Brookes College

Pharmacy Assistant Diploma

Course Curriculum: Non-Sterile Compounding

Brookes College – Pharmacy Assistant Diploma Program
Non-Sterile Compounding Pharmacy Assistant Course
Course Curriculum

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Course Syllabus: Non-Sterile Compounding Pharmacy Assistant Course

Course Description:

This course provides a comprehensive exploration of compounding prescriptions, focusing on the preparation of mixtures, creams, ointments, solutions, and suspensions. The course emphasizes precision, accuracy, and the creation of high-quality pharmaceutical products.

Course Duration:

- 60 hours (15 hours per week)
- 4 weeks
- 7.5 hours of online synchronous instruction
- 7.5 hours of self-directed learning

Course Goals:

- To equip participants with the necessary knowledge and skills to proficiently compound various pharmaceutical formulations
- To emphasize the understanding the historical context of nonsterile compounding
- To master pharmaceutical calculations, utilizing compounding tools, adhering to quality standards
- To develop skills with the preparation of liquid dosage forms with precision and safety

Course Format:

- Lectures, readings, multimedia materials, and case studies.
- Interactive discussions and group activities to foster engagement.
- Guest speakers from the healthcare field to provide real-world insights.
- Weekly assignments aimed at applying theoretical knowledge practically.

Course Outcomes: By the end of this course, students will be able to:

- Grasp the concept, purpose, and historical significance of pharmaceutical compounding.
- Execute accurate pharmaceutical calculations essential for successful compounding.
- Demonstrate adeptness in handling and employing various compounding tools and equipment.

- Generate comprehensive compounding documents in adherence to established quality standards.
- Skillfully formulate diverse liquid dosage forms while considering specific requirements and safety guidelines.

Textbook**:** e-texts have Power Point slides, Instructor manual, tests, and test banks to support instructional delivery:

- Community Pharmacy Practice Guidebook 1st Edition
- Author(s): Jessica Wooster, Frank Yu
- Publisher: McGraw-Hill Education / Medical
- eText ISBN: 9781260470277, 126047027X Edition: 1st Copyright: 2022

Course Outline:

Week 1: Introduction to Compounding

- Historical context and significance of compounding
- Differentiating manufacturing and compounding
- Overview of USP/NF guidelines
- Resources for effective compounding

Week 2: Pharmaceutical Calculations

- Conversion between weight and volume units
- Metric and household system conversions
- Temperature and time conversions
- Application of alligation, ratio/proportion, and dimensional analysis
- Calculating percentage and ratio strength (w/v, w/w, v/v)

Week 3: Tools, Equipment, and Supplies

- Proper use of electronic balances and calibration procedures
- Familiarity with essential compounding tools
- Personal protective equipment and cleaning protocols
- Specialized equipment for different dosage forms
- Inventory management and ordering procedures

Week 4: Compounding Documentation and Liquid Dosage Forms

- Creating and understanding Master Formula Records
- Policies, procedures, and standards of practice
- Documentation: Certificate of Analysis, MSDS, and logbooks
- Practical techniques for preparing liquid dosage forms
- Guidelines for reconstitution, dilution, and administration of liquid forms

Assessment and Review:

- Participation: 10%
- Weekly Assignments: 40%
- Midterm Assessment: 20%
- Final Assessment: 30%

Grading Scale:

Percentage Range	Letter Grade	Grade Points	Description
90 – 100	A+	4.0	**Excellent (4)**
85 – 89	A	4.0	
80 – 84	A-	3.7	
77 – 79	B+	3.3	**Proficient (3)**
73 – 76	B	3.0	
70 – 72	B-	2.7	
67 – 69	C+	2.3	**Competent (2)**
63 – 66	C	2	
60 – 62	C-	1.7	
55 – 59	D+	1.3	
50 – 54	**D**	**1.0**	**Developing (1)**
0 – 49	F	0.0	**Not Evident (0)**

Important Dates:

- Midterm Examination: [Date]

- Final Project Presentation: [Date]
- Final Examination: [Date]Top of Form

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Module Plans: Non-Sterile Compounding Pharmacy Assistant Course

Course Duration:

- 60 hours
- 4 Weeks
- 15 hours per week
- 7.5 hours of online synchronous learning per week
- 7.5 hours of online self-directed learning per week

Course Description:

This course provides a comprehensive exploration of compounding prescriptions, focusing on the preparation of mixtures, creams, ointments, solutions, and suspensions. The course emphasizes precision, accuracy, and the creation of high-quality pharmaceutical products.

