El Paso Community College
Syllabus
Part II
Official Course Description

SUBJECT AREA	**Pharmacy Technology**
COURSE RUBRIC AND NUMBER	**PHRA 1345**
COURSE TITLE	**Compounding Sterile Preparations**
COURSE CREDIT HOURS	**3 2 : 3** **Credits Lec Lab**

I. Catalog Description

Studies the process of compounding sterile preparations and aseptic technique within legal and regulatory guidelines specified by USP<797> standards. A grade of "C" or better is required in this course to take the next course. **Prerequisites: PHRA 1301 and PHRA 1309. (2:3). Lab fee.**

II. Course Objectives

A. Unit I. Review of Pharmacy Terminology and Pharmacy Math (Chapters 1-6)

1. Identify and differentiate common pharmacy terminology and abbreviations
2. Identify common Greek and Latin abbreviations
3. Recognize the various chemical symbols and compounds and identify their equivalent drug forms.
4. Identify metric, apothecary, and household units of measure
5. Calculate, count, measure, and convert in the above units of measure.
6. Perform the mathematical steps for solving problems involving Roman numerals, Arabic numerals, fractions, apothecary symbols, and decimals.
7. Perform the mathematical steps for solving problems involving conversion of weights and measures, direct ratio and proportion, reducing and enlarging formulas, percent strengths (W/V, W/W, V/V), ratio strength, dilution and concentration, and alligation problems.
8. Calculate standard and pediatric dosages using various mathematical methods.

B. Unit II. Infection Control and Contamination (Chapter 7)

1. Define infection control.
2. Identify the four major components of the infection cycle.
3. Describe the mode of disease transmission.
4. Identify the four factors that affect the survival of bacterial cells.
5. Compare the terms sterile and disinfection.
6. Describe the isolation, risks, and prevention of exposure to pharmacy personnel.

C. Unit III. Sterilization Methods (Chapter 8)

1. List four characteristics of a sterile intravenous solution.
2. Identify the causes of particulate matter production and patient complications as a result of the matter.

3. Describe the methods of steam and dry heat sterilization and the limits of each method.
4. Identify the methods of sterilization using filter devices and factors that affect the selection of a specific filter.
5. Describe the process of sterilization using gas (chemical agents) and the related precautions.

D. Unit IV. Pharmacy Controlled Environment and Conduct (Chapter 9)

1. Describe a traditional pharmacy controlled environment and the concept behind a "clean room."
2. Identify equipment and supplies required for the preparation of sterile pharmaceuticals in an institutional pharmacy.
3. Compare standards, by institution or state, concerning dress code, patient confidentiality, and the related conduct issues in a controlled pharmacy area.
4. Wear protective attire.

E. Unit V. Types of Drugs and Storage Requirements of Pharmacy Supplies and Equipment (Chapters 10 - 11)

1. Identify the different dosage forms available and differentiate each type of ingredient.
2. Describe the different storage requirements and temperature required of medication storage.
3. Differentiate between medications that are considered sterile and non-sterile.
4. Explain why certain medications must be sterile.
5. Explain therapeutic, pharmaceutical, and chemical incompatibility.
6. Identify the factors that affect stability and incompatibilities of pharmaceutical products.
7. Demonstrate the proper procedure for maintaining the sterility of materials assembled for compounding.
8. Describe aseptic handling of equipment and supplies used in compounding sterile products.
9. Explain the uses of horizontal and vertical laminar air flow hoods.

F. Unit VI. Handling of Chemotherapeutic Agents (Chapter 12)

1. Identify the common chemotherapeutic agents and their indications.
2. Define common chemotherapeutic terminology.
3. Define hazardous waste.
4. Describe the various classes and types of Biological Safety Cabinets.
5. Demonstrate the proper procedures for cleaning cytotoxic or hazardous spills.
6. Identify the policies and procedures used in the disposal of hazardous and non-hazardous waste.
7. Identify proper preparation of chemotherapy agents stored in ampules, vials, powders, and other formulations.
8. Describe the proper gowning and other precautions for preparing chemotherapeutic agents.
9. Identify the hazards in handling chemotherapeutic agents in accordance with MSDS.
10. Compound cytotoxic and other hazardous drug products using appropriate technique.
11. Explain risks involved in the preparation and handling of cytotoxic and other hazardous drug products.
12. Explain the logic of each of the steps in cytotoxic or others hazardous drug preparation technique.
13. Explain the importance of following safety policies and procedures in the preparation of all medications in order to protect technicians and co-workers.

14. Comply with OSHA standards.

G. Unit VII. Aseptic Procedures for Sterile Pharmaceuticals (Chapter 13)

1. Describe the proper aseptic technique for hand-washing.
2 Describe the proper aseptic technique for preparing sterile pharmaceuticals using ampules and vials.
3. Describe the proper aseptic technique for cleaning and use of the horizontal and vertical laminar air flow hoods.
4. Log cleaning of the hood daily and change HEPA filter every six months.
5. Clean equipment after use with isopropyl alcohol.
6. Compound sterile products using appropriate techniques, equipment, and devices.
7. Explain the logic of each of the steps of sterile technique.
8. Maintain a clean and neat work environment.
9. Explain the indications for and complications of Total Parenteral Nutrition.
10. Describe the main components of a TPN.
11. Demonstrate safety in changing tubing for TPN compounders.
12. Employ good record keeping skills.
13. Identify IV solutions that can be recycled.
14. Label IV solutions properly.
15. Demonstrate manual dexterity in preparation.
16. Comply with USP chapter 797 regulations.
17. Perform proper order of addition of ingredients.
18. Determine proper storage of compounded medications.
19. Perform proper reconstitution of medications.

H. Unit VIII. Documentation and Quality Assurance of Sterile Pharmaceuticals (Chapter 14)

1. Identify proper terminology used in batch preparation.
2. Interpret the proper procedure and requirements for returning expired medications.
3 Describe the quality assurance process and the various roles pharmacy personnel fulfill in this process.
4. Identify the three types of risk levels and their significance.
5. Perform basic keyboarding.

III. THECB Learning Outcomes (WECM)

1. Apply pharmaceutical and medical terminology and abbreviations used in processing medication orders and sterile product labels.
2. Demonstrate procedures and techniques consistent with USP <797> standards.
3. Perform dosage calculations required for sterile product preparation.
4. Safe handling and preparation of hazardous drugs.

IV. Evaluation

A. Evaluation will be in the form of unit exams, lab essays, assignments, and a final examination. Lab participation is one key for success in this particular course and is required. Material covered in labs and lectures will be covered in the unit examinations.
B. There will be a competency exam at the end of the course.
C. Student must successfully pass the competency exam in order to pass the course.
D. Assignments are due at the beginning of class unless otherwise instructed. It is the student's responsibility to complete assignments as outlined in this syllabus.

E. Grading Scale:

Average Grade	Letter Grade
90-100%	A
80-89%	B
70-79%	C
<70%	F
Incomplete	I
Withdrawn	W

Note: All health occupations programs require a grade of "C" or better in a course for it to be counted toward the degree plan. For this reason, no D's will be awarded.

F. Remediation

At the instructor's discretion, students may be allowed to rewrite papers or retest for higher grades. Students requiring additional help may be referred to tutoring services.

V. Disability Statement (Americans with Disabilities Act [ADA])

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located: VV Rm C-112 (831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024).

VI. 6 Drop Rule

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL, Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to see Counseling Services if dropping because exemptions may apply. Refer to the EPCC catalog and website for additional information.