Multiplying and dividing fractions

a. Solve problems that require multiplying fractions

b. Solve problems that require dividing fractions

c. Procedure for simplifying functions

9. Writing fractions in decimal form

a. Convert fractions to decimals

b. Express in numbers the value for decimal fractions that are given in words

c. Express in words the value of decimal fractions

10. Rounding decimals and significant figures

a. Rounding decimals to the nearest tenth, hundredth, etc.

b. Significant figures

c. Importance of significant figures in pharmacy calculations

d. Rules for assigning significant figures

11. Adding and subtracting decimal numbers

a. Perform addition and subtracting of decimals

12. Multiplying and dividing decimal numbers

a. Perform multiplication and division with decimal numbers

13. This line is for formatting purposes only.

AA. Using Ratios and Proportions or Dimensional Analysis to Solve Drug Calculations

1. Ratio and proportion

2. Dimensional analysis

3. This line is for formatting purposes only.

AB. Introduction to various roles within the pharmacy profession

1. Definition of pharmacy, registered pharmacist, pharmacy technician and pharmacy clerk/aid

2. Duties and education requirements of a registered pharmacist

3. Duties and education requirements of a pharmacy technician

4. Duties and education requirements of a pharmacy clerk/aid

5. Requirements for pharmacies employing various pharmacy personnel

6. Areas of employment

7. Relationships between various pharmacy personnel

8. This line is for formatting purposes only.

AC. Pharmaceutical/Pharmacy Profession Governing Bodies and Organizations

1. Federal (FDA, DEA, OSHA, JCAHO, ASHP, APhA, DPS)

2. State (BOAD, CPhA, CPhTA)

3. Local (County organizations)

4. This line is for formatting purposes only.

AD. Various Pharmacy Organizational Structure

1. Inpatient pharmacy organization and personnel
2. Community pharmacy organization and personnel

Lab Content

Not applicable.

Special Facilities and/or Equipment

- A. Textbooks, charts, worksheets
- B. Audio visual aids
- C. Library with generalized and specialized references
- D. Multimedia classroom
- E. Computer access
- F. Specialized pharmacy equipment
- G. Word processing, math software

Method(s) of Evaluation

Evaluation methods may include, but are not limited to:

- A. Objective and comprehensive exams
- B. Quizzes
- C. Individual and group assessments
- D. Reflections journal
- E. Written research paper
- F. Oral presentation
- G. Class discussion participation
- H. Cooperative/interactive learning assignments
- I. Projects
- J. Computer activities
- K. Case studies
- L. Worksheets

Method(s) of Instruction

- A. Lecture presentations and classroom discussion.
- B. Small group recitation sessions to discuss concepts.
- C. Cooperative/interactive learning exercises.
- D. Online modules utilizing software programs.
- E. Class demonstration and hands-on activities.
- F. Individual or group presentations regarding research topics followed by in-class discussion and evaluation.

Representative Text(s) and Other Materials

Instructor generated materials: PowerPoint slides, worksheets, class activities.

Davis, Karen, and Anthony Guerra. Mosby's Pharmacy Technician Principles and Practice. 5th ed. St. Louis: Elsevier, 2018.

Powers, Mary, and Janet Wakelin. Pharmacy Calculations. 5th ed. Englewood: Morton Publishing Company, 2016.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

- A. Weekly reading assignments from text and outside sources ranging from 10 to 20 pages per week
- B. Lecture: Weekly lecture covering subject matter from text assignment with extended topic information along with class discussion

- C. Review of handouts and relevant reading material
- D. Participating in critical thinking and case study exercises
- E. Exploring websites on related topics covered in lecture
- F. Study Ware CD-ROM Student Study Activities
- G. Completing review questions in textbook
- H. Research and planning of individual projects
- I. Completion of assigned online activities and projects
- J. Individual reports (written and oral) based on research
- K. Individual visitation of pharmacy
- L. Reflection journal
- M. Group work and projects

Discipline(s)

Pharmacy Technology