Course Format:

The course is structured with a combination of online synchronous instruction and self-directed learning. It is recommended that each week consists of two sessions, each comprising 2 hours of synchronous instruction, followed by 2 hours of self-directed learning. Adjustments to session duration and content may be needed based on the course requirements and scheduling preferences.

Textbooks/Resources**:** e-texts have Power Point slides, Instructor manual, tests, and test banks to support instructional delivery:

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Module Outlines:

Week 1: Introduction to Compounding

Learning Outcomes: By the end of this module, students will be able to:

- Understand the historical context and significance of pharmaceutical compounding.
- Differentiate between manufacturing and compounding.
- Familiarize with USP/NF guidelines (Chapter <795>).
- Identify resources for effective compounding.

Session 1: Historical Context and Significance

Synchronous Instruction: 2 hours

Topics:

- Historical background and significance of compounding

Activities:

- Group discussion on the historical evolution of compounding

Self-Directed Learning: 2 hours

Activities:

- Reading materials on historical milestones in compounding

Assessment:

- Online quiz on historical aspects of compounding

Session 2: Manufacturing vs. Compounding

Synchronous Instruction: 2 hours

Topics:

- Distinction between manufacturing and compounding

Activities:

- Case study analysis of manufacturing and compounding processes

Self-Directed Learning: 2 hours

Activities:

- Research on specific examples of compounded medications

Assessment:

- Short written reflection on the differences between manufacturing and compounding

Week 2: Pharmaceutical Calculations

Learning Outcomes: By the end of this module, students will be able to:

- Perform accurate pharmaceutical calculations.
- Apply different conversion techniques.
- Calculate various strengths and ratios.

Session 1: Conversion Techniques

Synchronous Instruction: 2 hours

Topics:

- Conversion between weight and volume units
- Metric and household system conversions

Activities:

- Step-by-step practice of weight-to-volume conversions

Self-Directed Learning (2 hours)

Activities:

- Calculation practice worksheets for conversion exercises

Assessment:

- Completion of conversion exercises

Session 2: Strengths and Ratios

Synchronous Instruction: 2 hours

Topics

- Application of alligation, ratio/proportion, and dimensional analysis
- Calculating percentage and ratio strength (w/v, w/w, v/v)

Activities:

- Solving practice problems involving different strengths

Self-Directed Learning: 2 hours

Activities:

- Additional practice problems on strengths and ratios

Assessment:

- Online quiz on pharmaceutical calculations

Week 3: Tools, Equipment, and Supplies

Learning Outcomes: By the end of the module, students will be able to:

- Properly use compounding tools and equipment.

- Understand safety protocols and inventory management.

Session 1: Compounding Tools and Equipment

Synchronous Instruction (2 hours)

Topics:

- Proper use of electronic balances and calibration procedures
- Familiarity with essential compounding tools

Activities:

- Hands-on demonstration of electronic balance usage

Self-Directed Learning: 2 hours

Activities:

- Research on specialized compounding equipment

Assessment:

- Reflection on the significance of precise measurements in compounding

Session 2: Safety and Inventory Management

Synchronous Instruction: 2 hours

Topics:

- Personal protective equipment and cleaning protocols
- Inventory management and ordering procedures

Activities:

- Group discussion on effective inventory control

Self-Directed Learning: 2 hours

Activities:

- Study of best practices for maintaining a clean compounding environment

Assessment:

- Case study analysis of a successful inventory management strategy

Week 4: Compounding Documentation and Liquid Dosage Forms

Learning Outcomes**:** By the end of the module, students will be able to:

- Create comprehensive compounding documents.
- Prepare liquid dosage forms following safety guidelines.

Session 1: Compounding Documentation

Synchronous Instruction: 2 hours

Topics:

- Creation and significance of Master Formula Records
- Documentation: Certificate of Analysis, MSDS, and logbooks

Activities:

- Review of sample Master Formula Records

Self-Directed Learning: **2 hours**

Topics:

- Exploration of real-world examples of compounding documentation

Assessment:

- Development of a sample Master Formula Record

Session 2: Liquid Dosage Forms Preparation

Synchronous Instruction: 2 hours

Topics:

- Practical techniques for preparing liquid dosage forms
- Guidelines for reconstitution, dilution, and administration of liquids

Activities:

- Hands-on practice of reconstitution techniques

Self-Directed Learning: 2 hours

Activities:

- Study of safety considerations when handling liquid dosage forms

Assessment:

- Video demonstration of the accurate preparation of a liquid dosage form

Assessment and Review:

- Weekly quizzes and assignments (40%)
- Mid-term exam (20%)
- Final exam (30%)
- Participation in synchronous and asynchronous sessions (10%)

Sample Lesson Plan: Tools, Equipment, and Supplies in Compounding

Lesson Duration:

- 3.75 - 4 hours
- 2 hours online synchronized instruction
- 2 hours of online self-directed learning

This lesson plan guides students through understanding the significance of tools, equipment, and supplies in compounding. Through a combination of synchronous instruction, practical activities, and self-directed learning, students will gain knowledge about equipment usage, safety measures, and efficient inventory management in pharmaceutical compounding.

Learning Outcomes**:** By the end of this lesson, students will be able to:

1. Understand the proper use of electronic balances and calibration procedures.
2. Identify and describe essential compounding tools and equipment.
3. Explain the importance of personal protective equipment and cleaning protocols in compounding.
4. Recognize specialized equipment for different dosage forms.
5. Describe inventory management and ordering procedures for compounding supplies.

Textbooks/Resources**:** e-texts have Power Point slides, Instructor manual, tests and test banks to support instructional delivery:

- Community Pharmacy Practice Guidebook 1st Edition
- Author(s): Jessica Wooster, Frank Yu
- Publisher: McGraw-Hill Education / Medical
- eText ISBN: 9781260470277, 126047027X Edition: 1st Copyright: 2022

Materials:

- Presentation slides
- Equipment demonstration videos
- Inventory management guidelines

Lesson Outline:

Introduction

- Emphasize the significance of using proper tools and equipment in compounding.

Online Synchronous Instruction (2 hours)

Topic 1: Electronic Balances and Calibration

- Explain the role of electronic balances in compounding accuracy.
- Demonstrate calibration procedures and their importance.

Topic 2: Essential Compounding Tools

- Present a comprehensive list of essential tools used in compounding.
- Describe the function and appropriate use of each tool.

Topic 3: Personal Protective Equipment (PPE) and Cleaning

- Discuss the necessity of PPE in ensuring safety during compounding.
- Outline cleaning protocols to maintain a sterile environment.

Topic 4: Specialized Equipment for Dosage Forms

- Introduce specialized equipment used for different dosage forms (e.g., creams, solutions).
- Highlight the significance of using the right equipment for specific formulations.

Topic 5: Inventory Management and Ordering

- Explain the importance of maintaining an organized inventory of compounding supplies.

- Provide guidelines for efficient ordering and stock management.

Activities

Equipment Demonstration

- Show videos of equipment in action to help students visualize their usage.
- Encourage questions and discussions about equipment functionalities.

Break

Self-Directed Learning (2 hours)

Reading Assignment

- Assign textbook readings on tools, equipment, and supplies in compounding.
- Direct students to specific chapters for focused learning.

Inventory Management Exercise

- Provide a simulated inventory management scenario for students to analyze.
- Guide them in making decisions on supply orders and quantities.

Discussion Forum Participation

- Pose questions related to inventory management challenges and best practices.
- Encourage students to share their insights and experiences.

Assessment

Scenario-Based Questions

- Present real-life scenarios involving the use of specialized equipment.
- Ask students to apply their knowledge to solve the given challenges.

Conclusion and Recap

- Summarize the main concepts covered during the session.
- Emphasize the importance of proper equipment usage and inventory management.

Homework Assignment:

- Assign students to create an inventory management plan for a fictional compounding pharmacy.

- Include considerations for ordering, storage, and supply rotation.

Learning Outcomes Review:

- Review the session's learning objectives and discuss how students' understanding has deepened.
- Encourage self-assessment of their mastery of tools, equipment, and supplies in compounding.

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Course Rubric: Non-Sterile Compounding

Assessment Criteria	Excellent (4)	Proficient (3)	Competent (2)	Developing (1)	Not Evident (0)
Introduction to Compounding					
Understanding of historical context and significance	Demonstrates exceptional	Displays solid understanding	Shows basic comprehension	Demonstrates limited awareness	No understanding shown
Differentiating manufacturing and compounding	Clearly distinguishes between	Differentiates appropriately	Makes some distinction	Demonstrates unclear distinction	Confuses manufacturing and compounding
Overview of USP/NF guidelines (Chapter <795>)	Provides thorough overview	Presents a comprehensive view	Gives a basic overview	Provides incomplete or inaccurate info	No understanding of guidelines
Resources for effective compounding	Identifies a wide range of resources	Lists several resources	Mentions a few resources	Provides very few resources	No resources mentioned
Pharmaceutical Calculations					
Conversion between weight and volume units	Accurately performs conversions	Performs conversions correctly	Makes minor conversion errors	Makes frequent conversion errors	Cannot perform conversions
Application of alligation, ratio/proportion, and	Expertly applies all techniques	Applies techniques proficiently	Demonstrates basic application	Struggles with application	Unable to apply techniques
dimensional analysis					
Calculating percentage and ratio strength	Calculates accurately and clearly	Calculates correctly and	Makes minor calculation errors	Makes frequent calculation errors	Cannot calculate strengths
(w/v, w/w, v/v)	demonstrates above average of understanding	demonstrates competent level of understanding	Demonstrates basic knowledge	Shows limited understanding	No understanding of calculations

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Assessment Criteria	Excellent (4)	Proficient (3)	Competent (2)	Developing (1)	Not Evident (0)
Tools, Equipment, and Supplies					
Proper use of electronic balances and calibration	Executes calibration perfectly	Performs calibration correctly	Completes calibration process	Struggles with calibration	Cannot calibrate equipment
Understanding of essential compounding tools	Clearly identifies and describes	Identifies and describes tools	Lists tools with basic info	Provides vague tool descriptions	Cannot identify essential tools
Personal protective equipment and cleaning protocols	Demonstrates thorough knowledge	Understands the importance	Shows basic awareness	Demonstrates limited awareness	No understanding of importance
Specialized equipment for different dosage forms	Accurately explains equipment	Explains equipment adequately	Provides basic equipment info	Provides incomplete or inaccurate info	Cannot identify specialized equipment
Inventory management and ordering procedures	Presents a comprehensive approach	Describes inventory management	Provides basic management info	Provides incomplete or inaccurate info	Cannot explain inventory management
Compounding Documentation and Liquid Dosage Forms					
Creating and understanding Master Formula Records	Clearly explains the importance	Understands significance	Shows basic awareness	Demonstrates limited awareness	No understanding of importance
Policies, procedures, and standards of practice	Demonstrates in-depth knowledge	Understands pharmacy standards	Shows basic awareness	Demonstrates limited awareness	No understanding of standards

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Assessment Criteria	Excellent (4)	Proficient (3)	Competent (2)	Developing (1)	Not Evident (0)
Documentation: Certificate of Analysis, MSDS, and	Accurately describes each type of	Describes documentation types	Provides basic information	Provides incomplete or inaccurate info	Cannot describe documentation types
logbooks	documentation and their purpose	and their purpose	with minor inaccuracies		
Practical techniques for preparing liquid dosage	Demonstrates flawless techniques	Shows proficient techniques	Demonstrates basic techniques	Struggles with techniques	Cannot perform practical techniques
forms					
Guidelines for reconstitution, dilution, and	Expertly explains guidelines for	Clearly explains guidelines for	Provides basic guidelines	Provides incomplete or inaccurate info	Cannot explain guidelines
administration of liquid forms	reconstitution, dilution, and	reconstitution, dilution, and	with minor inaccuracies		
	administration	administration			